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 2022.
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

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(1): ☐

Note: Regulation S-T Rule 101(b)(1) only permits the submission in paper of a Form 6-K if submitted solely to provide an attached annual report to security holders.

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(7): ☐

Sociedad Química y Minera de Chile S.A. (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 25, 2022, the Company issued technical report summaries for each of the Salar de Atacama property, the Mt. Holland Lithium Project, 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, 96.3 and 96.4, respectively, to this Report on Form 6-K and incorporated herein by reference.

Exhibits

23.1	Consent of Alvaro Henriquez, WSP Ambiental S.A., regarding the Nueva Victoria property Technical Report Summary
23.2	Consent of Alvaro Henriquez, WSP Ambiental S.A., regarding the Salar de Atacama property Technical Report Summary
23.3	Consent of Alvaro Henriquez, WSP Ambiental S.A., regarding the Pampa Orcoma property Technical Report Summary
23.4	Consent of Rodrigo Riquelme Tapia, GeoInnova regarding the Salar de Atacama property Technical Report Summary
23.5	Consent of Gino Slanzi, WSP Ambiental S.A., regarding the Salar de Atacama property Technical Report Summary
23.6	Consent of Gino Slanzi, WSP Ambiental S.A., regarding the Pampa Orcoma property Technical Report Summary
23.7	Consent of Gino Slanzi, WSP Ambiental S.A., regarding the Nueva Victoria property Technical Report Summary
23.8	Consent of Donald Hulse, WSP Ambiental S.A., regarding the Pampa Orcoma property Technical Report Summary
23.9	Consent of David Billington, Covalent Lithium, regarding the Mt. Holland Lithium Project Technical Report Summary
23.10	Consent of Kerry Griffin, Mining Plus Ltd., regarding the Mt. Holland Lithium Project Technical Report Summary
23.11	Consent of Andrés Fock, SQM, regarding the Mt. Holland Lithium Project Technical Report Summary
23.12	Consent of Donald Hulse, WSP Ambiental S.A., regarding the Nueva Victoria property Technical Report Summary
96.1	Technical Report Summary regarding the Salar de Atacama property, prepared by WSP Ambiental S.A., dated April 25, 2022
96.2	Technical Report Summary regarding the Mt. Holland Lithium Project, prepared by WSP Ambiental S.A., dated April 25, 2022
96.3	Technical Report Summary regarding the Pampa Orcoma property, prepared by WSP Ambiental S.A., dated April 25, 2022
96.4	Technical Report Summary regarding the Nueva Victoria property, prepared by WSP Ambiental S.A., dated April 25, 2022

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 25, 2022

By: /s/ Gerardo Illanes
Gerardo Illanes
CFO

Exhibit 23.1

CONSENT OF QUALIFIED PERSON

I, Álvaro Henríquez, 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 25, 2022, 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, 2021, 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/ Álvaro Henríquez
Álvaro Henríquez

Dated at Santiago, Chile on April 25, 2022

Exhibit 23.2

CONSENT OF QUALIFIED PERSON

I, Álvaro Henríquez, 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 25, 2022, 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, 2021, 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/Álvaro Henríquez
Álvaro Henríquez

Dated at Santiago, Chile on April 25, 2022

Exhibit 23.3

CONSENT OF QUALIFIED PERSON

I, Álvaro Henríquez, 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 25, 2022, 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, 2021, 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/ Álvaro Henríquez
Álvaro Henríquez

Dated at Santiago, Chile on April 25, 2022

Exhibit 23.4

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 25, 2022, 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, 2021, 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/ Rodrigo Riquelme Tapia
Rodrigo Riquelme Tapia

Dated at Santiago, Chile on April 25, 2022

Exhibit 23.5

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 25, 2022, 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, 2021, 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/ Gino Slanzi
Gino Slanzi

Dated at Santiago, Chile on April 25, 2022

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, Pampa Orcoma” with an effective date of April 25, 2022, 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, 2021, 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/ Gino Slanzi
Gino Slanzi

Dated at Santiago, Chile on April 25, 2022

Exhibit 23.7

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 25, 2022, 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, 2021, 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/ Gino Slanzi

Gino Slanzi

Dated at Santiago, Chile on April 25, 2022

Exhibit 23.8

CONSENT OF QUALIFIED PERSON

I, Donald Hulse, 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 25, 2022, 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, 2021, 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/ Donald Hulse
Donald Hulse

Dated at Santiago, Chile on April 25, 2022

Exhibit 23.9

CONSENT OF QUALIFIED PERSON

I, David Billington, consent to:

- the filing and use of the technical report summary titled “Technical Report Summary of Mineral Reserves and Mineral Resources for the Mt. Holland Lithium Project dated April 25, 2022 (the “Technical Report Summary”) as an exhibit to this Report on Form 6-K (the “Form 6-K”) of Sociedad Química y Minera de Chile S.A. (the “Company”) and referenced in the Company’s Annual Report on Form 20-F for the year ended December 31, 2021 and any amendments or supplements and/or exhibits thereto (collectively, the “Form 20-F”);

- the incorporation by reference of the Technical Report Summary into the Form 20-F and the Company’s Registration Statement on Form F-3ASR (Registration No. 333- 254538) (the “Registration Statement”);

- the use of and references to my name, including my status as an expert or “qualified person” (as defined in Subpart 1300 of Regulation S-K promulgated by the Securities and Exchange Commission), in connection with the Form 20-F, the Form 6-K and the Technical Report Summary; and

- the extracts from or summary of the Technical Report Summary included in the Form 6-K and the Form 20-F and incorporated by reference into the Registration Statement and the use of any information derived, summarized, quoted or referenced from the Technical Report Summary, or portions thereof, that were prepared by me, that I supervised the preparation of and/or that was reviewed and approved by me, that is included or incorporated by reference in the Form 20-F and the Registration Statement.

I confirm that I have read the portions of the Form 20-F relating to the parts of the Technical Report Summary for which I am responsible, and that such portions of the Form 20-F fairly and accurately reflect such information.

By /s/ David Billington
David Billington
Mining Engineer
Covalent Lithium

Date: April 25, 2022

Exhibit 23.10

CONSENT OF QUALIFIED PERSON

I, Kerry Griffin, consent to:

- the filing and use of the technical report summary titled “Technical Report Summary of Mineral Reserves and Mineral Resources for the Mt. Holland Lithium Project dated April 25, 2022 (the “Technical Report Summary”) as an exhibit to this Report on Form 6-K (the “Form 6-K”) of Sociedad Química y Minera de Chile S.A. (the “Company”) and referenced in the Company’s Annual Report on Form 20-F for the year ended December 31, 2021 and any amendments or supplements and/or exhibits thereto (collectively, the “Form 20-F”);

- the incorporation by reference of the Technical Report Summary into the Form 20-F and the Company’s Registration Statement on Form F-3ASR (Registration No. 333- 254538) (the “Registration Statement”);

- the use of and references to my name, including my status as an expert or “qualified person” (as defined in Subpart 1300 of Regulation S-K promulgated by the Securities and Exchange Commission), in connection with the Form 20-F, the Form 6-K and the Technical Report Summary; and

- the extracts from or summary of the Technical Report Summary included in the Form 6-K and the Form 20-F and incorporated by reference into the Registration Statement and the use of any information derived, summarized, quoted or referenced from the Technical Report Summary, or portions thereof, that were prepared by me, that I supervised the preparation of and/or that was reviewed and approved by me, that is included or incorporated by reference in the Form 20-F and the Registration Statement.

I confirm that I have read the portions of the Form 20-F relating to the parts of the Technical Report Summary for which I am responsible, and that such portions of the Form 20-F fairly and accurately reflect such information.

By /s/ Kerry Griffin
Kerry Griffin
Geologist
Mining Plus Ltd.

Date: April 25, 2022

Exhibit 23.11

CONSENT OF QUALIFIED PERSON

I, Andrés Fock, consent to:

- the filing and use of the technical report summary titled "Technical Report Summary of Mineral Reserves and Mineral Resources for the Mt. Holland Lithium Project dated April 25, 2022 (the "Technical Report Summary") as an exhibit to this Report on Form 6-K (the "Form 6-K") of Sociedad Química y Minera de Chile S.A. (the "Company") and referenced in the Company's Annual Report on Form 20-F for the year ended December 31, 2021 and any amendments or supplements and/or exhibits thereto (collectively, the "Form 20-F");

- the incorporation by reference of the Technical Report Summary into the Form 20-F and the Company's Registration Statement on Form F-3ASR (Registration No. 333- 254538) (the "Registration Statement");

- the use of and references to my name, including my status as an expert or "qualified person" (as defined in Subpart 1300 of Regulation S-K promulgated by the Securities and Exchange Commission), in connection with the Form 20-F, the Form 6-K and the Technical Report Summary; and

- the extracts from or summary of the Technical Report Summary included in the Form 6-K and the Form 20-F and incorporated by reference into the Registration Statement and the use of any information derived, summarized, quoted or referenced from the Technical Report Summary, or portions thereof, that were prepared by me, that I supervised the preparation of and/or that was reviewed and approved by me, that is included or incorporated by reference in the Form 20-F and the Registration Statement.

I confirm that I have read the portions of the Form 20-F relating to the parts of the Technical Report Summaries for which I am responsible, and that such portions of the Form 20-F fairly and accurately reflect such information.

By /s/ Andrés Fock
Andrés Fock
Project Manager
SQM

Date: April 25, 2022

Exhibit 23.12

CONSENT OF QUALIFIED PERSON

I, Donald Hulse, 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 25, 2022, 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, 2021, 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/ Donald Hulse
Donald Hulse

Dated at Santiago, Chile on April 25, 2022

Exhibit 96.1

TECHNICAL REPORT SUMMARY

OPERATION REPORT

SALAR DE ATACAMA

Sociedad Química y Minera de Chile

April 2022

TECHNICAL REPORT SUMMARY

OPERATION REPORT

SALAR DE ATACAMA

Sociedad Química y Minera de Chile

WSP-SQM0011-TRS-Salar-Rev1
April 2022

WSP
Av. Las Condes 11.700, Vitacura.
Santiago, Chile

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wsp.com

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FIGURES

APPENDIX

1 EXECUTIVE SUMMARY

1.1 Property and Mineral Rights

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

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

1.2 Geology and Mineralization

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

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

1.3 Mineral Resource Estimate

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

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

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

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

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

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

Notes:

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

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

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

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

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

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

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

1.4 Mineral Reserve Estimate

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

1.5 Mining Method

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

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

1.6 Metallurgy and Mineral Processing

1.6.1 Metallurgical Testing

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

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

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

1.6.2 Brine and Salt Processing

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

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

SQM's production process is characterized by being integrated (i.e., exchanging raw materials and products with each other). The Carmen Lithium Chemical Plant (PQC) has production facilities that comprise a Lithium Carbonate Plant and a Lithium Hydroxide Plant. The Production capacity of the lithium carbonate plant at Carmen Lithium Chemical Plant (PQC) is 120,000 metric tons per year, with plans to increase to 180,000 metric tons per year. The lithium hydroxide plant has a production capacity of 21,500 metric tons per year (Mtpy) by 2022, with plans to increase production capacity to 30,000 Mtpy by 2022.

1.7 Capital Costs, Operating Costs and Financial Analysis

1.7.1 Capital and Operating Costs

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

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

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

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

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

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

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

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

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

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

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

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

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

1.7.2 Economic Analysis

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

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

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

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

Table 1-4. Assumptions for the Base Case

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

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

Table 1-5. Projected Sales of Lithium and KCl

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

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

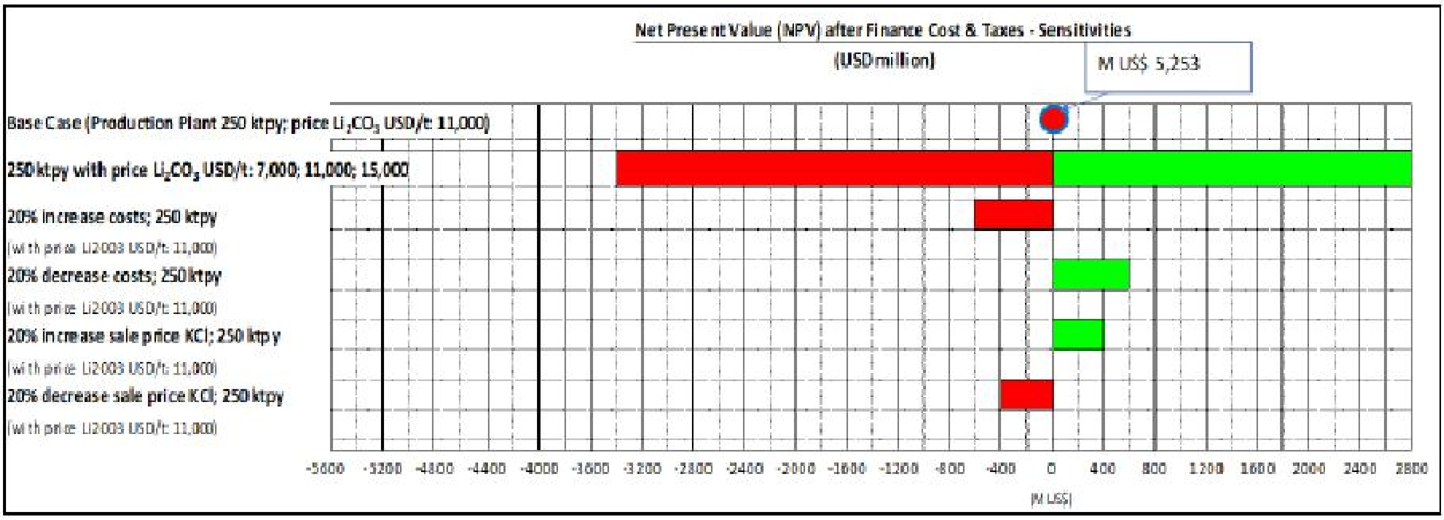
The Net Present Value (NPV) estimates for Salar de Atacama and PQC production are provided in Table 1-6.

Table 1-6. Estimated Cashflow Analysis

			2022	2023	2024	2025	2026	2027	2028	2029	2030
Revenues	M US$	-	1,768	2,199	2,357	3,127	3,127	3,127	3,127	3,127	2,907
Costs	M US$	-	-929	-1,106	-1,217	-1,534	-1,534	-1,534	-1,534	-1,534	-1,443
Investments	M US$	-	-300	-250	-350	-60	-60	-60	-30	-30	-30
Depreciation	M US$	-	116	122	126	136	136	136	136	136	133
Cashflow before Financial Costs and Taxes	M US$	-	655	965	915	1,668	1,668	1,668	1,698	1,698	1,566
Financial Costs (FC)	M US$	-	-40	-40	-40	-40	-40	-40	-40	-40	-40
Taxes	-	28%	-172	-259	-245	-456	-456	-456	-464	-464	-427
Cashflow after Financial Costs and Taxes	M US$	-	443	666	630	1,172	1,172	1,172	1,194	1,194	1,099
Net Present Value (NPV) before Financial Cost & Taxes. (M US$)		10%	7,526								
Net Present Value (NPV) after Financial Cost & Taxes. (M US$)		10%	5,253								

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

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



1.8 Conclusions and Recommendations

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

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

2 INTRODUCTION AND TERMS OF REFERENCE

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

2.1 Terms of Reference and Purpose of the Report

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

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

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

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

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

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

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

Table 2-1. Acronyms and Abbreviations

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

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

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

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

2.2 Source of Data and Information

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

2.3 Details of Inspection

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

Table 2-2. Site visits

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

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

2.4 Previous Reports on Project

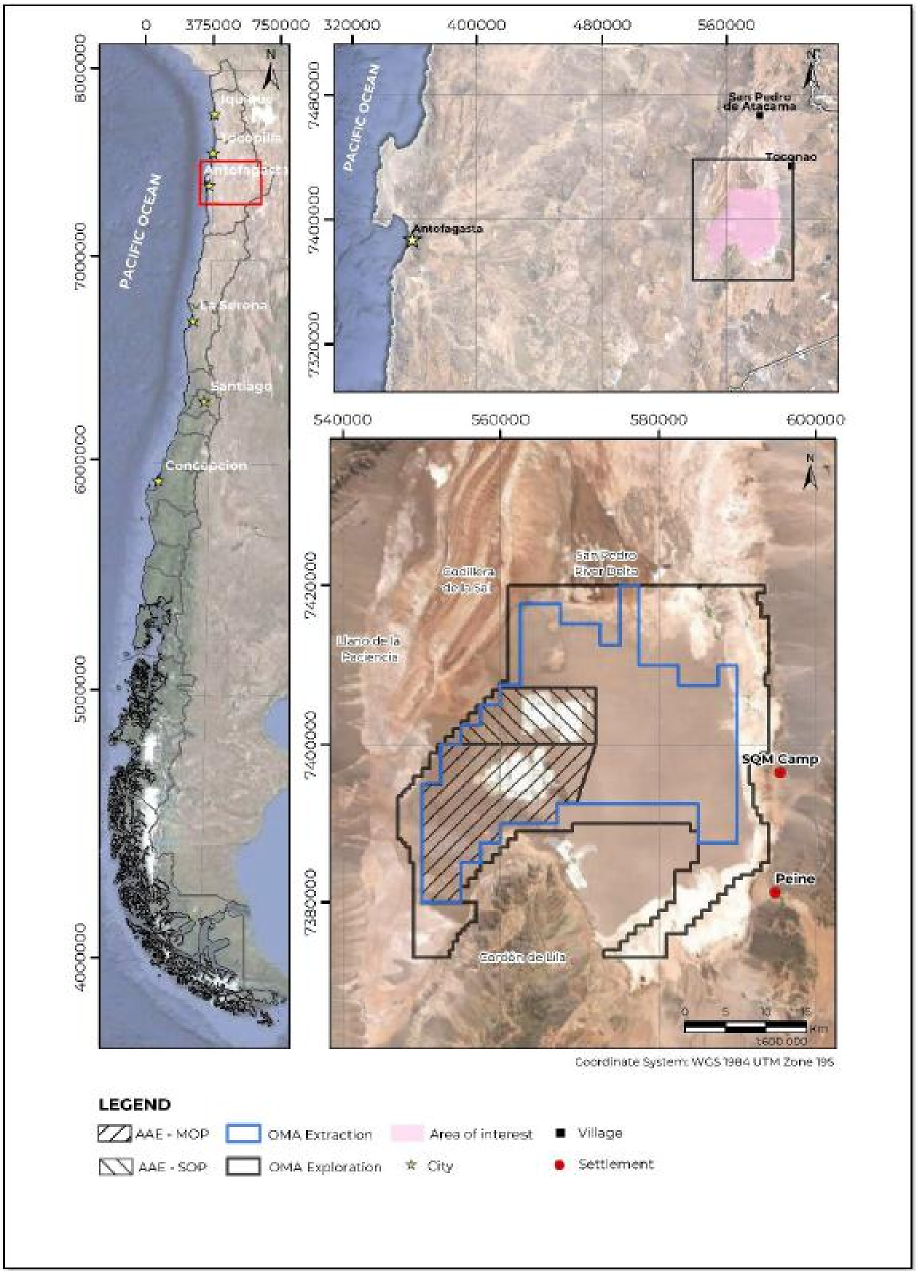
This is the first TRS prepared for SQM's Salar de Atacama brine deposit. This TRS is not an update of a previously filed TRS.

3 PROPERTY DESCRIPTION

3.1 Property Location

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

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



3.2 Lease Agreement and Mineral Rights

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

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

3.3 Environmental Impacts and Permitting

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

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

3.4 Other Significant Factors and Risks

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

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

3.5 Royalties and Agreements

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

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

4 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

4.1 Topography, Elevation, and Vegetation

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

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

4.2 Accessibility and Transportation to the Property

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

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

4.3 Climate

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

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

4.4 Infrastructure Availability and Sources

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

5 HISTORY

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

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

- Ramírez and Gardeweg (1982): Sernageomin geological map of the Salar de Atacama Basin at 1:250,000 scale with an accompanying 117-page memoir (Carta Geológica de Chile, Serie Geología Básica, N° 54, Hoja Toconao).

- Hydrotechnica (1987). Evaluation of Brine Reserves in the Salar de Atacama. Report that summarizes a drilling campaign, hydraulic test, and drainable porosity studies to characterize hydraulic parameters in the nucleus of Salar de Atacama as well as the reserves.

- Bevacqua (1992): Universidad Católica del Norte, Antofagasta, Chile. Geology thesis titled, "Geomorfología del Salar de Atacama y Estratigrafía de su Núcleo y Delta" (Geomorphology of the Salar de Atacama and Stratigraphy of its Nucleus and Delta). Includes the evaluation of hydraulic parameters of the salt flat nucleus based on data from field campaigns, conducted by MINSAL and CORFO. Information analyzed includes diamond core data, pumping test results, and drainable porosity estimates.

- SQM (1993): In 1993, based on an agreement with MINSAL, SQM implemented a project to produce potassium chloride from the Salar de Atacama for use in fertilizer production. A pilot production wellfield began brine extraction in 1994, and was expanded in 1996, with technical support provided by the consulting firm, Water Management Consultants (WMC).

- Water Management Consultants. (1993). Salar de Atacama. Southwest Corner Investigation. 1150/2, Prepared for Minsal S.A. Geological and hydrogeological characterization of the southeast corner of Salar de Atacama. Includes drainable porosity characterization.

- Alonso & Risacher (1996): Evaluation of the water balance and geochemistry of the Salar de Atacama Basin.

- Carmona (2002): Doctoral thesis (2002) that further develops the evaluation of the water balance and geochemistry of the Salar de Atacama Basin.

- EIA (2005): EIA submitted by SQM in January 2005 in support of the project titled, "Cambios y Mejoras de la Operación Minera en el Salar de Atacama" (Changes and Improvements of the Mining Operation in the Salar de Atacama). SQM received the corresponding environmental approval (RCA 226/2006) for the project in October 2006. A numerical model was developed to evaluate how the hydrological system of the Salar de Atacama would react over time from the extraction of (a) brine from the salt flat nucleus for mineral extraction; and (b), fresh groundwater from the marginal zone to supply SQM's mining operation.

- Jordan et al (2002; 2007), and Arriagada, Cobbolds & Roperch (2006): Evaluation of seismic reflection data obtained out by ENAP during the 1980s. The analysis identified compressive deformation and a correlation between sediment deposition and tectonic events.

- Geohidrología Consultores (2007): Supervision of the construction of monitoring wells in accordance with the conditions of the environmental permit awarded with respect to the 2005 EIA.

- AMPHOS XXI Consulting (2008): Hydrogeological analysis of data collected during the 2007 monitoring well construction campaign, and development of a hydrogeological model to support the hydrogeological evaluation of the Soncor wetland system in the marginal zone to the northeast of the nucleus of the Salar de Atacama.

- Xterrae Geología (2011): Preparation of a digital model of the 3D distribution of hydrogeological units of the Salar de Atacama Basin based on field and laboratory data compiled by SQM. Model prepared by Xterrae Geología, a consulting firm based in Santiago, Chile.

- Niemeyer (2013): Geological mapping of the high ground of the Cordón de Lila, to the south of the nucleus of the Salar de Atacama, at a scale of 1: 100,000.

- Becerra et al. (2014): "Geología del área Salar de Atacama, región de Antofagasta. Servicio Nacional de Geología y Minería" (Geology of the Salar de Atacama Area, Antofagasta Region, Sernageomin). Conducted a geological survey of the Salar de Atacama areas (scale 1: 100,000).

- Henriquez et al. (2014): "Geología del Área San Pedro de Atacama, Región de Antofagasta. Servicio Nacional de Geología y Minería" (Geology of the San Pedro de Atacama Area, Antofagasta Region, Sernageomin). Conducted a geological survey in San Pedro de Atacama (scale 1: 100,000).

- Xterrae Geología (2015): Update of the model of the 3D distribution of hydrogeological units of the Salar de Atacama Basin, incorporating field and laboratory data compiled by SQM since completion of the 2011 model.

- SQM (2018): Updated estimate of the Salar de Atacama brine resource, supported by the development of a detailed model of the hydrogeological stratigraphy within the salt flat nucleus.

- SQM (2019): Update of the model of the 3D distribution of hydrogeological units of the Salar de Atacama Basin, incorporating field and laboratory data compiled by SQM since the 2015 update of the model by Xterrae Geología. The data set for this update includes information from SQM drilling campaigns up until January 2019 and the local detailed model of the hydrogeological stratigraphy within the nucleus of the salt flat developed by SQM in 2018.

6 GEOLOGICAL SETTING, MINERALIZATION, AND DEPOSIT

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

6.1 Regional Geology

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

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

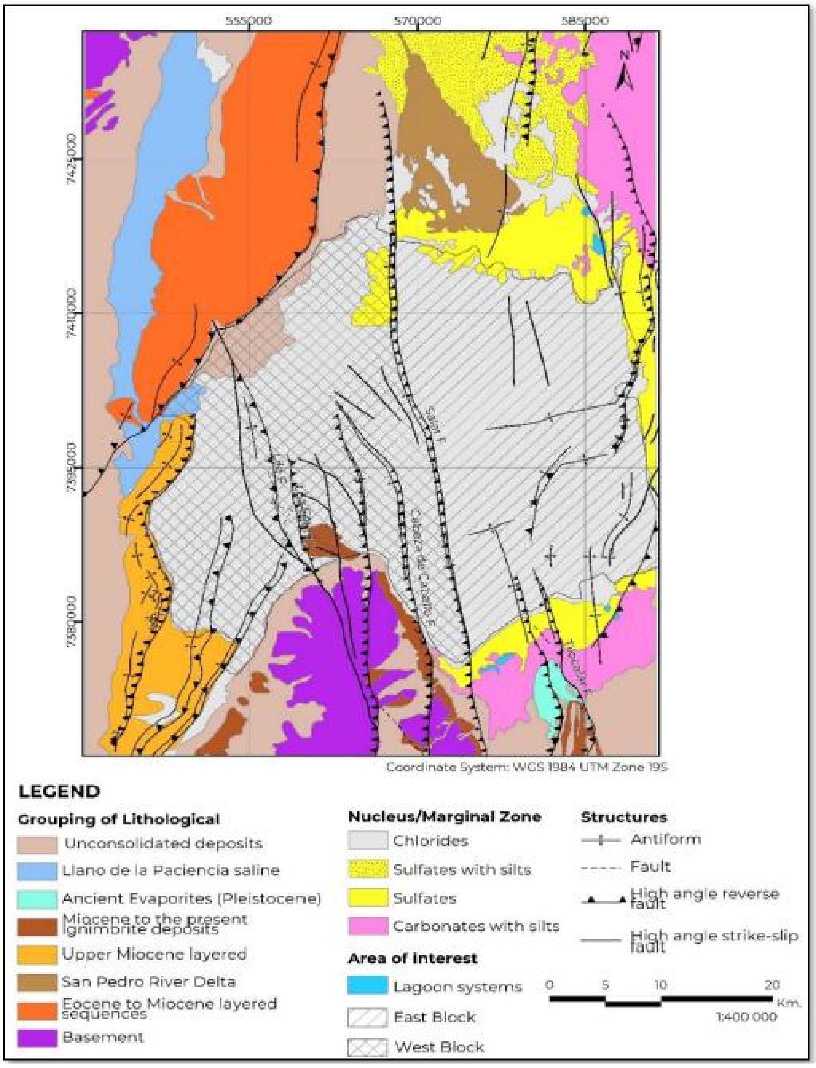
Consolidated ash flows from ignimbrite deposits of the Miocene age to present day unconformably overlie basement rock and cover large areas of the Cordillera Occidental and slopes of the Cordón de Lila. Furthermore, Oligocene to Holocene unconsolidated deposits of alluvial, fluvial, and eolian origin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

6.2 Local Geology

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

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

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



6.3 Property Geology

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

6.3.1 Upper Halite

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

6.3.2 Clastic and Upper Evaporites

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

6.3.3 Halite, Gypsum, and Carbonates with Organic Matter

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

6.3.4 Intermediate Halite

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

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

6.3.5 Evaporites and Intermediate Volcanoclastics

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

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

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

6.3.6 Lower Halite

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

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

6.3.7 Regional Clays

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

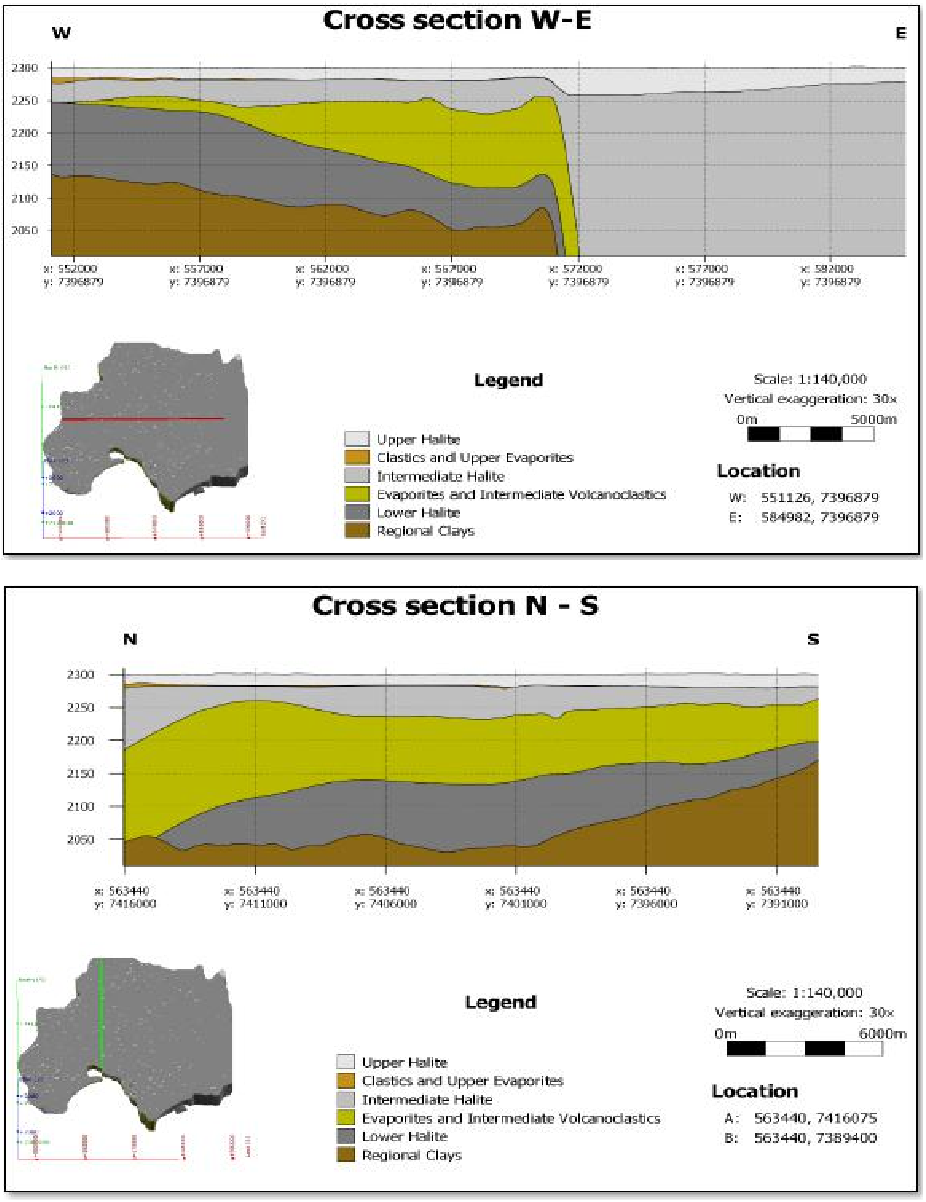
Underlaying the shallower sections of the Regional Clays, a deep tuff layer can be found with a mean thickness of 5 m. It consists of a thin crystalline - pumice tuff with abundant biotite, feldspars, and sparse quartz.

6.3.8 Geological Sections and the Stratigraphic Column

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

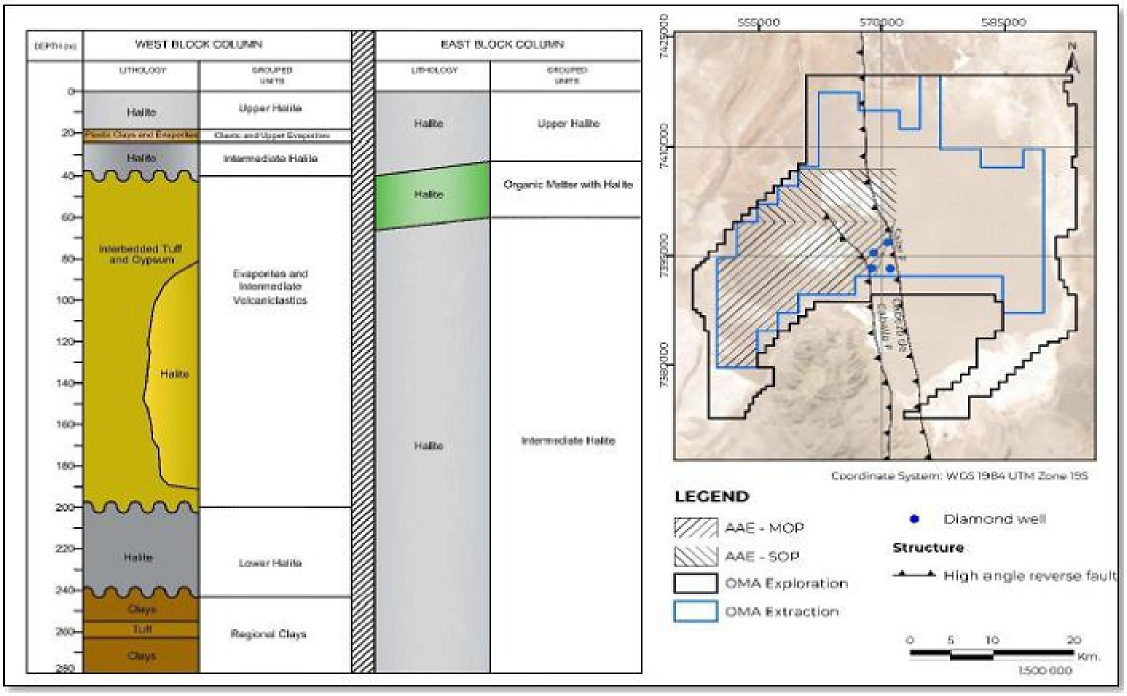
As a result of fault displacement and deformation, the East and the West blocks of the Salar de Atacama present important differences in the depths of the lithologic contacts. The west-east cross section highlights the displacement of the units due to the Salar and Cabeza de Caballo faults and shows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

Figure 6-2. Geological Cross Sections



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

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



6.4 Deposit Types

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

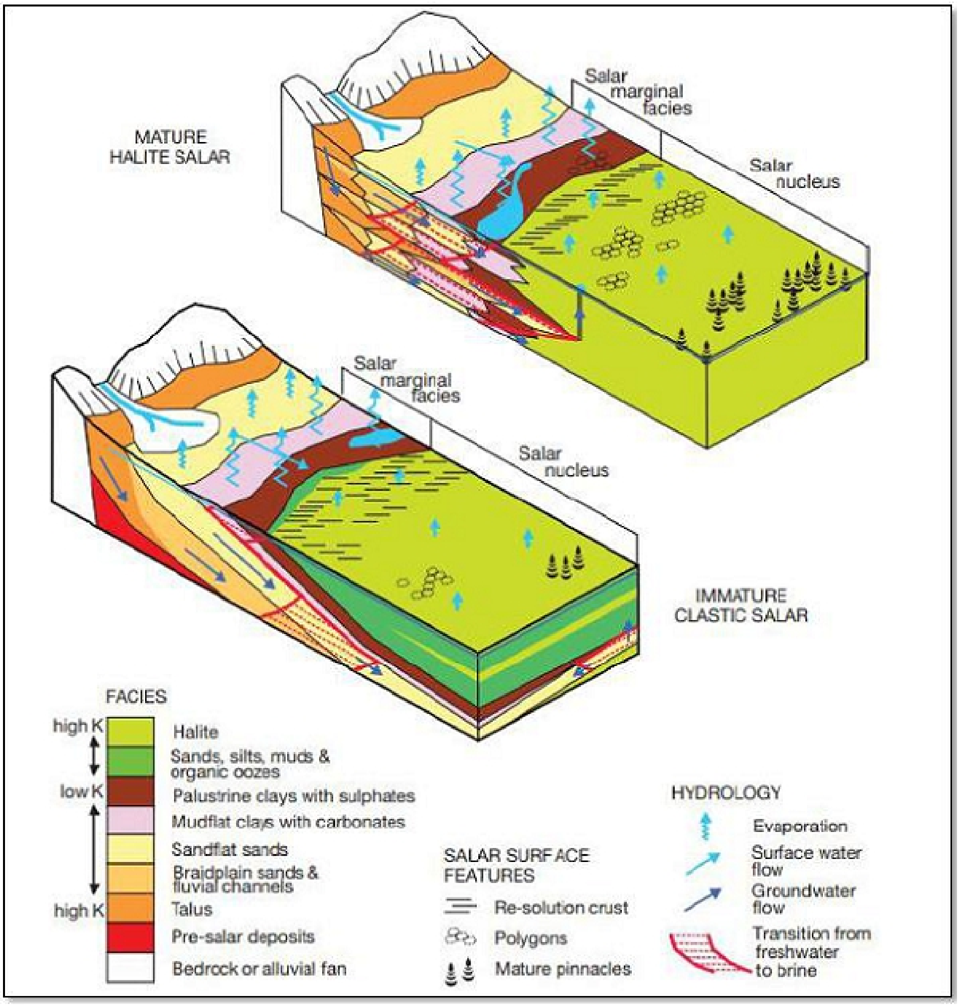
- Mature Salt Flats: “Dry” salt flats have a lower moisture flux and well-defined halite nucleus. They are characterized by the development of a relatively uniform sequence of deposited halite in subaqueous to subaerial conditions. Brines are normally found above the saturation point of halite and solute concentrations are generally higher than those of immature salt flats.

- Immature Salt Flats: “Wet” salt flats which are characterized by a sequence of alternating fine clastic sediments and evaporites (halite, ulexite, and/or gypsum). The contained brines rarely reach halite saturation, suggesting the absence of a hyper arid climate during their formation. Immature salt flats tend to be more frequent at higher elevations and toward the wetter northern and eastern portions of the Altiplano-Puna region.

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

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

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



7 EXPLORATION

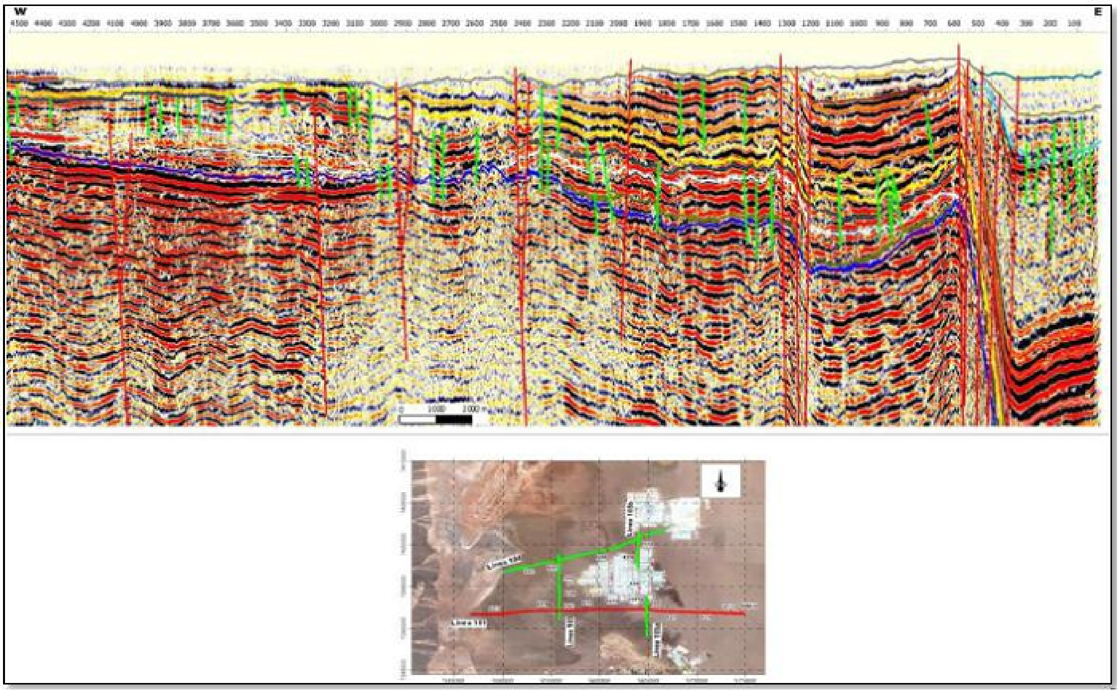
This chapter provides an overview of exploration work that has contributed to the development of the geological and hydrogeological conceptual models of the Project.

7.1 Geophysical Surveys

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

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

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



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

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

Table 7-1. Summary of the Conducted Geophysical Datasets

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

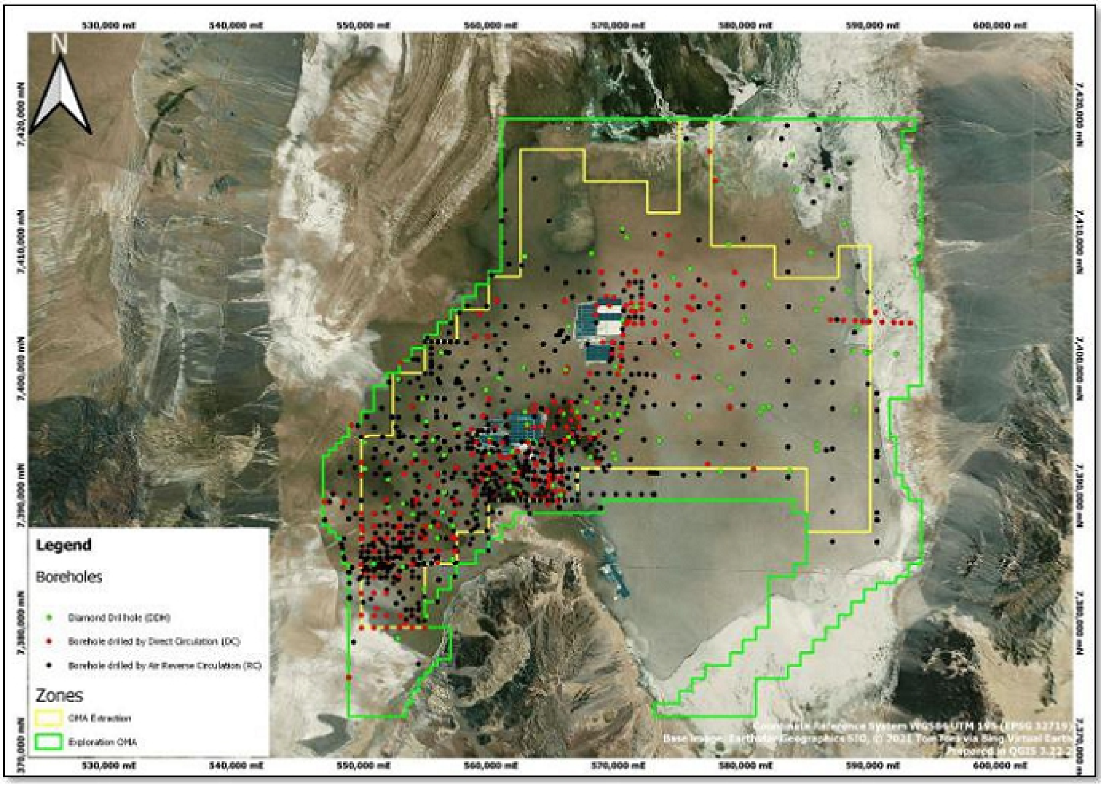
Table 7-2. Summary of the Conducted Borehole Geophysics

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

7.2 Exploration Drilling

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

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



7.2.1 Porosity Characterization

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

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

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

Table 7-3. Summary of Boreholes with Porosity Measurements

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

Figure 7-3. Distribution of Boreholes with Porosity Measurements

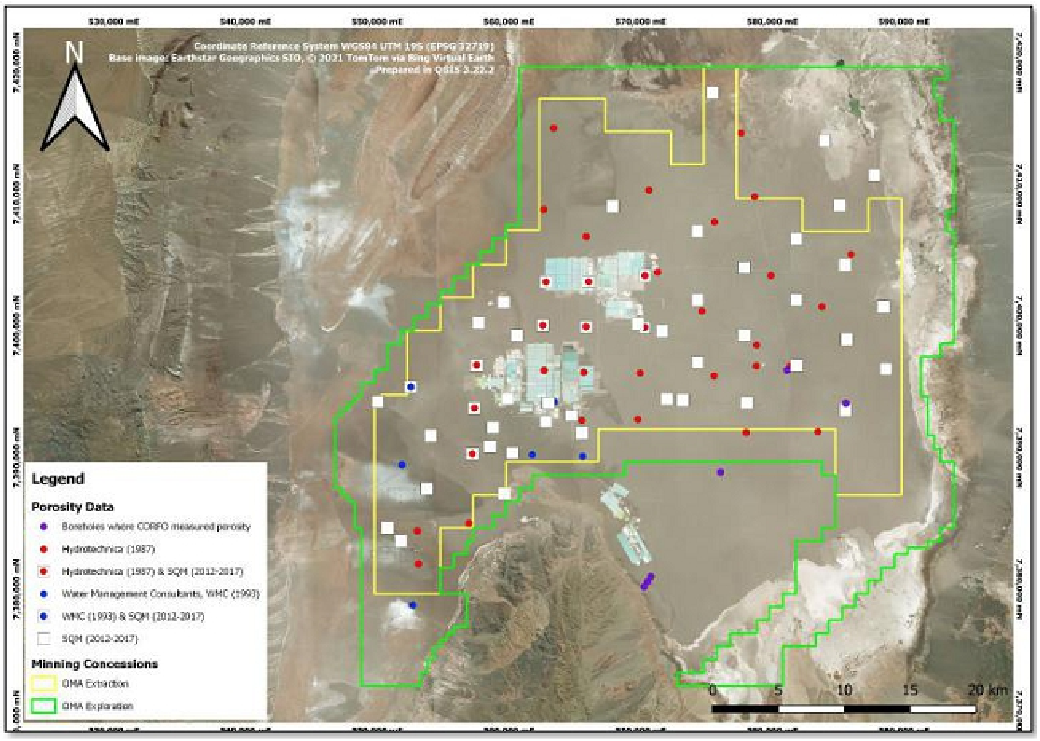
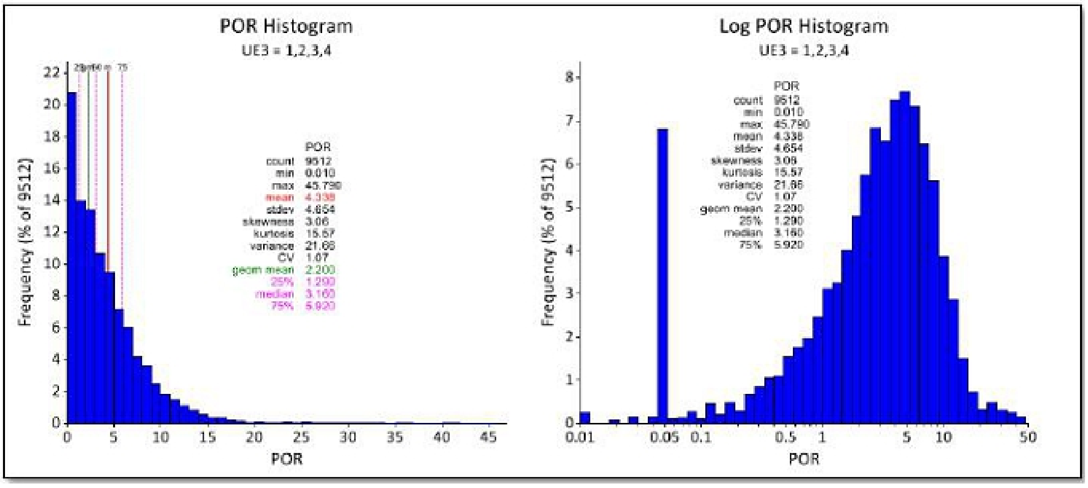


Figure 7-4. Effective Porosity (%) Histogram of the Upper Halite, Intermediate Halite, and Halite with Organic Matter



7.2.2 Brine Sampling

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

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

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

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

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

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

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

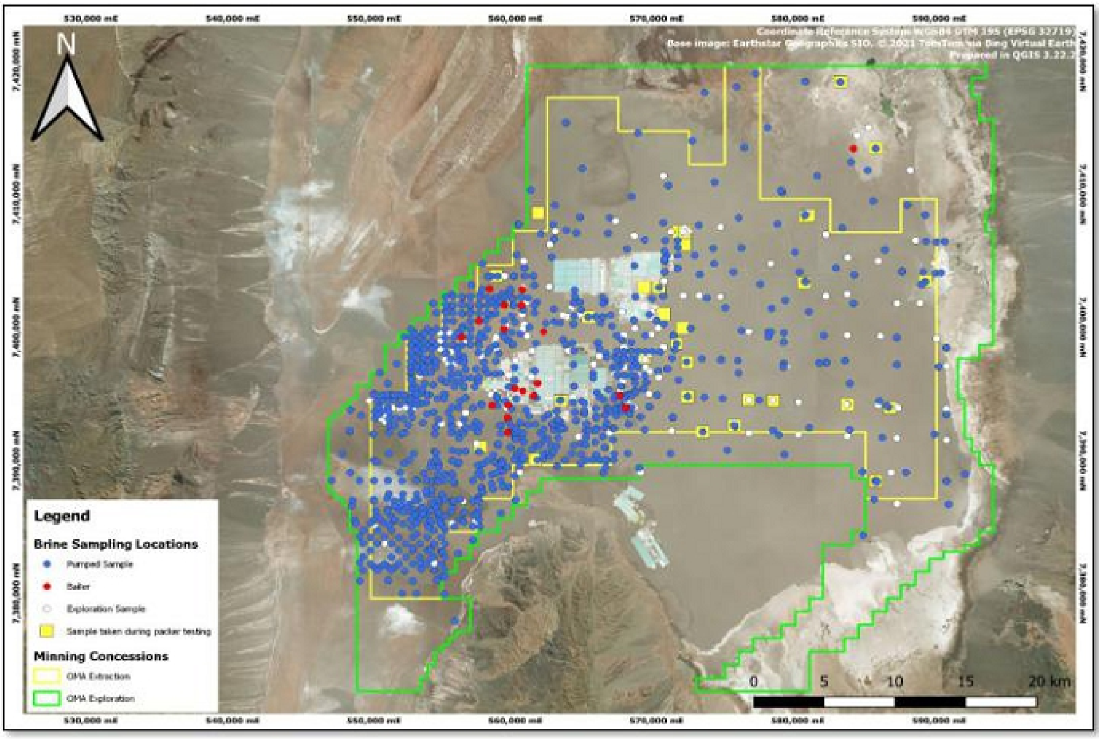
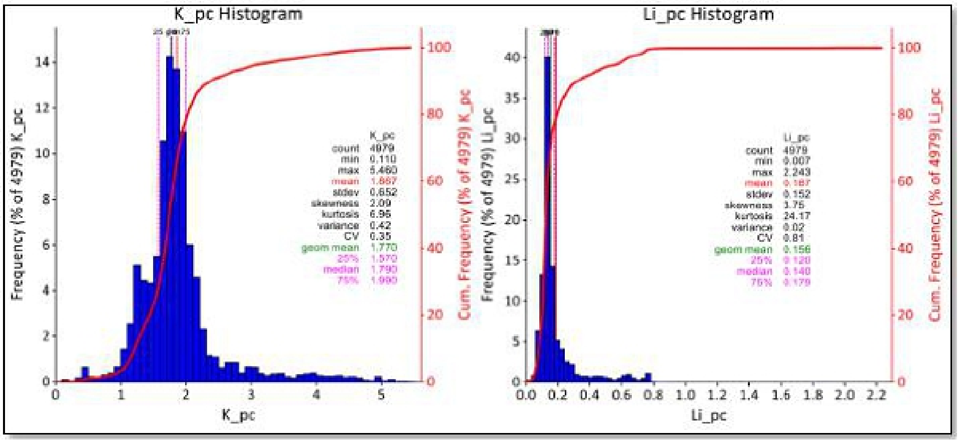


Figure 7-6 shows the histograms of the brine chemistry dataset for Li and K after filtering the data for potential anomalies and errors. Mean, minimum (min), and maximum (max) concentrations for each analyzed solute are also included (Figure 7-6) from the extensive dataset of nearly 5,000 brine samples.

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



7.3 Conceptual Hydrogeology

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

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

7.3.1 Hydrogeological Units

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

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

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

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

Figure 7-7. Hydraulic Testing Locations, OMA Exploration

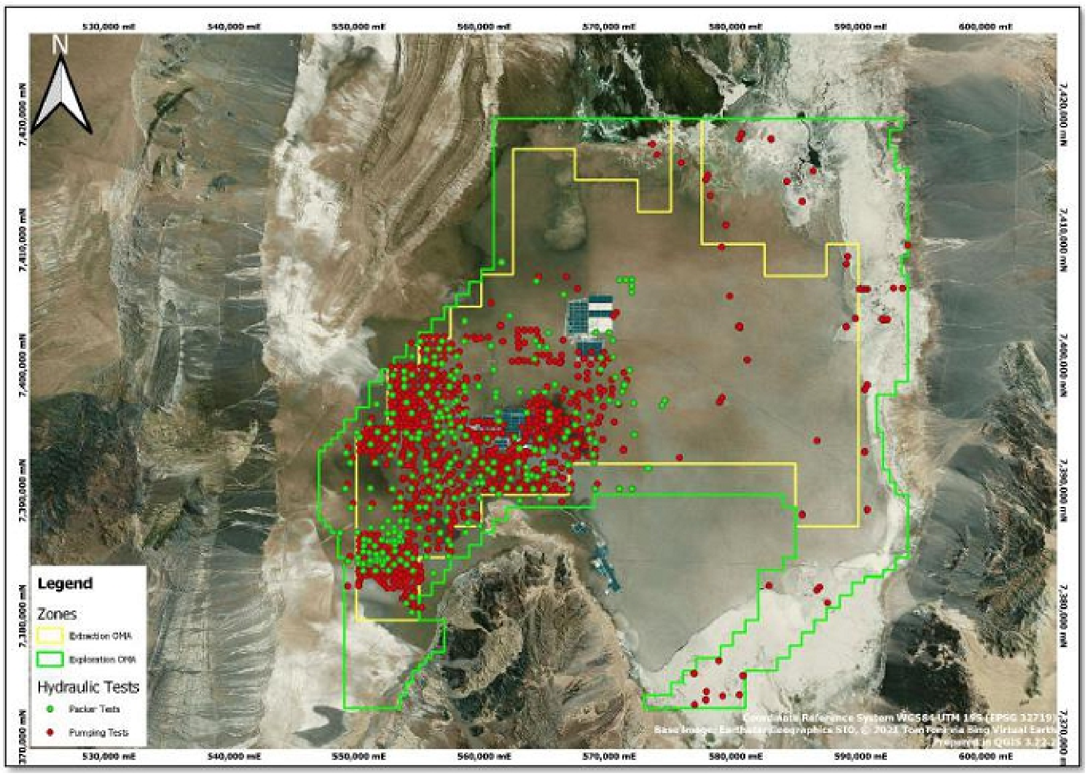


Table 7-5. Hydraulic Conductivity Ranges for each Hydrogeological Unit

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

Note: Estimated values based on the lithology

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

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

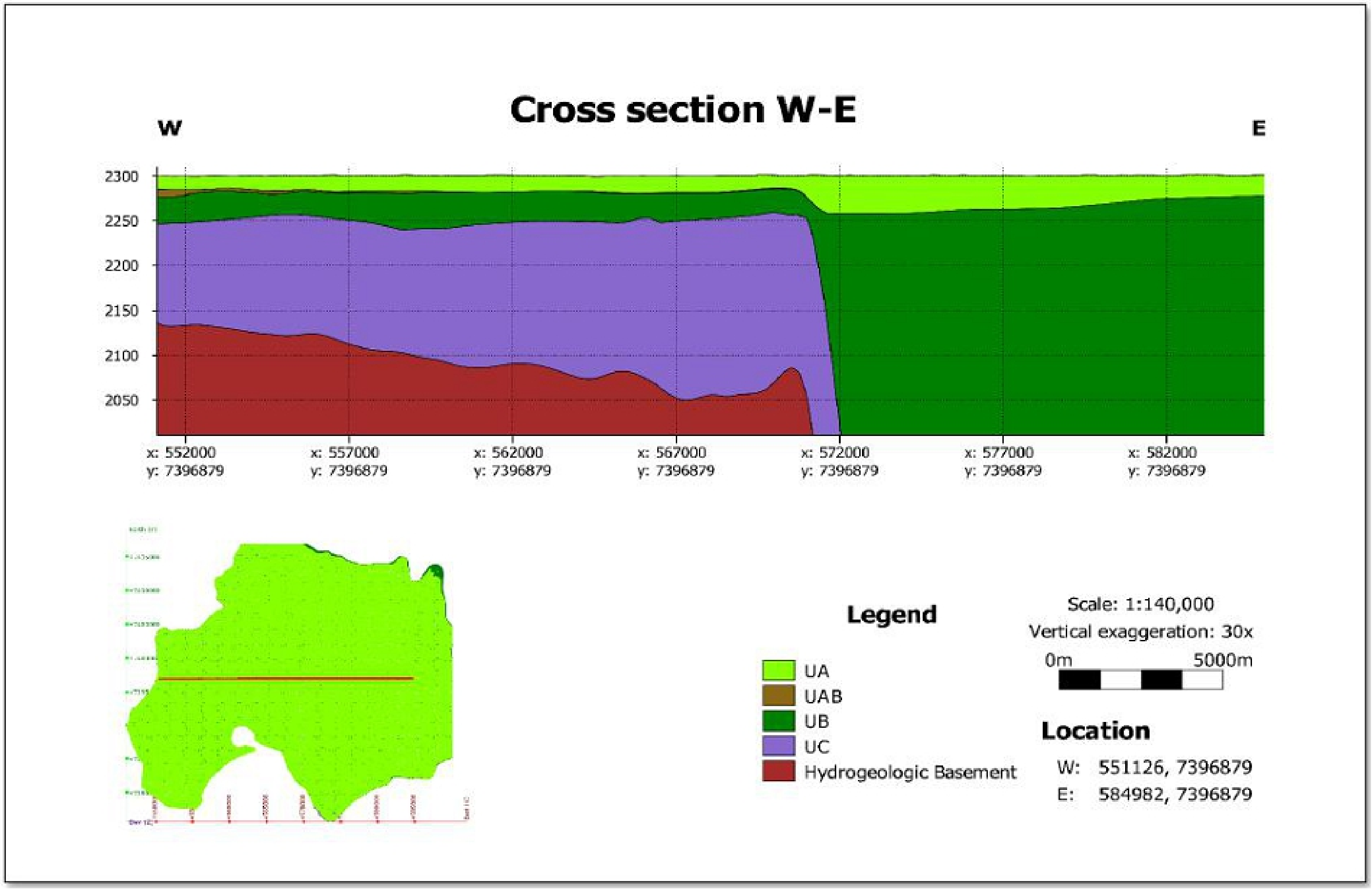
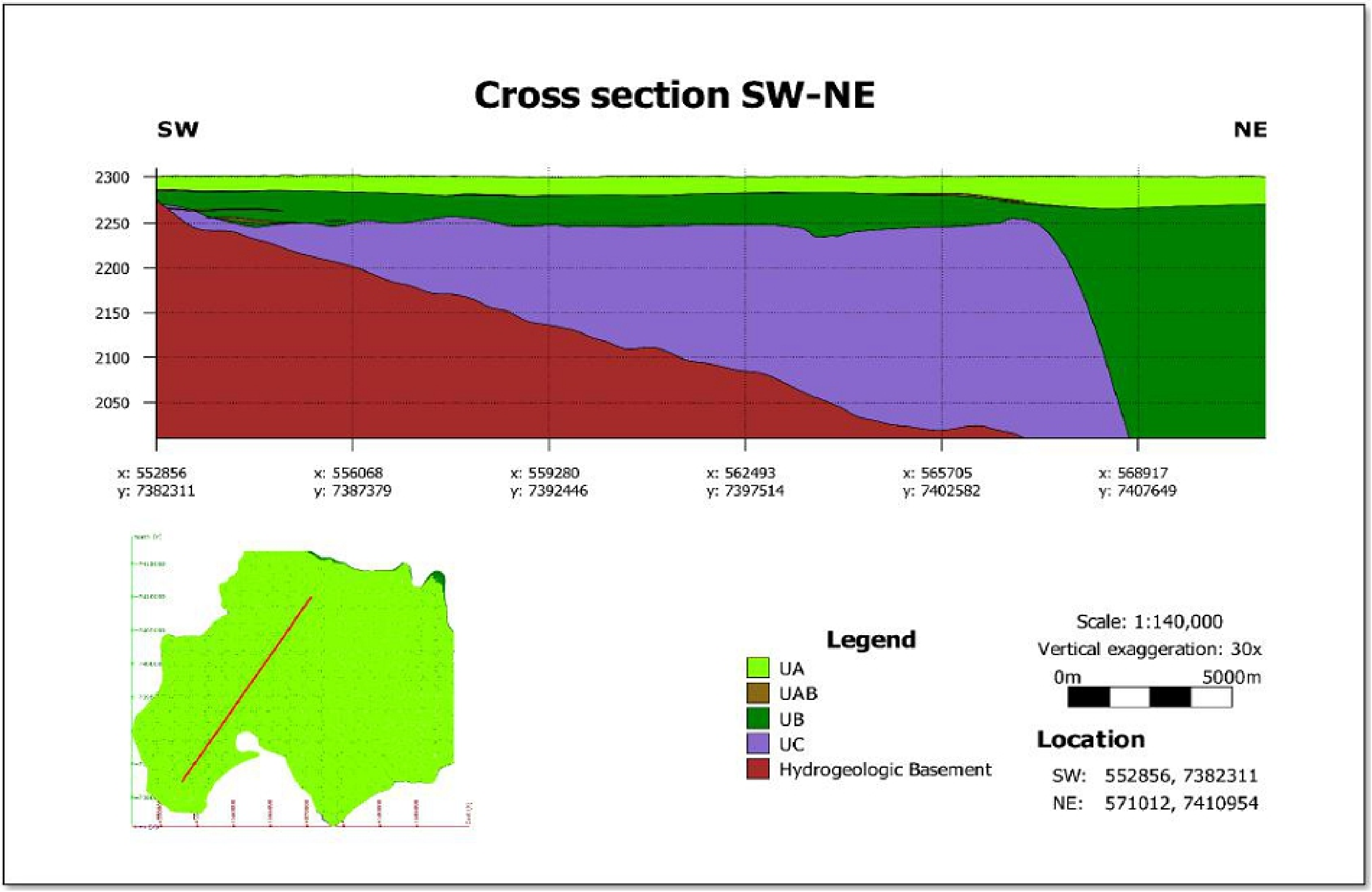


Figure 7-9. SW - NE Hydrogeological Cross Section from the Hydrogeological Model



7.4 Conceptual Water Balance

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

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

- Direct recharge, which has been estimated through methods for arid zones (DGA – DIHA PUC, 2009) that consider infiltration and runoff coefficients linked to the hydraulic characteristics of the hydrogeological units. It also considers that evaporation is more dominant than precipitation (i.e., less runoff is available) in this environment. The direct recharge of the lower zone totals 247 L/s.

- Lateral recharge from other zones, consisting of underflow from adjacent areas and runoff over low permeability units, is produced by precipitation and potential infiltration of lower density water in outlying areas of the basin. The total lateral recharge to all lower zones of the salt flat nucleus is 685 L/s.

- Surface runoff, which is generated by the liquid precipitation and streams; the portion that evaporates and infiltrates was discarded. The total runoff in the lower zone is estimated to be 19 L/s.

- Surface water evaporation, a natural discharge related to evaporation of the free water surface. A total evaporation rate of 82.1 L/s is estimated for water bodies and springs.

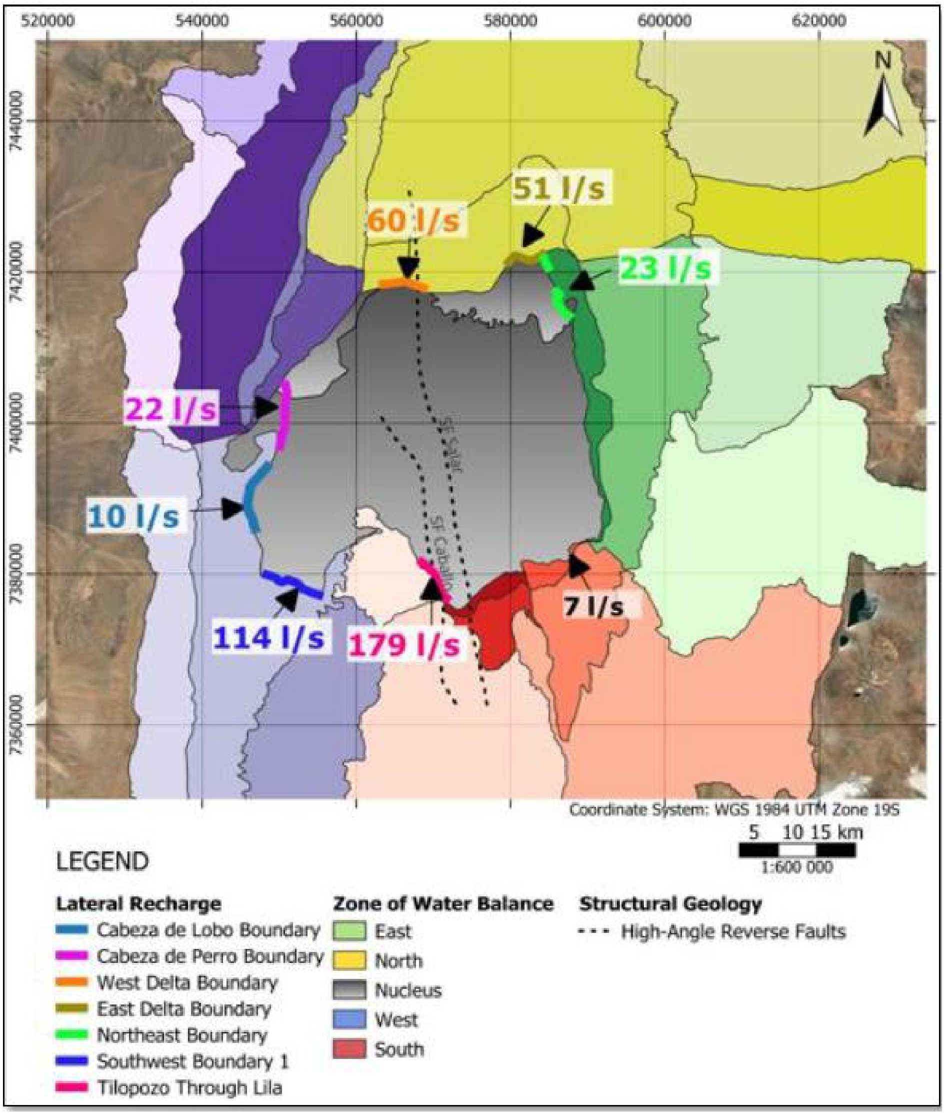
- Groundwater evaporation, corresponding to natural discharge of shallow groundwater. This component is related to the extinction depth, water density, as well as the properties of the soil surface materials. The total groundwater evaporation is estimated to be 557 L/s.

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

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

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

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



7.5 Qualified Person’s Opinion

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

7.6 Geotechnical Considerations

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

8 SAMPLE PREPARATION, ANALYSIS, AND SECURITY

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

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

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

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

8.1 Methods, Splitting and Reduction, and Security Measures

8.1.1 Brine Samples

Samples are collected in 125-mL bottles for chemical analysis and 250-mL bottles for density analysis. They are previously rinsed with the same brine from the well to be monitored, filled to the top, and then sealed and labeled with a code per sample (both bottles have the same code, but refer to different analyses). As the last stage, brine samples are recorded on a control sheet. However, a third sample can be drawn as a “counter sample” (CM) for exploration and pumping test samples, , and it is kept for two months. This sample is used to corroborate that the sample collection and analysis was correctly undertaken. Brine samples are sent to the QA/QC laboratory (Lab QA/QC) to centralize the reception activities of the brine samples from all areas, prepare shipments, prepare and insert quality control samples, and send the samples for chemical and density analysis at the Lab SA.

8.1.2 Effective Porosity Samples

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

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

8.2 Sample Preparation, Assaying and Analytical Procedures

8.2.1 Brine Samples

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

8.2.1.1 Laboratories

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

8.2.2 Effective Porosity Samples

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

8.2.3 Quality Control procedures and Quality Assurance

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

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

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

8.2.3.1 Brine Chemistry

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

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

1) Inserting duplicates for precision monitoring:

- Analytical duplicates (ADUP).

- Field Duplicates (FDUP).

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

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

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

- Analytical targets

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

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

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

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

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

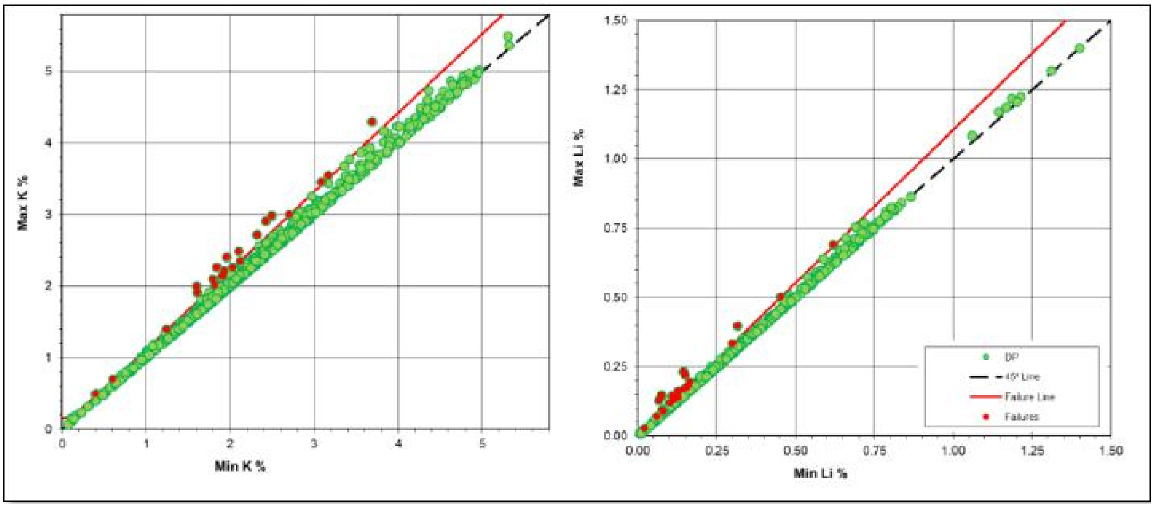
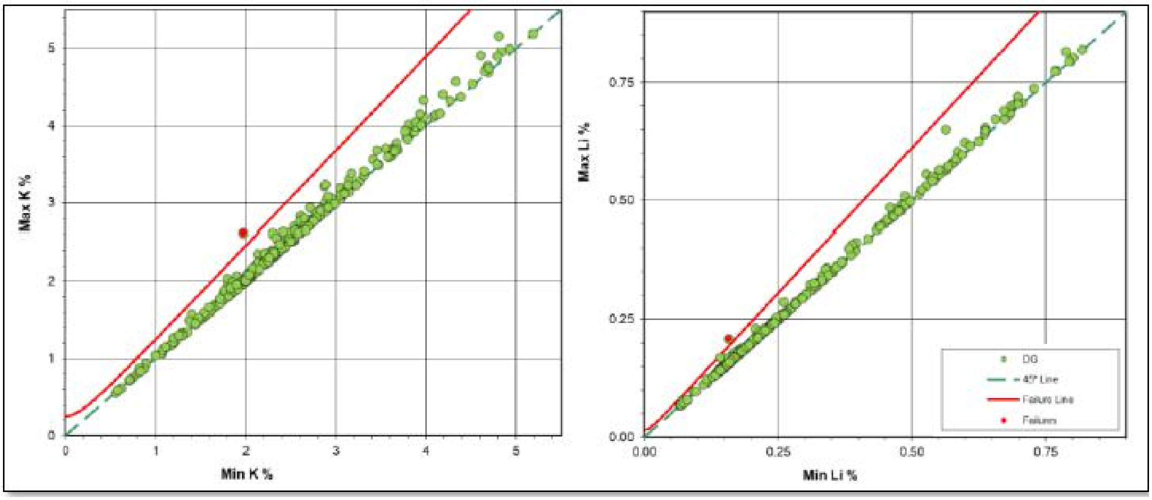


Figure 8-2. Error Ratio Plots, Field Duplicates.



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

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

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

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

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

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

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

Summary for analytical blanks (with NaCL)

Analyte	Quantity	Unit	Max Blank	Contaminated	Possible contamination ratio (%)
K	1492	%	0.4	5	0.3
Li	1492	%	0.100	147	9.9

Summary for analytical blanks (without NaCL)

Analyte	Quantity	Unit	Max Blank	Contaminated	Possible contamination ratio (%)
K	100	%	0.4	1	1.0
Li	100	%	0.030	7	7.0

8.2.3.2 Effective Porosity

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

Stage 1: In the equipment during analysis of the samples

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

Stage 2: After entering results in the database

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

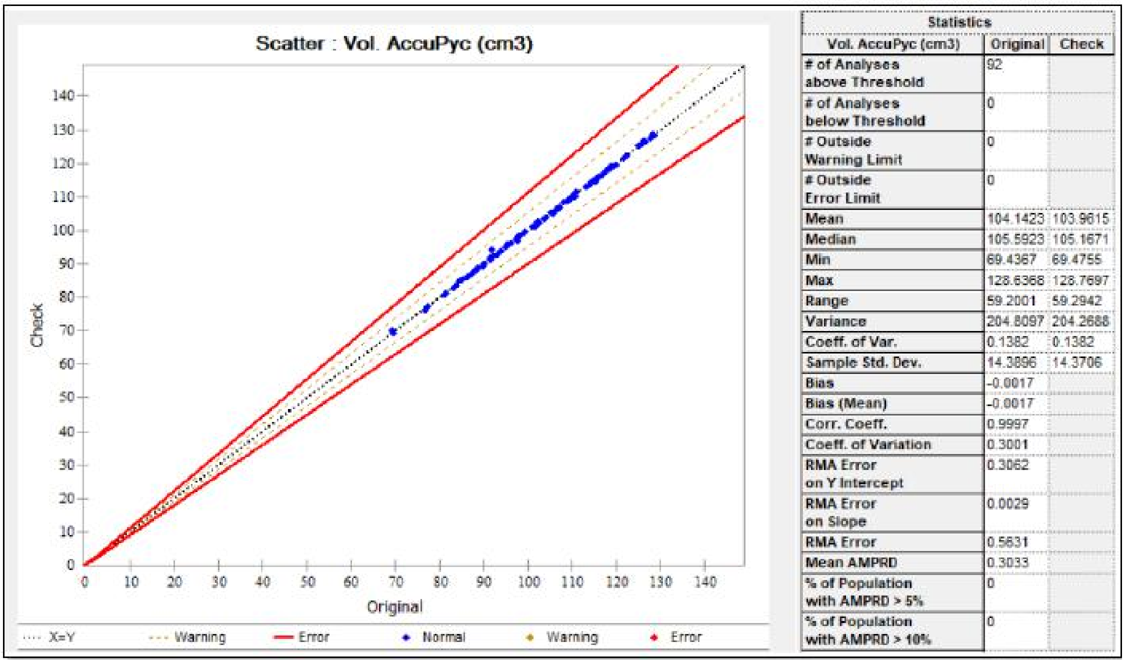
Stage 3: Through scatter charts for the control and analysis of the process precision
This control measure is based on the systematic insertion of 10% duplicate samples (QC) in analysis for porosity that are later analyzed using scatter charts displayed directly in acQuire. Of the 11,910 samples registered in the database, 11,465 samples have porosity results (10,675 primary and 790 duplicates). By 2020, porosity results have been obtained from 456 primary samples and 79 duplicate samples, for 14.8% of controls. This represents an increase of more than 170% in QA/QC samples analyzed over the previous year.

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

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

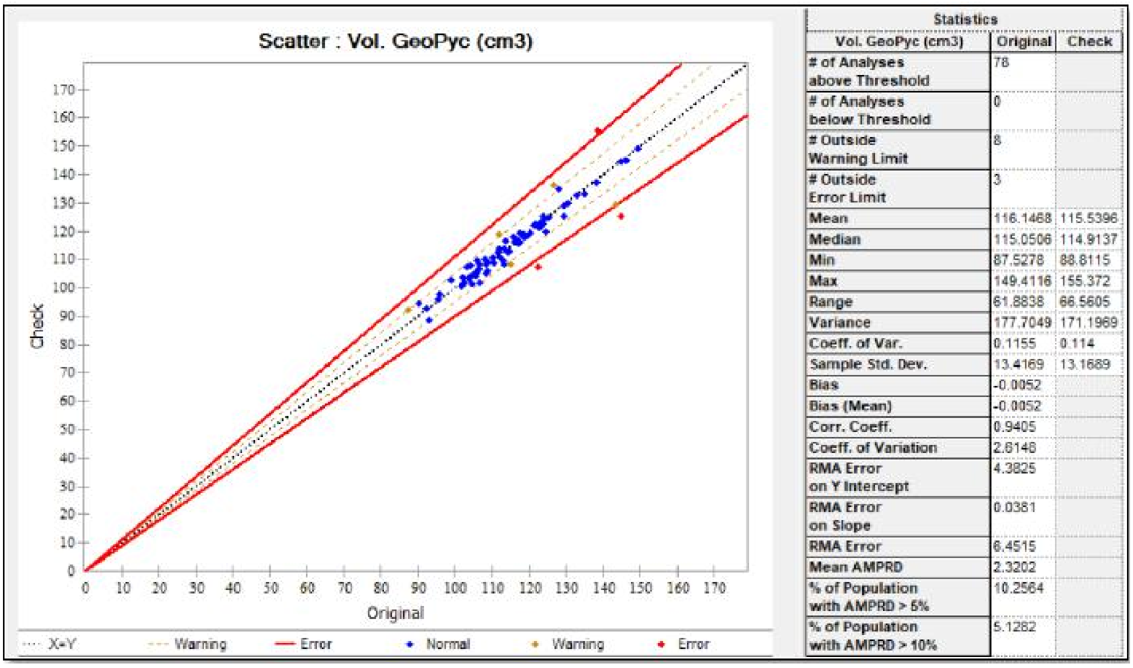
Equipment	Analysis	Duplicates	Failures	Error Ratio (%);
Accupyc	Grain Volume	92	0	0.0
Geopyc	Envelope Volume	78	4	5.1

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



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

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



Statistics		
Vol. GeoPyc (cm3)	Original	Check
# of Analyses above Threshold	78	
# of Analyses below Threshold	0	
# Outside Warning Limit	8	
# Outside Error Limit	3	
Mean	116.1468	115.5396
Median	115.0506	114.9137
Min	87.5278	88.8115
Max	149.4116	155.372
Range	61.8838	66.5605
Variance	177.7049	171.1969
Coeff. of Var.	0.1155	0.114
Sample Std. Dev.	13.4169	13.1689
Bias	-0.0052	
Bias (Mean)	-0.0052	
Corr. Coeff.	0.9405	
Coeff. of Variation	2.8148	
RMA Error on Y Intercept	4.3825	
RMA Error on Slope	0.0381	
RMA Error	6.4515	
Mean AMPRD	2.3202	
% of Population with AMPRD > 5%	10.2564	
% of Population with AMPRD > 10%	5.1282	

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

8.3 Opinion of Adequacy

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

9 DATA VERIFICATION

9.1 Data Verification Procedures

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

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

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

9.1.1 Data Management

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

9.1.2 Technical Procedures

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

9.1.3 Quality Control Procedures

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

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

9.1.4 Precision Evaluation

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

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

9.1.5 Accuracy Evaluation

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

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

9.1.6 Pollution Evaluation

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

9.2 Qualified Person’s Opinion of Data Adequacy

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

10 MINERAL PROCESSING AND METALLURGICAL TESTING

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

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

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

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

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

10.1 Test Procedures

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

The tests detailed below have the following objectives:

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

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

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

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

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

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

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

10.1.1 Wells Sampling and Sample Preparation

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

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

Table 10-1. Categorization of Brine Sampling from Wells

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

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

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

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

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

a) Sampling

b) Clarity measurement and fines measurement..

c) Viscosity measurement.

d) pH, temperature and conductivity measurement

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

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

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

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

10.1.2 Sampling in Brine Build-up Pools

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

10.1.3 Chemical Characterization of Brines

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

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

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

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

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

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

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

10.1.4 Brine Density Determination

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

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

10.1.5 Calculated Evaporation Rate

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

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

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

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

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

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

10.1.6 Control Procedures

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

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

10.1.6.1 Salar de Atacama Control Laboratory

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

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

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

- Collection of brine samples on a regular basis to measure brine properties, such as chemical analysis, density, brine activity, etc.

- Collection of precipitated salts from the ponds for chemical analysis to assess evaporation pathways, brine evolution, and salt physical and chemical properties.

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

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

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

10.1.6.2 Carmen Lithium Chemical Plant (PQC) Control Laboratory

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

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

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

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

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

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

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

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

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

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

10.2 Analytical and Testing Laboratories

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

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

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

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

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

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

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

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

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

- Andes Analytical Assay (AAA) (ISO 9001 Certification).

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

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

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

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

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

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

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

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

10.3 Sample Representativeness

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

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

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

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

10.4 Testing and Relevant Results

10.4.1 Salar de Atacama Testwork

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

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

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

Currently, the following initiatives are underway:

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

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

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

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

10.4.1.1 Bischofite Platforms

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

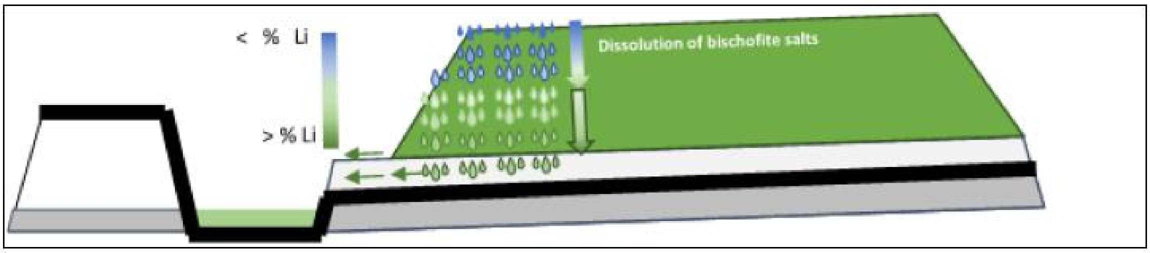
Differing operating conditions were evaluated to account for the height or slope, water/brine irrigation, and duration of each irrigation cycle. Based on the recovery obtained, the relevant results of the work are:

- A high Li grade salt is generated.

- The recovered brine has a composition which allows it to return to the Bischofite and Lithium Carnalite system.
- The methodology allows an increase of 3% Lithium yield.

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

Figure 10-2. Improved Treatment Scheme for Bischofite Platforms



10.4.1.2 Improvement in Salt Harvesting

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

- Drying
- Cloth formation
- Trenching
- Sealed
- Stockpiling

Figure 10-3. Improved Treatment Scheme for Harvested Salts

a) Water well scheme during drying and cloth stage.

b) Water well scheme during trenching and cordoning stage.

c) Water well scheme during sealed stage.

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

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

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

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

10.4.1.3 Potassium Carnallite Platforms

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

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

10.4.1.4 Calcium Source

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

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

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

10.4.2 Carmen Lithium Chemical Plant (PQC) Testing

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

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

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

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

- Carbonate dosages: in the first stage Sodium Carbonate (Na_2CO_3) is added to above solution and the system is heated to operative temperature by checking output concentrations.

- Filtering: Once Li_2CO_3 has been obtained by filtering, the precipitate is washed and separated, in order to verify the operational guarantees of the process equipment.

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

10.5 Significant Risk Factors

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

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

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

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

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

10.6 Qualified Person´s Opinion

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

- The key to good recovery of ions participating in SQM's products lies in managing the complex salt balance of the Salar de Atacama. Hydrogeological modeling fed with information on brine chemistry at different stages has improved yields in which lithium recovery was historically around 45-50% (due to precipitation, entrainment, and impregnation of lithium solutions in the precipitated crystals), which is now closer to 60% (see Section 14).

- Salar de Atacama's brine analysis plan, procedures, QA/QC protocols, sample and data custody are considered suitable for operational purposes, both in the production of potassium chloride and production of concentrated lithium solutions.

- Physical, chemical metallurgical testwork to date has been adequate to establish suitable processing routes for resource.

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

- Although there are processing factors where some deleterious elements may have an impact at some stage during brine extraction and processing, verified expert work by process and operations control teams serves to avoid significant disruption to economic extraction.

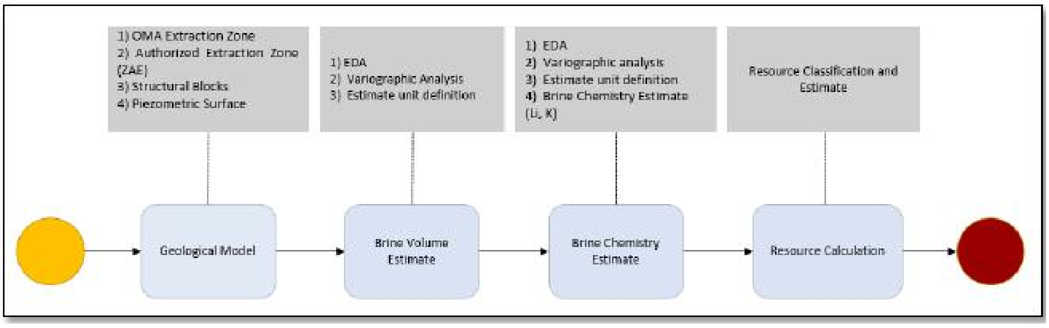
Three different research units cover topics, such as chemical process design, phase chemistry, chemical analysis methodologies, and physical properties of finished products.

11 MINERAL RESOURCE ESTIMATE

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

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

Figure 11-1. Mineral Resource Estimate General Flowchart



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

11.1 Estimation Methods, Parameters, and Assumptions

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

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

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

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

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

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

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

Drillholes	N°
Diamond drillholes (DDH)	85

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

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

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

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

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

Where:

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

V_i = Volume of brine in cell i

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

ρ = density in cell i (in g/cm^3)

11.1.1 Estimation Parameters

11.1.1.1 Block Model Definition

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

Table 11-4. Block Model Discretization

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

*Coordinate System: WGS 84 / UTM Zone 19S

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

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

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

11.1.1.2 Effective Porosity and Brine Volume Determination

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

Methodology and Estimation of Effective Porosity (Pe)

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

- Interpolated Pe: Used for units with a low variability in their lithologies and adequate data distribution: Upper Halites, Intermediate Halites, and Halites with Organic Matter. The interpolation method corresponds to Ordinary Kriging.

- Assigned Pe: Used for units with high variability in their lithologies and a good to poor data distribution. As such, the geometric mean of available data was assigned to the Evaporitic and Volcanoclastic, and Lower Halite units.

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

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

Exploratory Data Analysis - Pe

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

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

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

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

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

Table 11-6. Summary of Assigned Pe Values

Grouped Unit (Chapter 6.3)	Specific Geological Unit	Number of Data Points	Assigned Pe Value: Geometric Mean (%) of Measured Pe Values
Lower Halite	Halite #1	437	1.77
Evaporites and Intermediate Volcaniclastics	Tuff #2	5	16.17
	Halite #2	149	1.87
	Gypsum #1	59	1.73
	Tuff #3	2	18.94
	Gypsum #2	196	2.62
	Tuff #4	15	23.76
	Gypsum #3	86	9.09
	Tuff #5	2	10.98
	Gypsum #4	35	5.43
	Tuff #5.1	4	19.74
	Gypsum #5	84	10.78
	Tuff #6	14	10.64
	Gypsum #6	28	11.80
	Tuff #7	5	22.29
	Gypsum #7	2	5.38

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

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

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

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

Variography and Pe Estimation

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

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

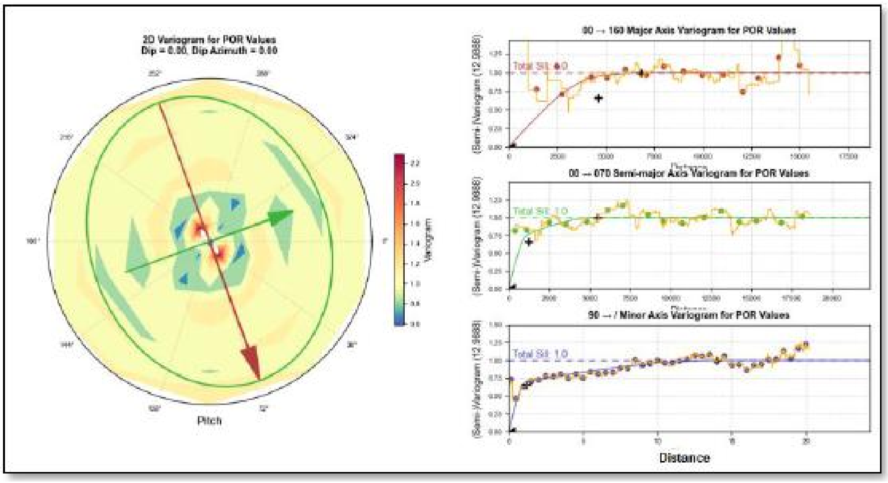


Figure 11-3.Variograms of Effective Porosity Domain 3 (Intermediate Halite).

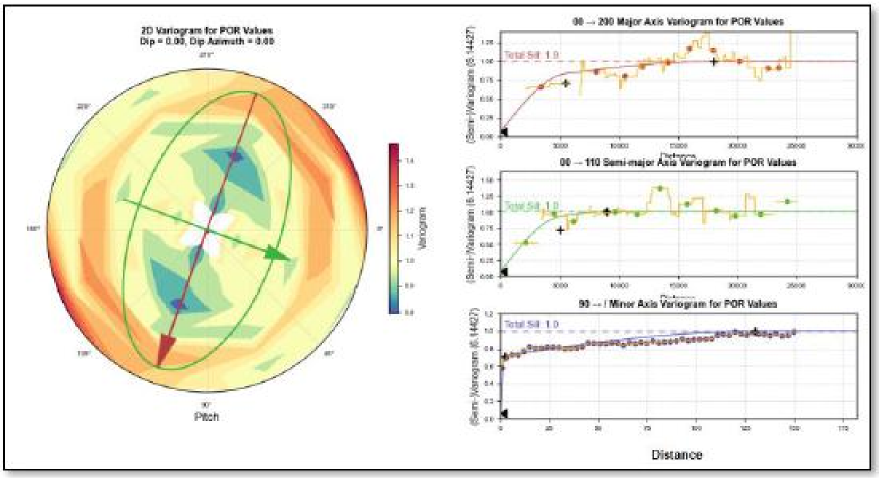


Table 11-8. Search Radius Parameters, Effective Porosity Estimate (SQM, 2020).

Effective Porosity Domain	**X (m)**	**Y (m)**	**Z (m)**	**Dip**	**Dip Az**	**Pitch**	**Min 1**	**Max 1**	**Factor 2nd Vol**	**Min 2**	**Max 2**	**Factor 3rd Vol (XY)**	**Z 3er Vol.**	**Min 3**	**Max 3**	**Min Oct Vol1-Vol2/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, 2020).

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

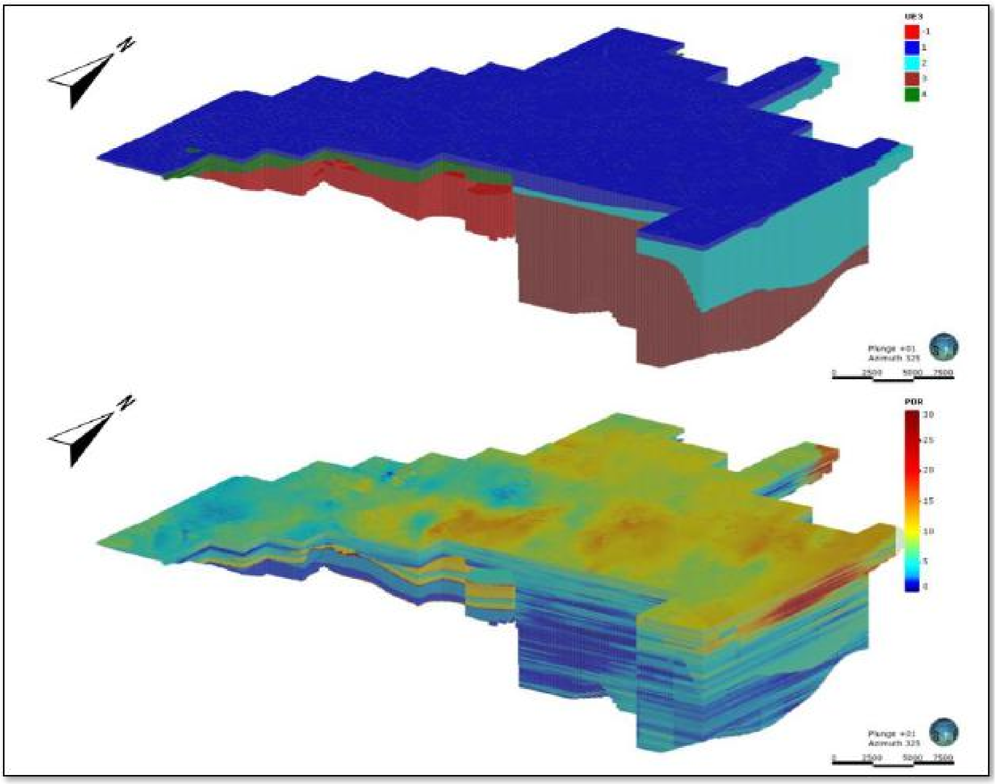
The interpolation results of Pe are summarized in Table 11-10.

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

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

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

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



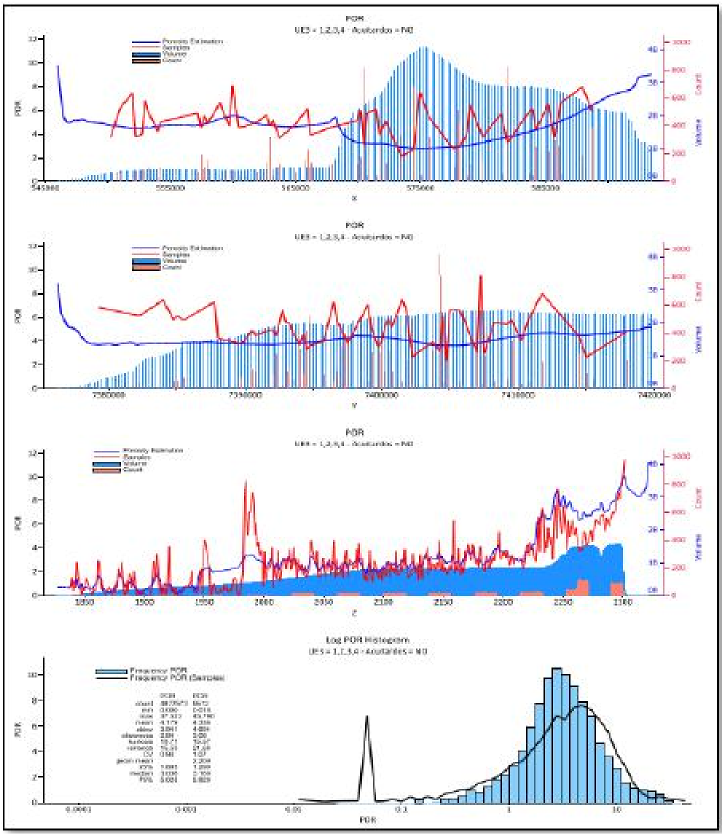
The resulting Pe values are consistent with the response of the reservoir units to pumping and are reasonable based on the QP's experience. It is important to highlight that the values are also conservative considering that normally core samples used for the Pe measurements are recovered in more compact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

Brine Volume Validation

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

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

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



11.1.1.3 Brine Chemistry Interpolation

Methodology and Estimation

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

Exploratory Data Analysis

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

- Domain 1: Brine from hydrogeological unit UA for every structural block in the Salar de Atacama and low K brine from UB. This estimation unit is characterized by lithium concentration between 0.007 and 1.945 wt.%, with an average of 0.141 wt.%.

- Domain 2: Brine from hydrogeological unit UB with high K concentrations. It is characterized by Li concentration between 0.020 and 2.243 wt.%.

- Domain 3: Brine from hydrogeological unit UC, with high Li located between the Salar Fault System and Lila Este Fault System. It is characterized by high Li concentrations with a range between 0.06 and 0.84 wt.%.

- Domain 4: Brine from the UC and UD, limited to the west by the Lila Este fault system. It is characterized by a low content of SO_4 and high Ca. Lithium concentrations vary between 0.12 and 0.62 wt.%.

- Domain 5: Brine from UC between the Salar Fault System and Lila Este fault system. This unit is characterized by a low Li content between 0.018 and 0.740 wt.%.

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

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

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

Variography and Brine Chemistry Estimation

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

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

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

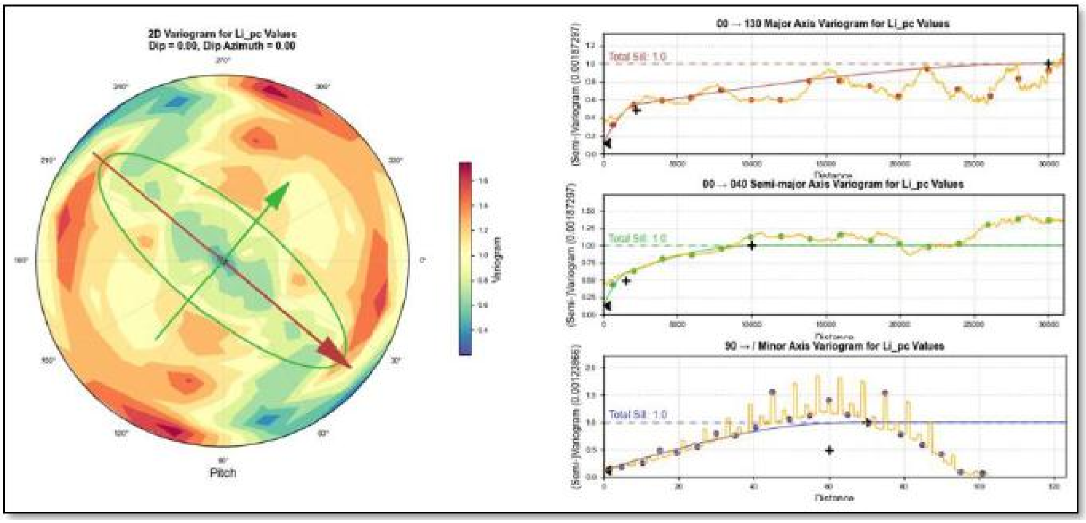


Figure 11-7. Potassium Variograms of Brine Chemistry Domain 1.

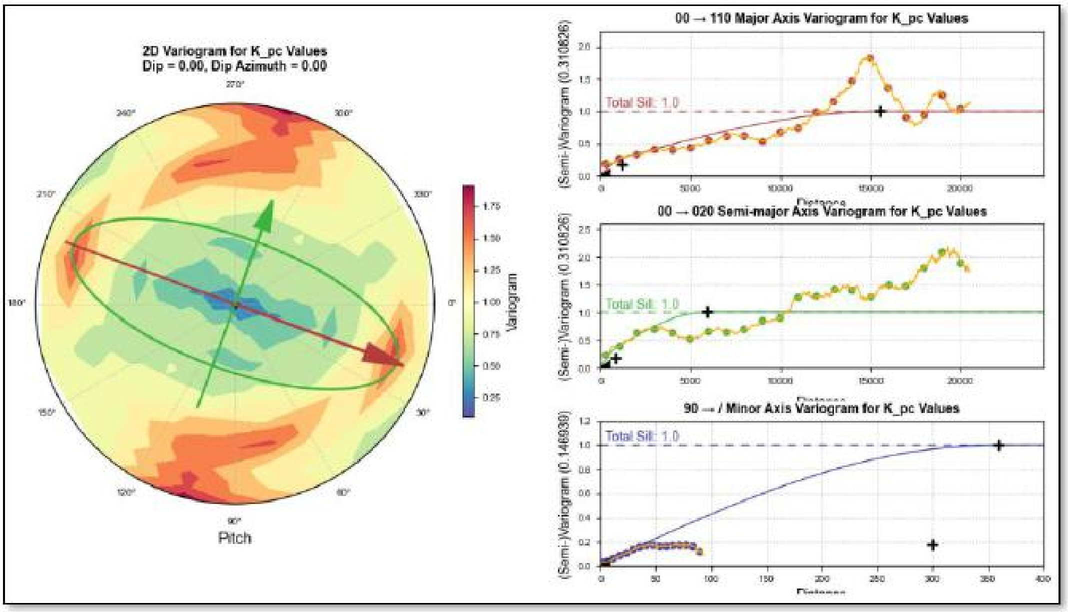


Table 11-12. Search Radius Parameters, Li and K Interpolation.

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

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

Elem.	Estimation Unit	Transform	Lower Cap	Upper Cap	Dip	DipAz	Pitch	Nugget	ST1	Maj1
Li	1	-	0.05	0.2	0	0	40	0.127	Spherical	2,200
Li	2	-	0.05	0.35	0	0	135	0.01133	Spherical	2,000
Li	3	-	0.4	-	0	0	70	0.02	Spherical	1,050
Li	4	-	-	0.4	0	0	155	0.01	Spherical	2,200
Li	5	-	-	0.25	0	0	0	0.002	Spherical	2,100
K	1	-	0.5	3	0	0	20	0.02	Spherical	1,200
K	2	-	0.5	3	0	0	155	0.005	Spherical	1,600
K	3	-	-	3.5	0	0	30	0.02	Spherical	1,150
K	4	-	-	3.5	0	0	155	0.01	Spherical	10,000
K	5	-	1	3	0	0	0	0.02	Spherical	7,00

Elem.	**Estimation Unit**	**SMaj1**	**Min1**	**Var1**	**ST2**	**Maj2**	**SMaj2**	**Min2**	**Var2**
Li	1	1,500	60	0.3636	Spherical	30,000	30,000	70	0.5094
Li	2	1,200	90	0.365	Spherical	5,500	5,500	90	0.6237
Li	3	600	320	0.6008	Spherical	3,100	3,100	330	0.3792
Li	4	1,300	150	0.492	Spherical	12,000	12,000	200	0.498
Li	5	2,100	2,100	0.7643	Spherical	3,500	3,500	3,500	0.2337
K	1	800	300	0.16	Spherical	5,900	15,500	360	0.82
K	2	1,200	500	0.2949	Spherical	6,000	8,500	600	0.7001
K	3	500	600	0.217	Spherical	1,600	2,600	600	0.763
K	4	3,500	1,000	0.99	-	-	-	-	-
K	5	700	25	0.06	Spherical	2,200	2,200	2,200	0.92

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

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

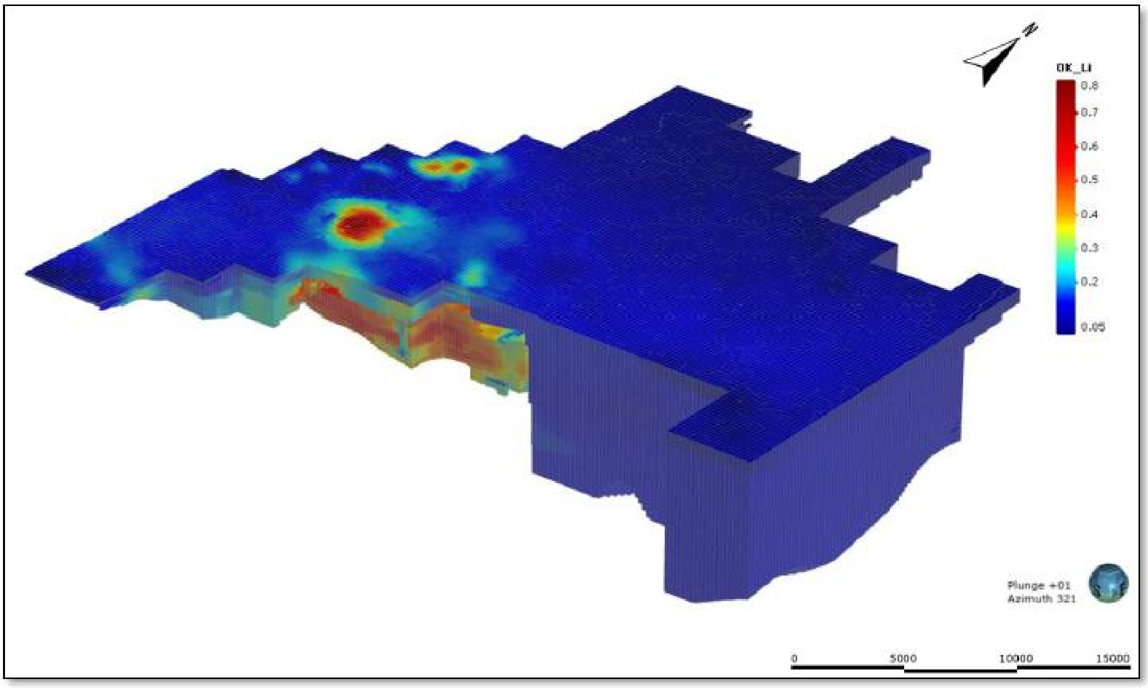


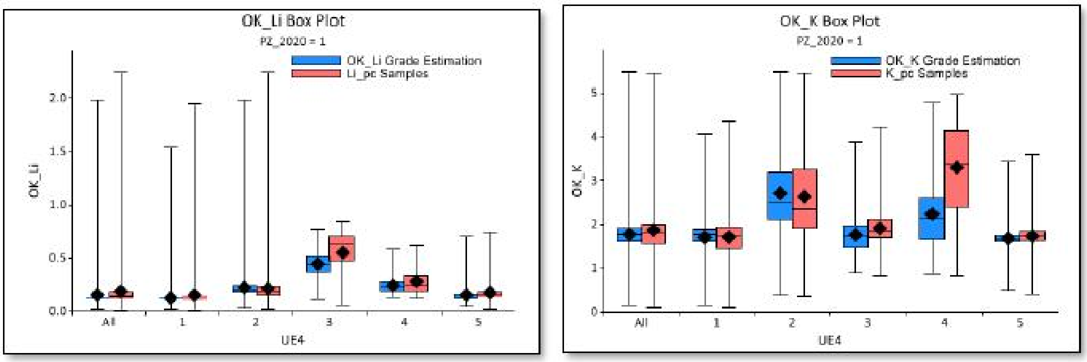
Table 11-14. Average Li and K Concentrations after Interpolation, OMA Extraction Area

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

Validation of the Brine Chemistry Estimate

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

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



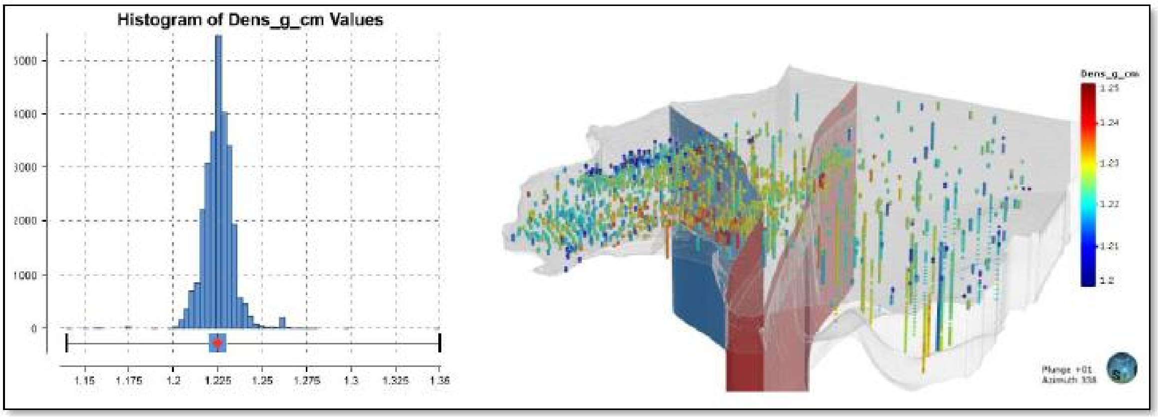
11.1.1.4 Brine Density Interpolation

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

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

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

Figure 11-10. Density Histogram and Spatial Distribution



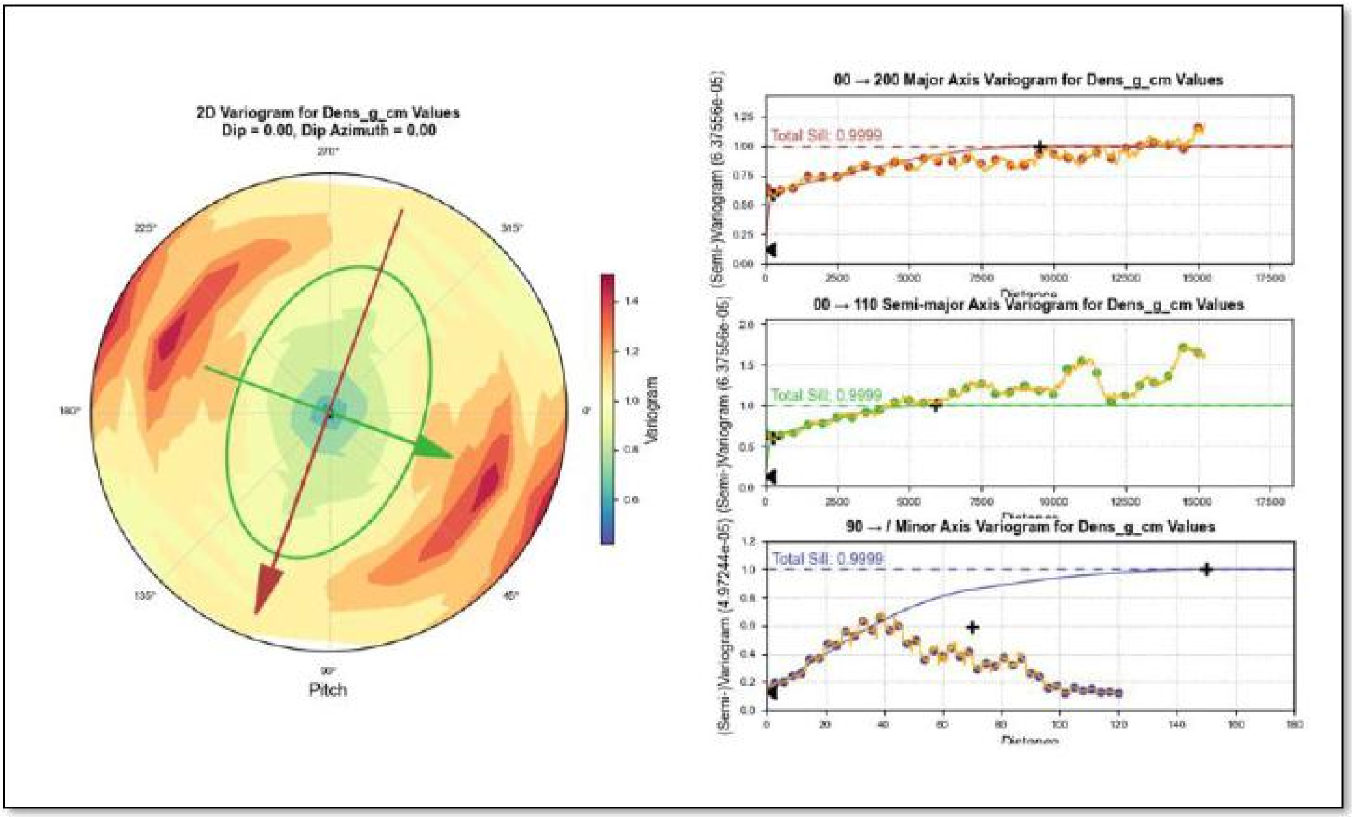
The variography analysis was performed in the horizontal (XY) and vertical (Z) directions. Capping was applied to remove the effect of the extreme values of the distribution on the variogram (Table 11-16). A maximum continuity (NE orientation) was observed with ranges of approximate 10,000, 6,000 and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

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

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

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

Figure 11-11. Density Estimate Variogram



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

11.2 Cut-off Grades

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

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

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

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

11.3 Mineral Resource Classification

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

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

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

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

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

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

- Search Volume: Given that the evaluated ions generally have a large spatial continuity, the Li-ion search radius was used to analyze the reliability of the estimate. It is considered as a Measured Mineral Resource up to the second search volume and Indicated and Inferred Mineral Resources up to the third search radius.

- Presence of Reinjection Brines: Measured Mineral Resource zones in the shallow aquifer units (UA, UB, UE4: 1 and 2) with high Li levels associated with reinjected brine were conservatively downgraded to Indicated Mineral Resources.

- Exclusion of high effective porosity areas associated with marginal facies: a sector of high uncertainty in the effective porosity of the East Block (hydrogeological unit UAB; to the east of the X coordinate: 584,625 m) was classified as Inferred Mineral Resources.

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

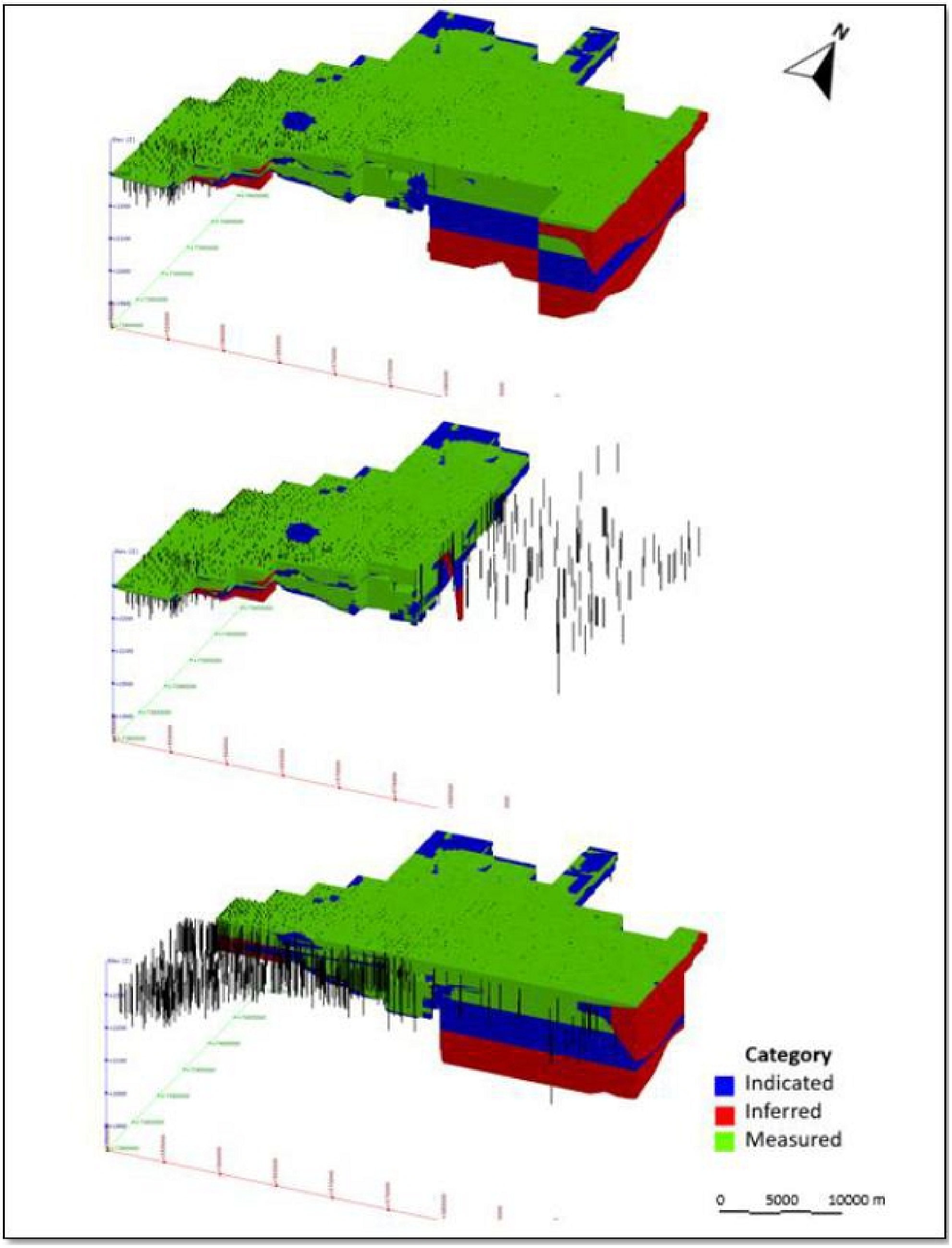
Table 11-18. Categorization of Measured, Indicated, and Inferred Mineral Resources

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

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

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

Figure 11-12. Resource Categorization in 3 Dimensions



11.4 Mineral Resource Statement

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

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

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

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

Notes:

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

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

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

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

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

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

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

11.5 Uncertainty

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

- The use of effective porosity versus specific yield could result in an overestimation of the estimated brine volume; however, based on the geological and hydrogeological characterization of the OMA (Chapters 6 and 7), the site does not present significant volumes of material, such as clay, where specific retention can be significant (when compared to specific yield). This implies that the effective porosity is considered to be an adequate parameter for the brine volume estimate.

- SQM's brine chemistry and porosity labs are not accredited; however, a round robin analysis was performed for brine samples to confirm that the QA/QC procedures and overall accuracy and precision. To further mitigate this uncertainty, various QA/QC procedures are in place for measured brine chemistry and effective porosity (Chapters 8 and 9).

- Near the ponds, potential infiltration could have affected the reservoir chemistry, however those areas were conservatively categorized as less certain (e.g., Indicated instead of Measured).

11.6 Opinion and Recommendations

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

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

12 MINERAL RESERVE ESTIMATE

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

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

12.1 Numerical Model Design

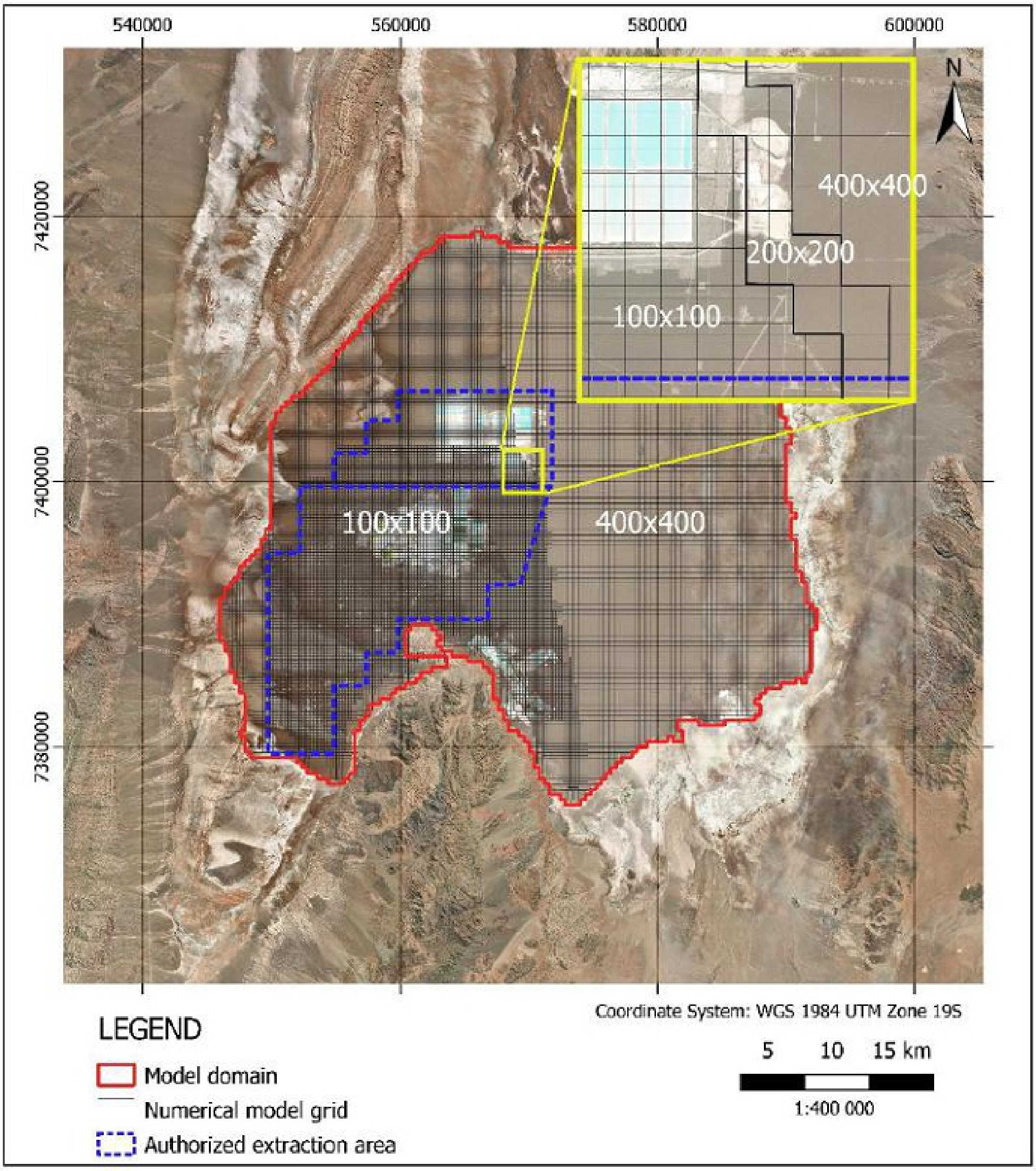
The numerical groundwater model was constructed based on the resource block model (Section 11) and defined hydrogeological units (Section 7). The area of the active numerical model domain corresponds to 1,421.3 square kilometers. A constant brine density was assumed based on the model limit (confined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

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

Table 12-1. Grid Specifics and Layers

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

Figure 12-1. Numerical Model Domain and Grid



12.1.1 Boundary Conditions and Water Balance

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

- Direct recharge: using the recharge “RCH” package, monthly direct recharge from precipitation on the salt flat nucleus was applied in different zones based on the recharge estimated by SRK (2020) and SQM (2021). Figure 12-2 shows the zones of recharge due to natural precipitation with assigned concentrations of 0. Also, direct recharge due to infiltration from existing evaporation ponds in both SOP and MOP areas was applied during the calibration period (years 2015-2020), with the corresponding concentrations, based on information provided by SQM.

- Underflow: using the “WEL” package, brine inflow, originally sourced from adjacent watersheds and subsequently evapo-concentrated, was assigned along most limits of the numerical model using injection wells in layer 1; this shallow underflow was conceptualized and assigned in the shallowest layer because it is the most permeable unit. The lateral recharge zones are illustrated in Figure 12-2. Rates of groundwater inflow were defined based on the water balance study developed by SRK (2020) which was subsequently updated by SQM (2021). Incoming concentrations were specified based on average measured concentrations in observation wells located near the model boundaries.

- No-flow boundaries: certain limits, such as the east boundary, were specified as no-flow limits where brine was conservatively assumed to not enter the model domain. Assigned no-flow limits (Figure 12-2) were consistent with the conceptual water balance study of the brine zone (SRK, 2020).

- Evaporation: Evaporation from shallow groundwater (brine) in the salt flat nucleus was represented using the “ETS” (Evapotranspiration Segments) package of Modflow. It was utilized to simulate evaporation from different zones within the active domain, which were delineated based on areas defined in the water balance study (SRK, 2020). Evaporation decay curves estimated for each zone, were represented in the model by several linear segments (up to four). Figure 12-3 shows the distinct evaporation zones represented in the model.

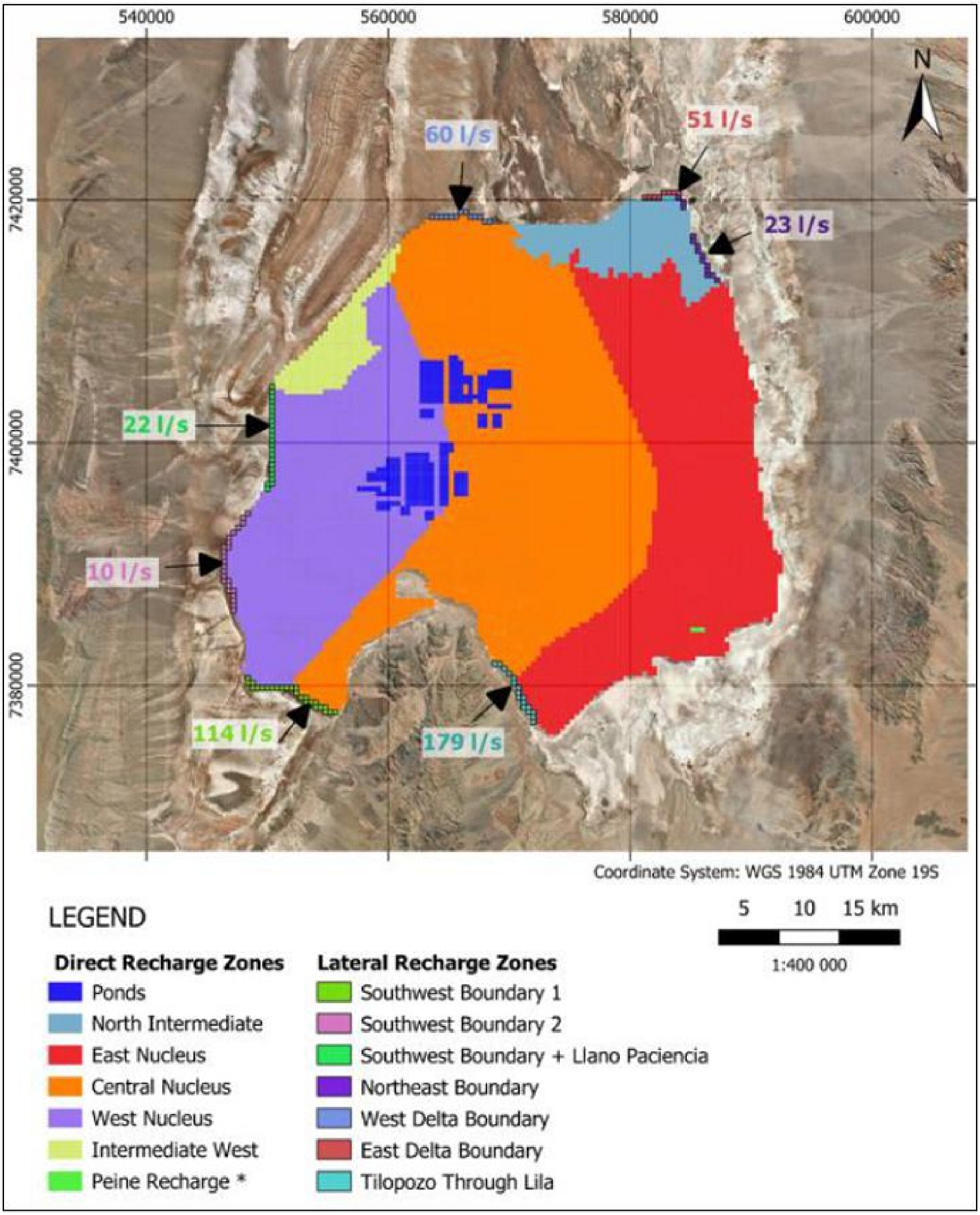
- Production wells: pumping was simulated using the “CLN” package of Modflow-USG, allowing for more precise responses to pumping, skin factors, and flow reduction in the case that the dynamic pumping level reaches the bottom of the screened layer. SQM and Albemarle pumping was simulated during the calibration period (2015 -2020) using available provided data.

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

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

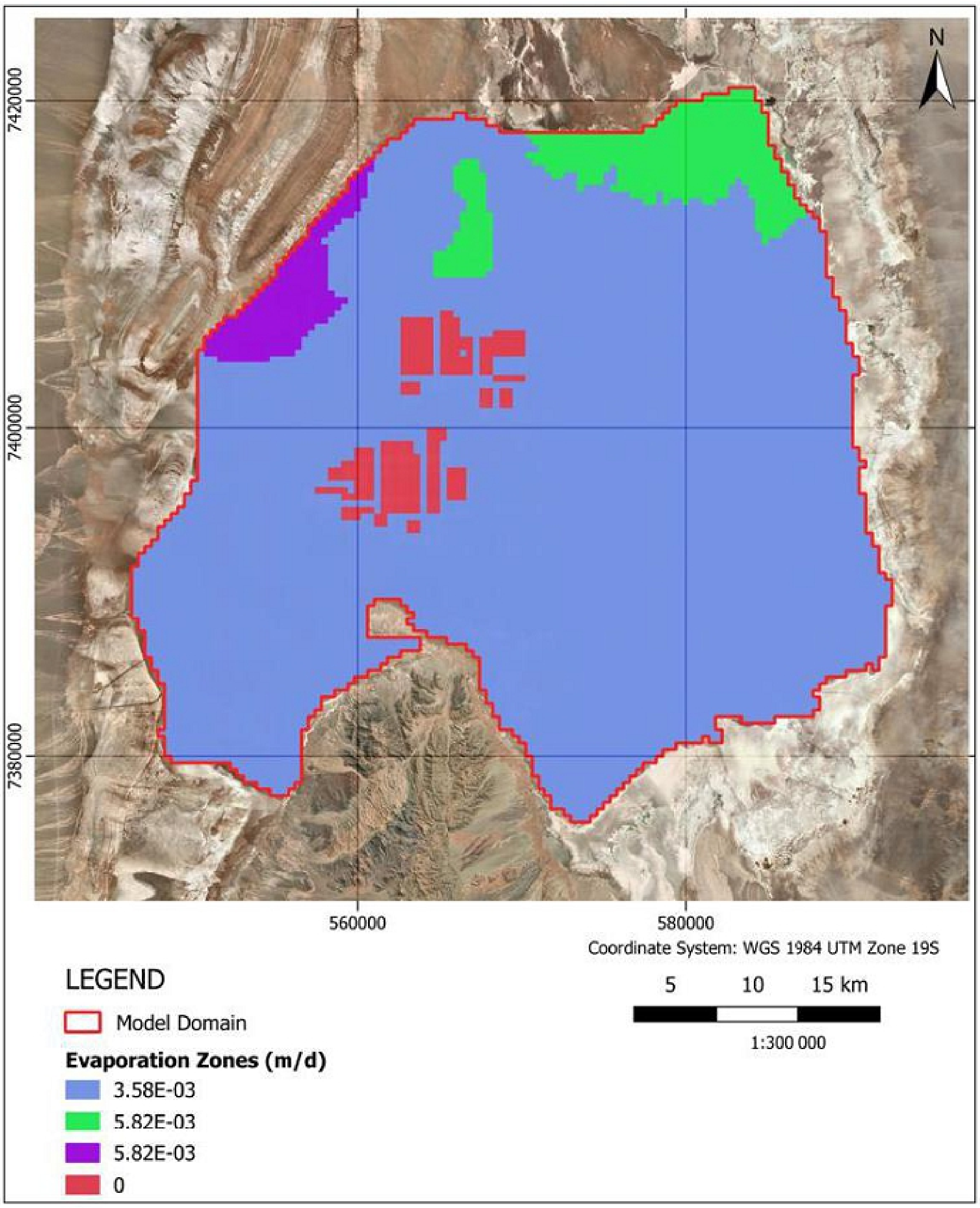
Component	**Average Volumetric Flow (L/s)**
Total brine extraction in the salt flat nucleus	2,059
Evaporation from the salt flat nucleus	400
Storage outflow	742
TOTAL OUTFLOW	**3,201**
All direct recharge in the salt flat nucleus	707
All brine underflow from adjacent areas	466
Storage inflow	2,024
TOTAL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

Figure 12-2. Direct Recharge and Lateral Recharge Zones



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

Figure 12-3. Evaporation Zones in the Numerical Model



12.1.2 Numerical Model Hydraulic Properties

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

- Hydraulic conductivity: representative model sections of the K zone distribution are shown in Figure 12-4 and utilized model values are presented in Table 12-3. The horizontal hydraulic conductivity (Kh) ranges between 1E-5 m/d to 5,000 m/d depending on the lithology with the wide range explained by the presence of caverns and structures. While K ranges were aimed to be consistent with the conceptual range for each hydrogeological unit defined by SQM (2020 b,c,d), the general trend of each unit with depth is consistent with the lithology type and presence/absence of secondary porosity (geometric mean of Table 12-3). The vertical-horizontal anisotropy (Kv/Kh) was also set during the calibration (Table 12-3) and justified by the type of deposition of each unit.

- Effective porosity/Specific yield: Effective porosity values were transferred from the resource block model (Section 11) and were obtained by averaging block model centroids within the corresponding numerical model cells. In areas with information gaps, the value of the nearest neighbor of calculated cells was adopted. Effective porosity was assumed to be equivalent to Sy due to the general lack of material (e.g. clay) in the nucleus where differences between Pe and Sy can be important (Sections 6, 7, and 11). Representative sections of Pe are also shown in Figure 12-4.

- Specific storage: The distribution of Ss was set based on the type of lithology and hydraulic conductivity zonation, where less permeable units generally have a lower compressibility.

- Dispersion: Dispersion controls the rate of solute spreading and the following values were specified: 10 m for longitudinal dispersion, 1 m for transverse dispersion, and 0.1 m for vertical dispersion. Molecular diffusion was not included in the numerical model, because it is assumed to be negligible in large-scale models, and the active domain covers an extensive area (Section 12.1).

Table 12-3. Summary of Assigned Model Parameters

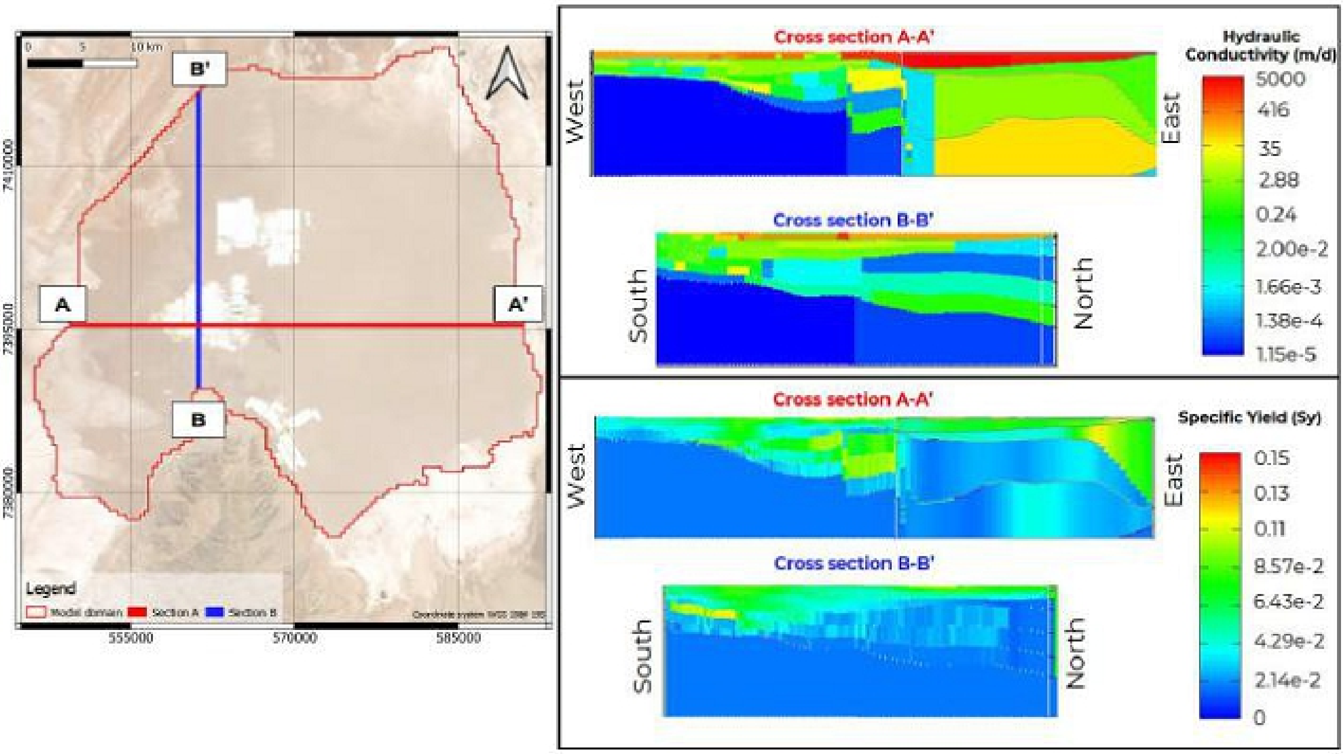
		Horizontal Hydraulic Conductivity (Kh) (m/d)	Anisotropy (Kv/Kh)		Specific Storage (Ss) (1/m)		Specific Yield (Sy) and Effective Porosity (Pe) (2)	
Layer(s)	**Hydrogeological Unit (HU)**	**Geometric mean (1)**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**
1 and 2	UA	190	0.05	10	1E-05	1E-02	0.02	0.136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

Notes:

(1)Within the most refined quadtree zone

(2) Within the AAE

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



12.2 Numerical Model Calibration

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

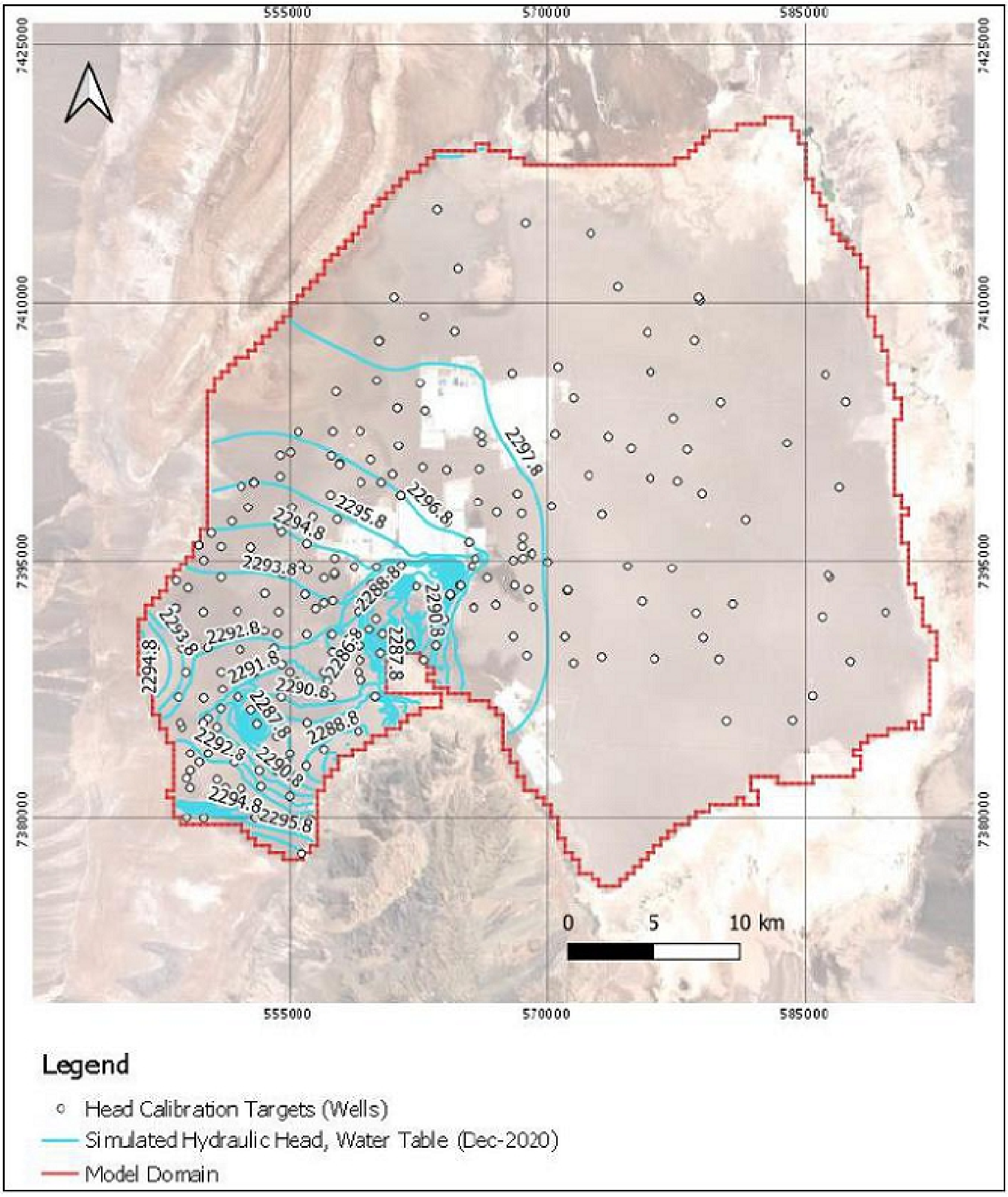
12.2.1 Initial Conditions (Calibration)

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

12.2.2 Head Calibration

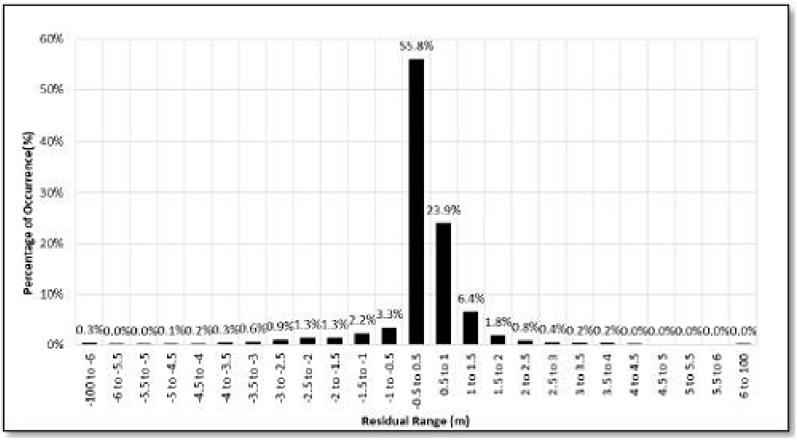
Simulated brine levels were obtained from the numerical model based on composite heads from the screened well layers, and they were compared with registered brine levels from observation wells (Figure 12-5) that span the model domain and various hydrogeological units. A simulated piezometric contour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

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

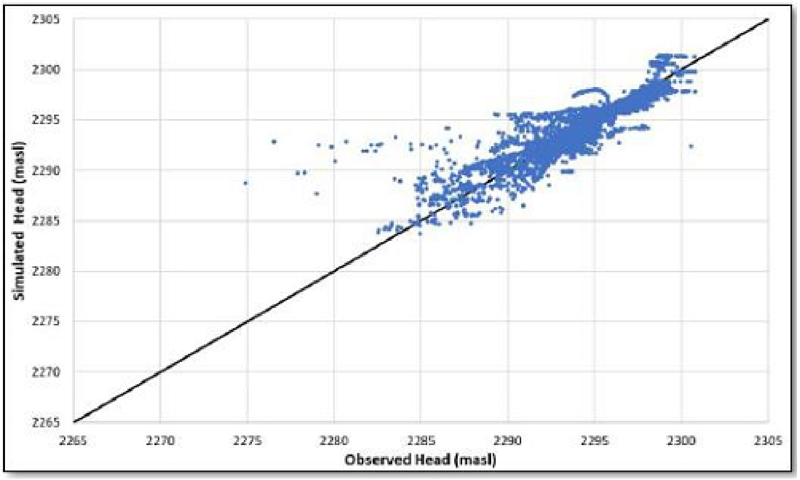


Regarding head calibration statistics, results for the entire model include a mean residual of 0.18 m and RMS of 1.05 m, with most residuals within the range of -0.5 m to 0.5 m (see Figure 12-6). The Scaled Absolute Residual Mean and Scaled Root Mean Square (RMS) error for the transient calibration were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

Figure 12-6. Head Calibration Results



a) Brine level residual histogram

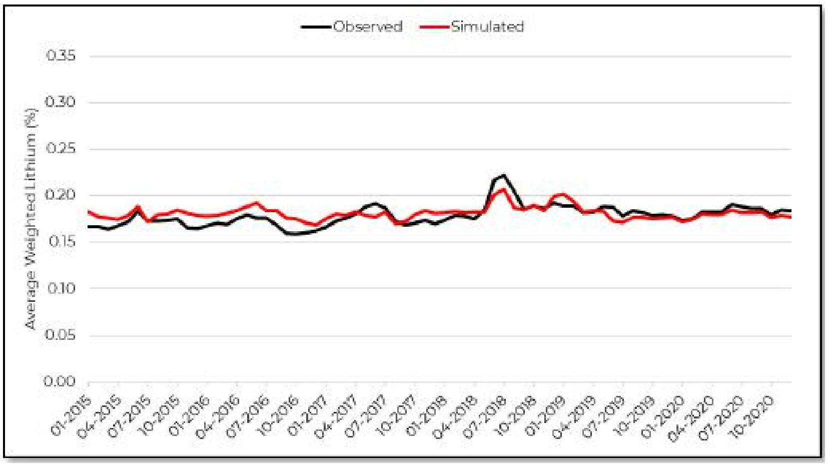


b) Simulated versus observed brine levels

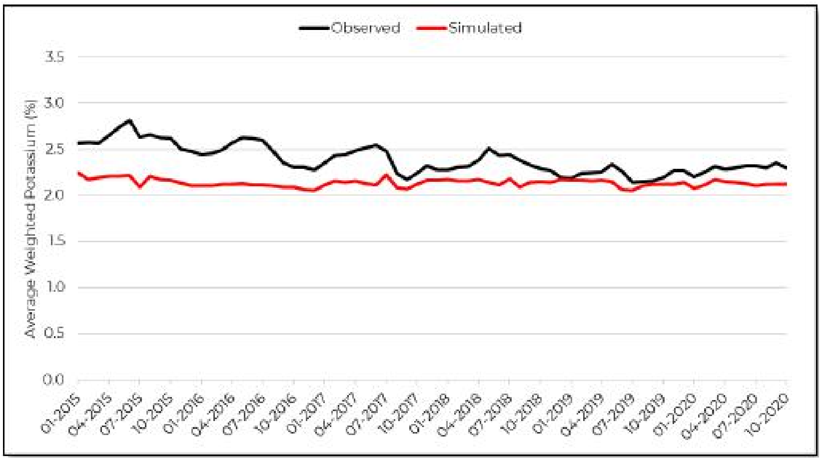
12.2.3 Transport Calibration

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

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



a) Extracted Li (weighted average)



b) Extracted K (weighted average)

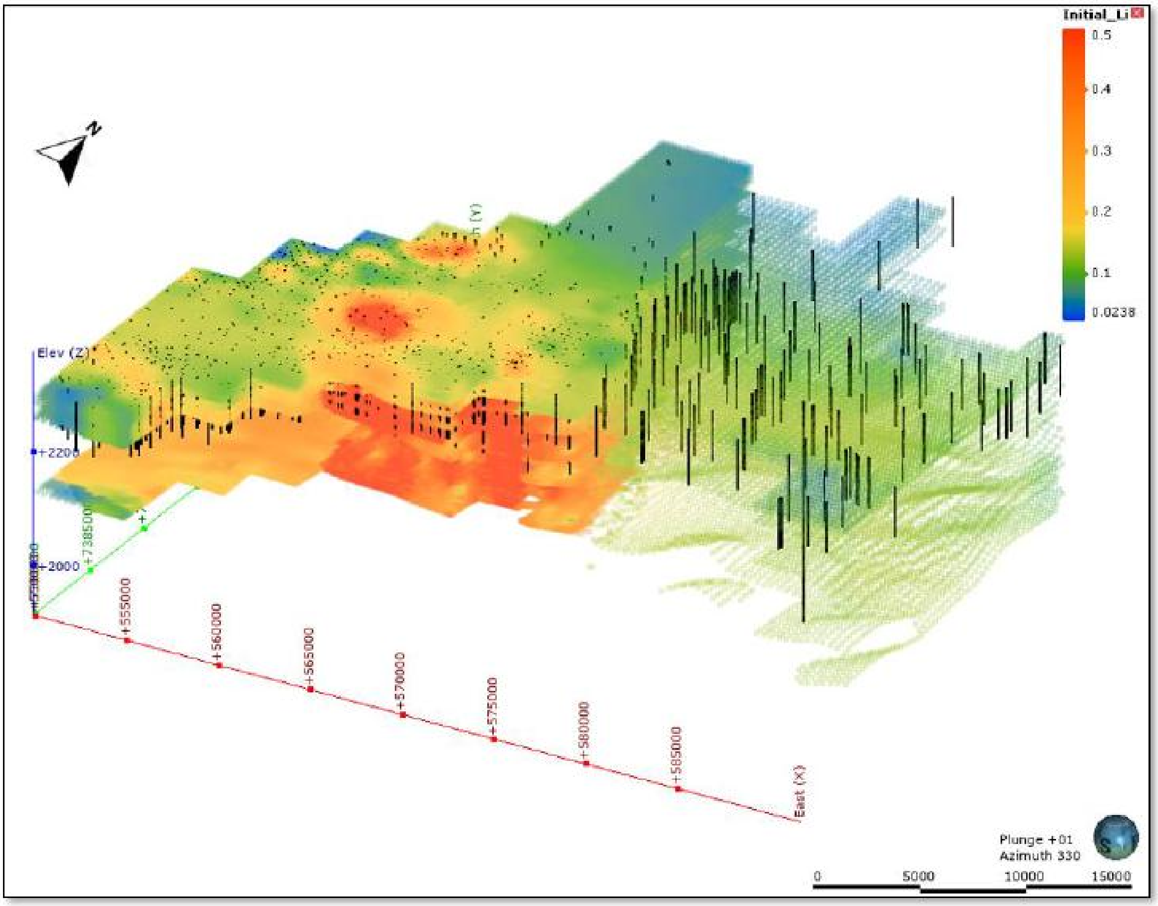
12.3 Projected Model Simulation

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

12.3.1 Initial Conditions (Reserve Simulation)

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

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

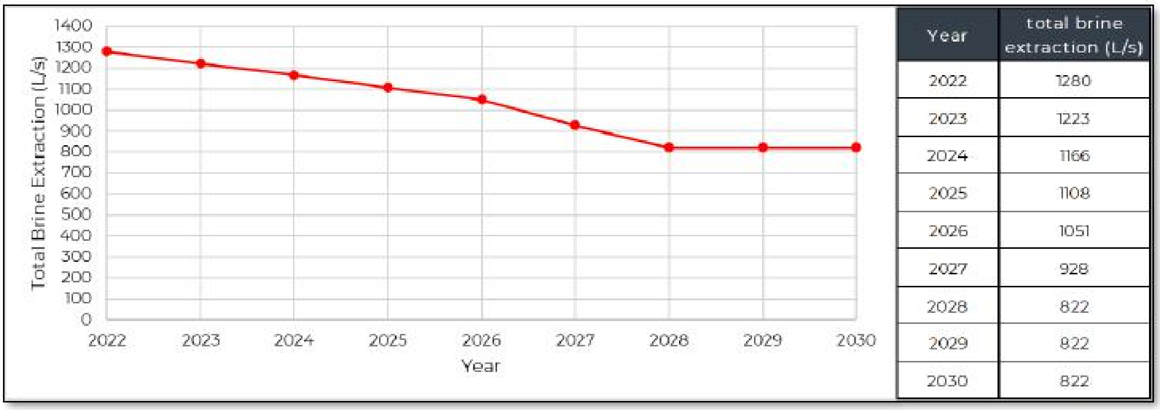


12.3.2 Predictive Model Specifics

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

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

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



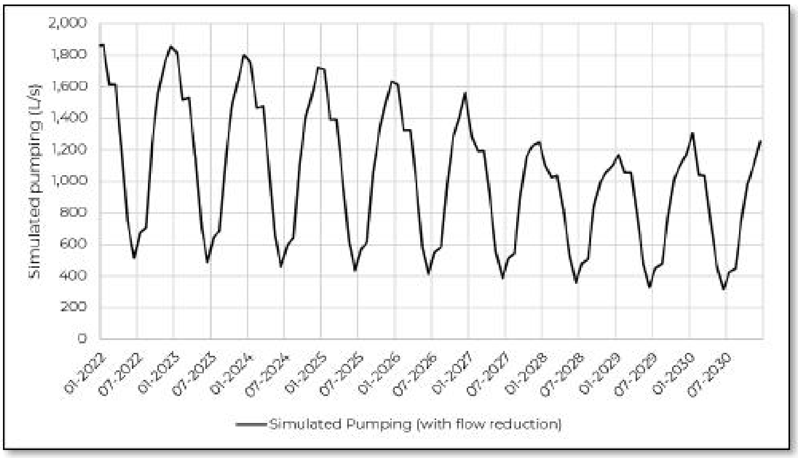
Year	total brine extraction (L/s)
2022	1280
2023	1223
2024	1166
2025	1108
2026	1051
2027	928
2028	822
2029	822
2030	822

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

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

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

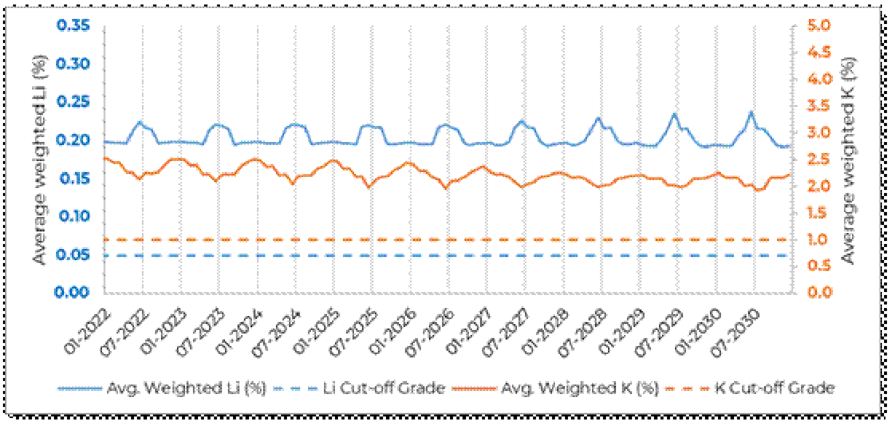
Figure 12-10. Simulated SQM Pumping Rates, Reserve Simulation



12.3.3 Extracted Concentrations

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

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



12.4 Mineral Reserves

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

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

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

12.4.1 Process Recovery Factors

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

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

12.4.2 Extracted Lithium

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

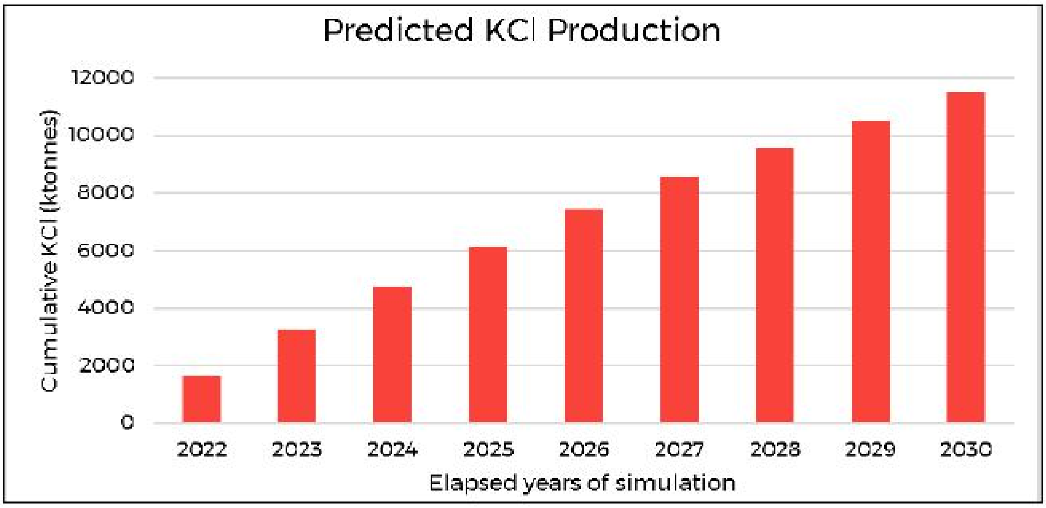
Table 12-4. Simulated Li and LCE Extraction by Year

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

Notes:

(1) The process recovery factors of SQM are summarized in Section 12.4.1. Based on the type of extracted brine at each well over the course of the simulation, the average process recovery factor is approximately 51%.
(2) Lithium carbonate equivalent ("LCE") is calculated using mass of LCE = 5.322785 multiplied by the mass of lithium metal.
(3) The values in the columns for "Li" and "LCE" above are expressed as total contained metals.
(4) The average lithium concentration is weighted by the simulated extraction rates in each well.
(5) Values may not add due to rounding and differences caused by averaging; comparisons of values may not add due to the rounding of numbers and differences caused by averaging.

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



12.4.3 Extracted Potassium

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

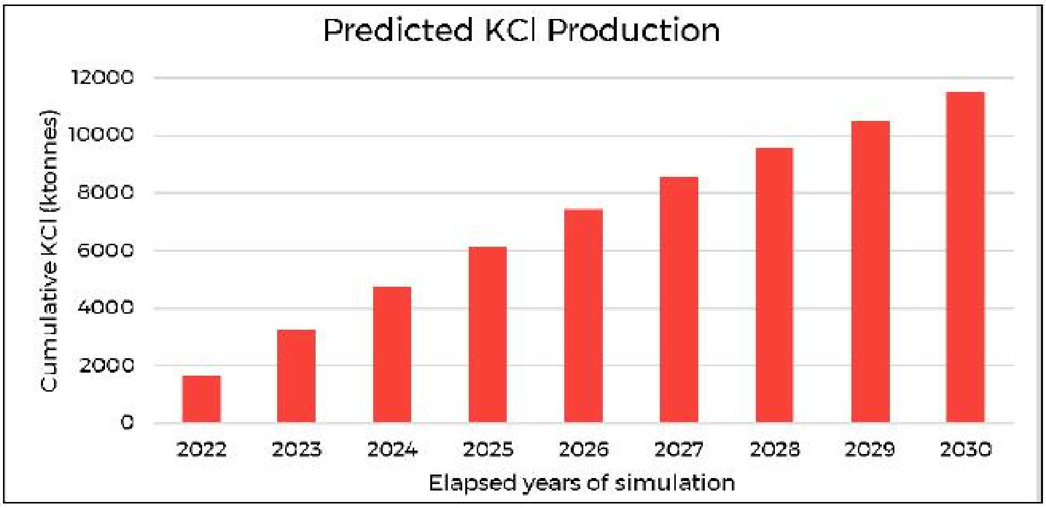
Table 12-5. Simulated K and KCl Extraction by Year

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

Notes:

(1) The process recovery factors of SQM are summarized in Section 12.4.1; based on the type of extracted brine at each well over the course of the simulation. The average process recovery factor is approximately 74%.
(2) Potassium chloride equivalent (KCl) is calculated using the mass of KCl = 1.907 multiplied by the mass of potassium metal.
(3) The values in the columns for K and KCl above are expressed as total contained metals.
(4) The average potassium concentration is weighted by the simulated extraction rates at each well.
(5) Values may not add due to rounding and differences caused by averaging; comparisons of values may not add due to the rounding of numbers and differences caused by averaging.

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



12.4.4 Proven and Probable Reserves

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

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

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

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

Notes:

(1) The process recovery factors of SQM are summarized in Section 12.4.1; based on the type of extracted brine at each well over the course of the simulation, the average process recovery factor is approximately 51%.
(2) Lithium carbonate equivalent ("LCE") is calculated using mass of LCE = 5.322785 multiplied by the mass of lithium metal.
(3) The values in the columns for "Li" and "LCE" above are expressed as total contained metals.
(4) The average lithium concentration was weighted by the simulated extraction rates in each well.
(5) Comparisons of values may not add due to the rounding and differences caused by averaging.
(6) The Mineral Reserve estimate considers a 0.05 wt.% cut-off grade for Li based on the cost of generating Li product, lithium carbonate sales, and the respective cost margin. Based on historical lithium prices from 2010 and the forecast to 2040, a projected lithium carbonate price of $ 11,000 USD/metric tonne with the corresponding cost and profit margin is considered with a small increase to accommodate the evaporation area and use of additives.
(7) This Mineral Reserve estimate differs from the in-situ *base reserve* previously reported (SQM, FORM 20-F 2020) and considers the modifying factors of converting Mineral Resources to Mineral Reserves, including the production wellfield design and efficiency, as well as environmental and process recovery factors.
(8) Álvaro Henriquez is the QP responsible for the Mineral Reserves.

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

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

(1) The process recovery factors of SQM are summarized in Section 12.4.1; based on the type of extracted brine at each well over the course of the simulation, the average process recovery factor is approximately 74%.
(2) Potassium chloride equivalent ("KCl") is calculated using mass of KCl = 1.907 multiplied by the mass of potassium metal.
(3) The values in the columns for "K" and "KCl" above are expressed as total contained metals.
(4) The average potassium concentration was weighted by per well simulated extraction rates.
(5) Comparisons of values may not add due to the rounding of numbers and differences caused by averaging.
(6) The Mineral Reserve estimate considers a 1 wt.% cut-off grade for K has been set by SQM based on respective costs, sales, and margin (Chapter 16 and Chapter 19).
(7) This Mineral Reserve estimate differs from the in-situ *base reserve* previously reported (SQM, FORM 20-F 2020) and considers the modifying factors of converting Mineral Resources to Mineral Reserves, including the production wellfield design and efficiency, as well as environmental and process recovery factors.
(8) Álvaro Henriquez is the QP responsible for the Mineral Reserves.

12.4.5 Classification and Criteria

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

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

- Proven Reserves were specified for the first 5 years of the LOM given that the model is adequately calibrated to the 2015 to 2020 period (Section 12.2), and the initial portion of the projected LOM has higher confidence due to less expected short-term changes in pumping, conceptual hydraulic parameters, and the water balance, among other factors.

- Probable Reserves were conservatively assigned for the last 4 years of the LOM that the numerical model will be continually improved and recalibrated in the future due to potential medium to long term changes in neighboring pumping, conceptual hydraulic parameters, and the water balance, among other factors. These future improvements will increase certainty in the final years of the model prediction.

12.4.6 Cut-off Grades

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

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

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

12.5 Uncertainty

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

- Potential brine dilution can vary over time due to lateral inflows. To address this, representative historical concentrations were assigned for modeled lateral inflows and direct recharge concentrations during the LOM were set to 0.
- Density driven flow could impact the hydraulic gradient; however, the model limit is set within the salt flat nucleus, where brine density does not vary significantly based on measured values.
- Potential pond infiltration represents an additional source of uncertainty, and it was conservatively not modeled to avoid introducing an “artificial” source of Li and K in the reserve estimate.
- Hydraulic parameters were calibrated based on available information. Future exploration and testing could improve the assigned model parameters and the water balance specifics could also be changed to alleviate this uncertainty. Probable Reserves were conservatively specified for the last 4 years of the LOM, even though SQM production has occurred historically for decades.

- A steady-state model calibration was not conducted given the long period of SQM's historical production; however, a comprehensive flow and transport calibration was undertaken for the 2015 to 2020 (inclusive) period.
- Future Albemarle pumping is unknown; however, a maximum rate of 442 L/s was conservatively assumed for the entire LOM based on their recent environmental assessment.

12.6 Opinion and Recommendations

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

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

13 MINING METHODS

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

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

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

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

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

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

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

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

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

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

13.3 Requirements for Stripping, Underground Development, and Backfilling

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

13.4 Required Mining Equipment Fleet, Machinery, and Personnel

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

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

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

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

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

a) Brine production wells with surface equipment

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

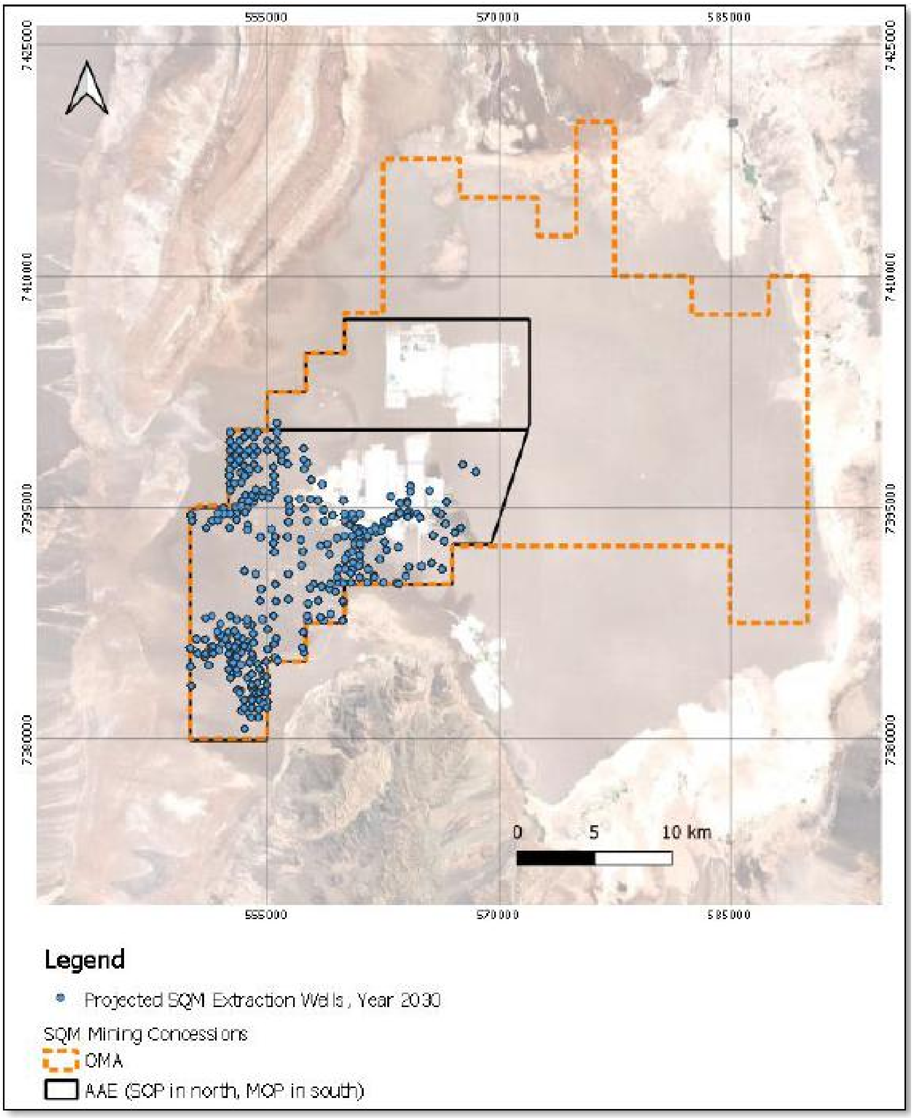
c) General view of a production brine well with an additional system for monitoring and control (telemetry)

d) Gathering ponds

13.5 Final Mine Outline

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

Figure 13-2. Final Mine Outline



14 PROCESSING AND RECOVERY METHODS

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

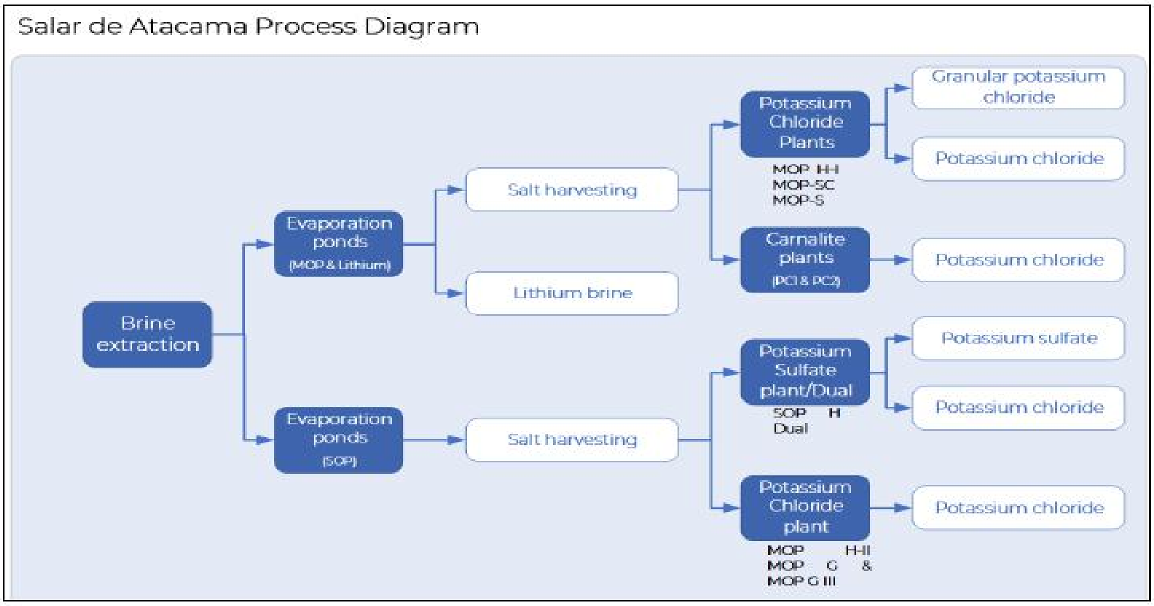
The purpose of the mine is to produce potassium chloride (KCl), potassium sulfate (K_2SO_4), lithium carbonate (Li_2CO_3), and lithium hydroxide (LiOH). The raw material for both processes is brine extracted from available salt properties, containing potassium, lithium, sulfates, boron, and magnesium.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

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

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

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

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



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

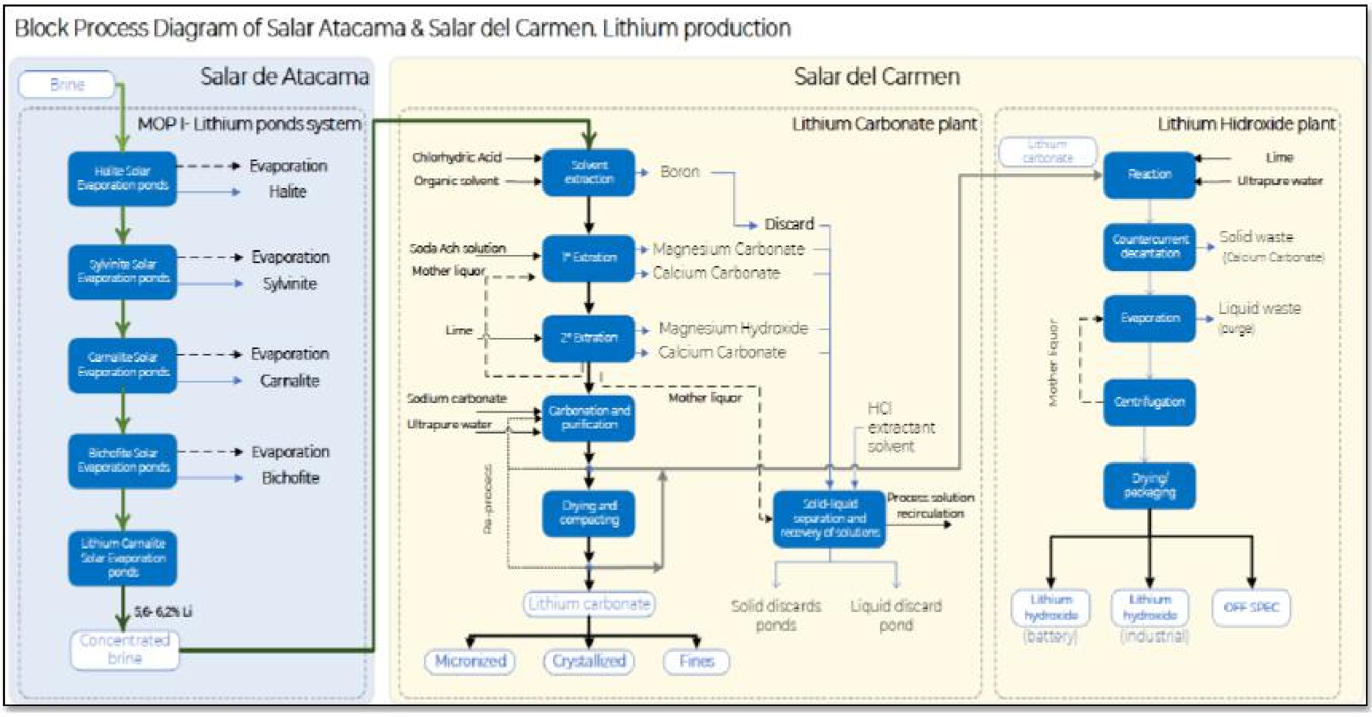
Table 14-1. Facilities Available for Productive Operations.

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

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

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

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



14.1 Process Description

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

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

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

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

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

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

14.1.1 Salar de Atacama production process

The production units of the Salar de Atacama are:

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

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

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

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

Table 14-2. Products of the Salar de Atacama

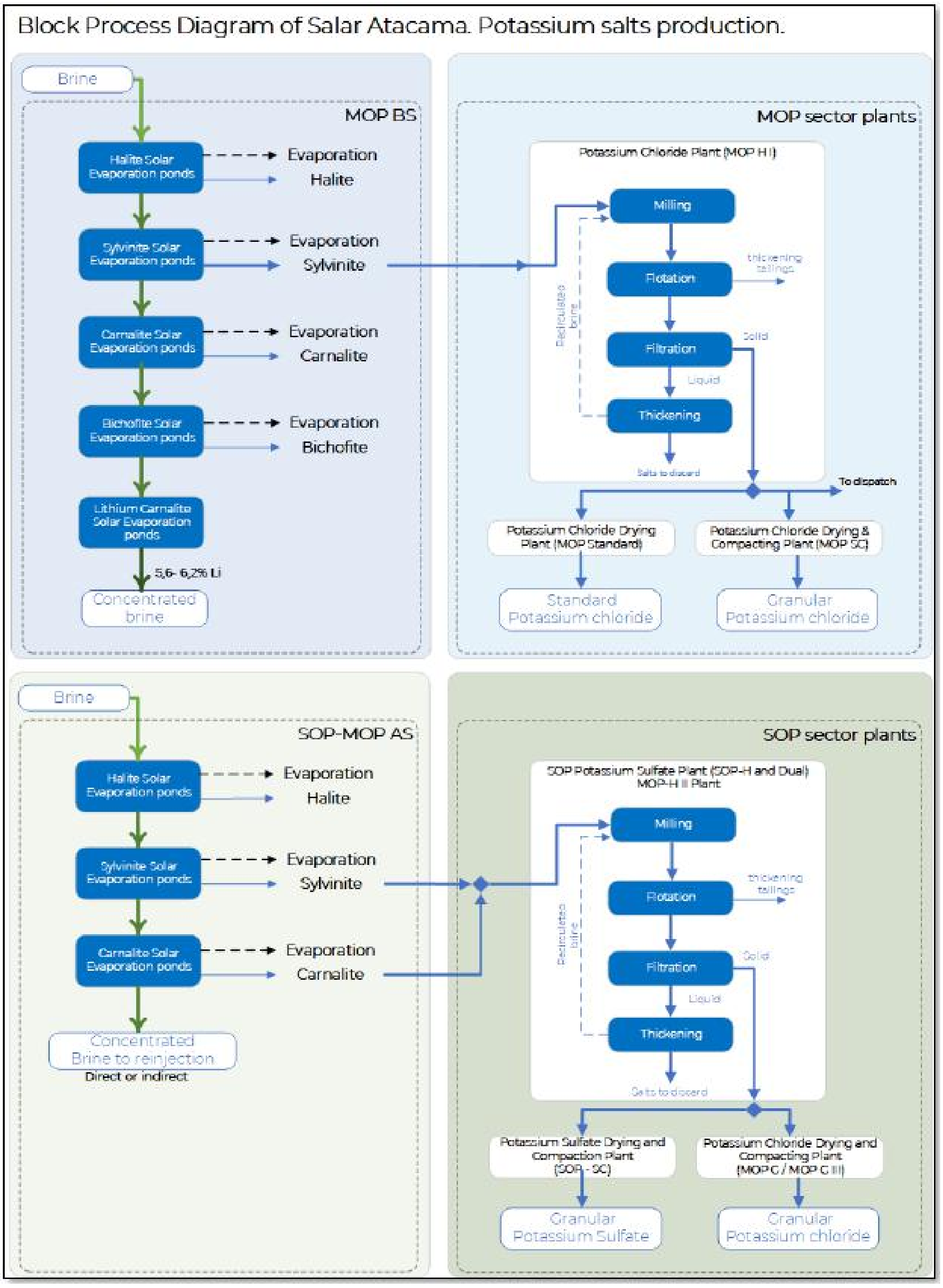
Production Unit	**Products**	
Solar evaporation ponds	Brines	-Pre-concentrated brine sent to the lithium production system. -Remaining brine sent for re-injection. -Concentrated lithium brine for dispatch to PQC.
	Harvested salts	-SOP sector potassium sulfate, potassium chloride is obtained. -MOP sector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

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

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

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

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

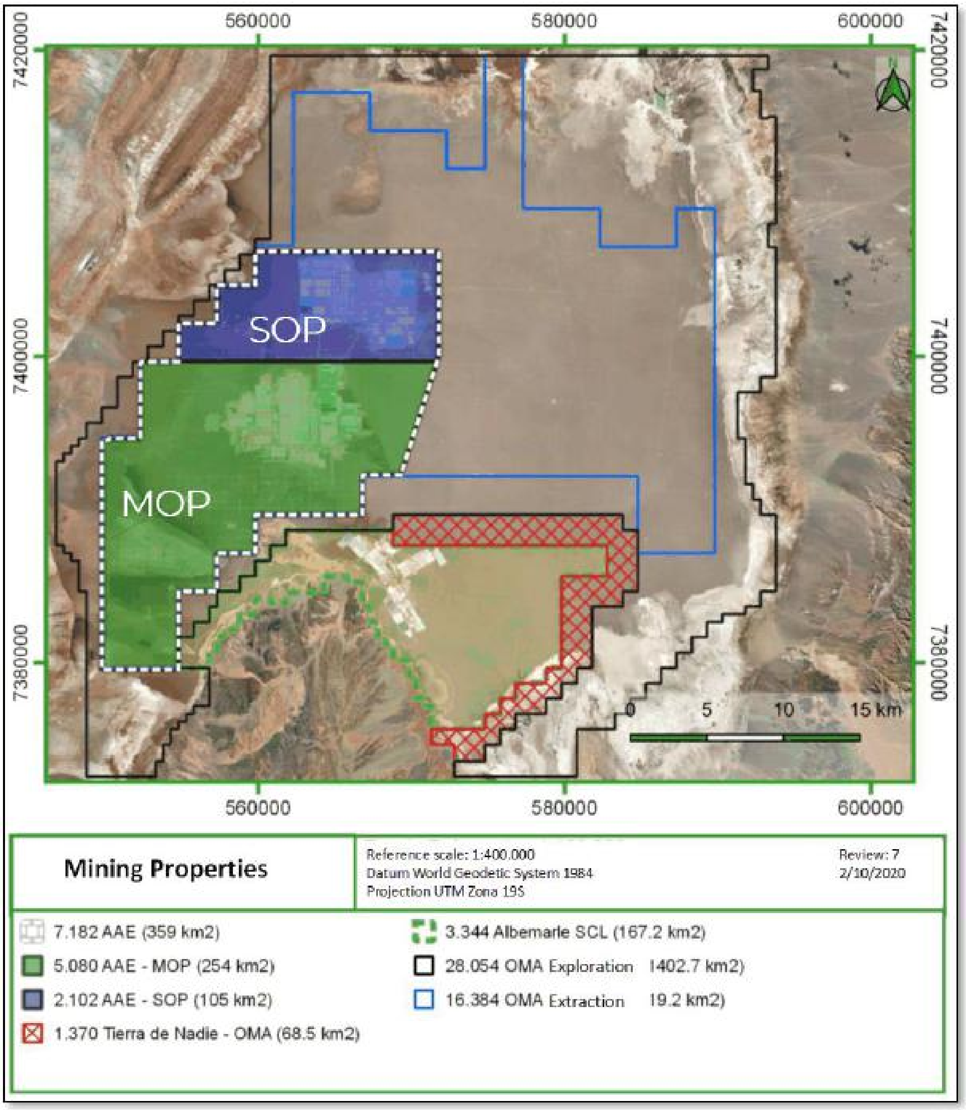


14.1.1.1 Mine and Industrial Water Supply

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

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

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



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

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

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

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

14.1.1.2 Solar Evaporation Ponds

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

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

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

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

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

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

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

a) SOP sector

b) MOP sector

14.1.1.3 SOP Sector

SOP and MOP H- II Plant

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

Production capacity of potassium sulfate plant is approximately 340,000 metric tonnes per year. In the dual plant, production alternates, to a certain extent, between potassium chloride and potassium sulfate. In this way, 95,000 metric tonnes are potassium chloride obtained as a by-product of potassium sulfate production process. In the dual plant, production alternates, to a certain extent, between potassium chloride and potassium sulfate.
Main by-products of potassium sulfate production are; (i), sodium chloride, which is deposited in stockpiles near production plant; and (ii), remaining solutions, which are re-injected into the Salar de Atacama, or returned to evaporation pond.

Potassium sulfate Drying and Compacting Plant (SOP - SC)

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

Existing equipment:

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

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

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

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

14.1.1.4 MOP sector

Potassium chloride plant (MOP H-I)

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

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

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

Potassium Chloride Drying and Compacting Plant (MOP-SC)

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

Potassium Chloride Drying Plant (Standard MOP)

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

Potassium Carnallite Plants (PC1- PC2)

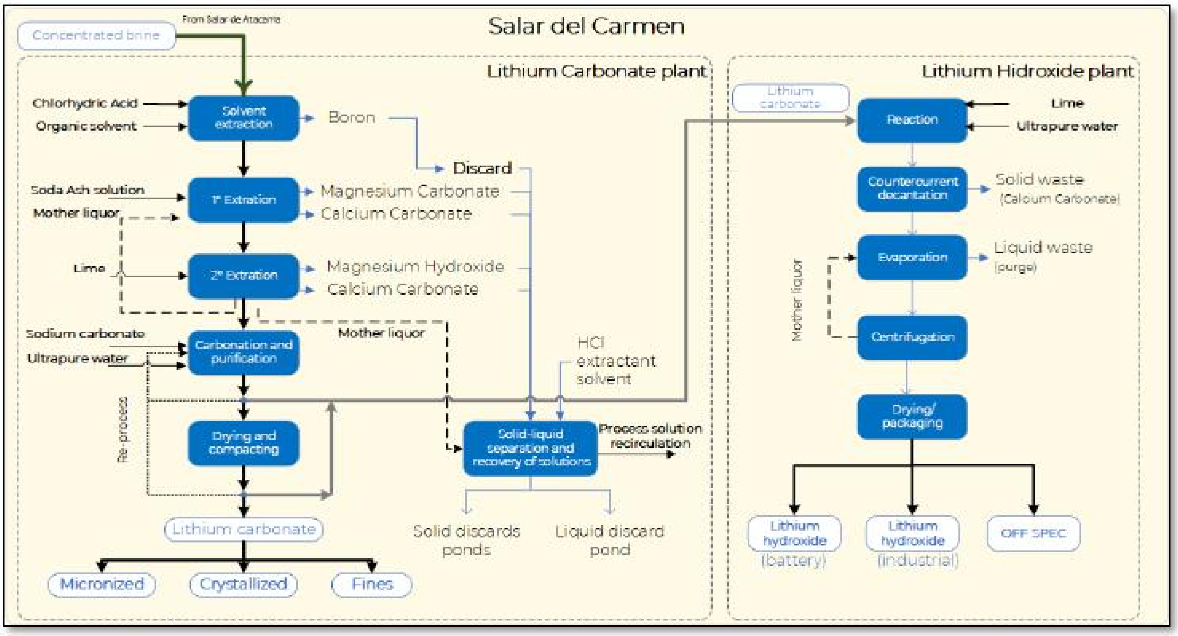
This Potassium Carnallite salt is processed at the Potassium Carnallite Plant (PC1 and PC2), which aims to increase Potassium Chloride (KCl) content in non-saturated brine. This KCl rich brine is fed to solar evaporation ponds, where sylvinite (KCl and sodium chloride (NaCl) mixture) is precipitated,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

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

14.1.2 PQC production process

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

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



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

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

- Liquid waste: water with boron and mother liquor.

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

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

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

The production units of the PQC are:

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

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

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

Lithium Hydroxide Battery Grade

14.1.2.1 Lithium carbonate plant

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

The main process steps correspond to:

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

Brine reception and storage.

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

Boron Removal Plant

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

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

Magnesium and calcium removal plant

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

Carbonation Plant

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

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

14.1.2.2 Lithium Hydroxide Plant

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

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

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

On the other hand, the calcium carbonate pulp obtained from the first stage is conveyed to a countercurrent washing and solids decantation process, in order to recover the entrained lithium hydroxide and obtain a decanted calcium carbonate solid, with very low lithium content.
The main process steps correspond to the following Figure 14-6.

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

- Clarification and filtration: The mixture obtained in the reactor is pumped to a clarifier, obtaining a lithium hydroxide solution and a calcium carbonate pulp. The lithium hydroxide solution is filtered, thus eliminating any trace of calcium carbonate.

- Decanting and centrifugation: The calcium carbonate pulp is conveyed to a countercurrent washing and solids decantation process to recover the entrained lithium hydroxide and obtain a decanted calcium carbonate solid with very low lithium content. The washed and decanted calcium carbonate pulp is fed to a solid-liquid separation equipment, from which a solid with low moisture content is obtained and discarded.

- Evaporation and crystallization: at this stage, multiple-effect evaporation allows crystallization of lithium hydroxide monohydrate (LiOHxH_2O).

- Centrifugation area: In this area, the crystals formed from the liquid saturated in lithium hydroxide are separated, eliminating entrained chloride and sulfate impurities.

- Drying and cooling: The lithium hydroxide monohydrate crystals from the centrifuges are dried and subsequently cooled. This process is carried out in totally encapsulated equipment, to avoid any emission that could affect the environment or the product, and under controlled temperature and humidity conditions.

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

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

14.2 Process Specifications and Efficiencies

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

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

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

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

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

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

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

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

Salar de Atacama	**2021**	**2020**	**2019**
Metric tonnes of lithium carbonate produced	108.4	72.2	62.3
Metric tonnes of potassium chloride and potassium sulfate and potassium salts produced	1,407	1,476	1,049

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

14.2.1 Brine extraction and Potassium products

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

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

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

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

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

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

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

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

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

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

14.2.2 Plant Throughput and Forecast

14.2.2.1 Salar de Atacama and PQC Production Yields

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

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

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

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

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

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

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

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

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

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

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

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

By the year 2020, PQC's lithium carbonate and lithium hydroxide production capacity was 70,000 t/year and 13,500 t/year, respectively. Overall plant throughput against a concentrated brine feed averages 77.9% (maximum 81%) for carbonate production and 85.7% (maximum 86.9%) for hydroxide production. By 2021, the production expansion of the carbonate plant, and optimizations and technological improvements was completed, allowing for the production of 120 ktonnes per year. A sequential annual increase in lithium carbonate production is planned to reach a production capacity of 180 ktonnes during 2022 and 250 ktonnes by 2025.

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

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

14.2.2.2 Production forecast

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

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

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

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

- Global potassium yield in the ponds remains between 65% and 66%. Considering only the MOP Sector, recovery factors vary between approximately 64% and 77% depending on the brine type (differentiated into low, high, and medium sulfate), as discussed in Section 12.4.1

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

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

14.3 Process requirements

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

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

14.3.1 Power and fuel requirements

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

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

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

Table 14-10. Summary of Energy Consumption per Year

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

14.3.2 Water Supply and Consumption

14.3.2.1 Water supply system

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

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

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

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

Table 14-11. Annual industrial water extraction from wells

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

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

14.3.2.2 Water consumption

Drinking water

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

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

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

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

Industrial water

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

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

14.3.3 Employee requirements

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

Table 14-13. Personnel required by area/activity

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

14.3.4 Process Plant Consumables

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

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

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

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

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

Lithium Carbonate Plant	**Unit**	**2022***	**2023***	**2024***	**2025***	**2026***	**2027***	**2028***	**2029***	**2030***
Soda Ash	Tonnes	381,600	381,600	381,600	381,600	381,600	381,600	381,600	381,600	381,600
Lime	Tonnes	15,300	15,300	15,300	15,300	15,300	15,300	15,300	15,300	15,300
HCl (32%)	m^3	32,180	32,180	32,180	32,180	32,180	32,180	32,180	32,180	32,180
Scaid (Diluent)	L	10,437	10,437	10,437	10,437	10,437	10,437	10,437	10,437	10,437
Exxal (Extractant)	L	2,719	2,719	2,719	2,719	2,719	2,719	2,719	2,719	2,719
H2SO4	Tonnes	6,045	6,045	6,045	6,045	6,045	6,045	6,045	6,045	6,045
NaOH	Tonnes	39,600	39,600	39,600	39,600	39,600	39,600	39,600	39,600	39,600
Filter Earth	Tonnes	10,800	10,800	10,800	10,800	10,800	10,800	10,800	10,800	10,800
Natural Gas (LNG)	MMBTU	39,795	39,795	39,795	39,795	39,795	39,795	39,795	39,795	39,795
Liquefied Gas (LPG)	MMBTU	33,948	33,948	33,948	33,948	33,948	33,948	33,948	33,948	33,948
Petroleum Diesel	MMBTU	22,852	22,852	22,852	22,852	22,852	22,852	22,852	22,852	22,852
Consumed Water	m^3	900,000	900,000	900,000	900,000	900,000	900,000	900,000	900,000	900,000
RIL	Tonnes	959,805	959,805	959,805	959,805	959,805	959,805	959,805	959,805	959,805
RIS	Ton	765,339	765,339	765,339	765,339	765,339	765,339	765,339	765,339	765,339

Lithium Hydroxide Plant	**Unit**	**2022***	**2023***	**2024***	**2025***	**2026***	**2027***	**2028***	**2029***	**2030***
Lime	Tonnes	41,050	41,050	41,050	41,050	41,050	41,050	41,050	41,050	41,050
H2SO4	Tonnes	1,546	1,546	1,546	1,546	1,546	1,546	1,546	1,546	1,546
Filter Earth	Tonnes	352	352	352	352	352	352	352	352	352
Natural Gas (LNG)	MMBTU	47,546	47,546	47,546	47,546	47,546	47,546	47,546	47,546	47,546
Liquefied Petroleum Gas (LPG)	MMBTU	36,277	36,277	36,277	36,277	36,277	36,277	36,277	36,277	36,277
Petroleum Diesel	MMBTU	39,270	39,270	39,270	39,270	39,270	39,270	39,270	39,270	39,270
Consumed Water	m^3	278,080	278,080	278,080	278,080	278,080	278,080	278,080	278,080	278,080
RIL	Tonnes	59,805	59,805	59,805	59,805	59,805	59,805	59,805	59,805	59,805
RIS	Tonnes	11,961	11,961	11,961	11,961	11,961	11,961	11,961	11,961	11,961

*According to RCA 057/110

Source: SQM (2021) l.

14.4 Qualified Person´s Opinion

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

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

- A significant methodology implemented successfully is the “Bischofite Platform” where the lithium recovery it is realized from impregnated salts. This initiative allows an increase of 3% yield.

- Another methodology proposed is the depletion of sulfate in the brine, an activity known as "calcium sourcing". To reduce or eliminate lithium losses by precipitation, the sulfate in the brine is abated with calcium chloride, thus preventing the lithium from precipitating as lithium sulfate. However, this measure competes almost exclusively with another alternative, which recovers lithium from precipitated salts as lithium sulfate. The "Li_2SO_4 Project", which aims to recover the lithium that precipitates as lithium sulfate in the MOP and SOP systems. It is advisable to review both alternatives, the "Li_2SO_4 Project" and "calcium sourcing", in terms of performance and cost impact.

- Because the cost of $CaCl_2$ per Tonnes of sulfate removed can be significantly high, it is necessary to consider a liming process with an alternative calcium source. Alternatives should be evaluated by laboratory testing to allow scalability to operating ponds.

- Resource variability in ratios of ions such as sulfate-magnesium (SO_4/Mg), potassium-magnesium (K/Mg), sulfate-calcium (SO_4/Ca) and lithium-magnesium (Li/Mg) must be studied and projected into the production plan since the ratios can directly impact compliance. The control of these parameters is of such importance that they can determine the decision to carry out engineering works for operational continuity.

- If this study confirms the variability of the chemical composition on brines, which implies a decrease of a specific species or ratio, for example, sulfate-calcium, engineering studies should be carried out for early incorporation of the process to prevent any unfavorable, or detrimental, effects.

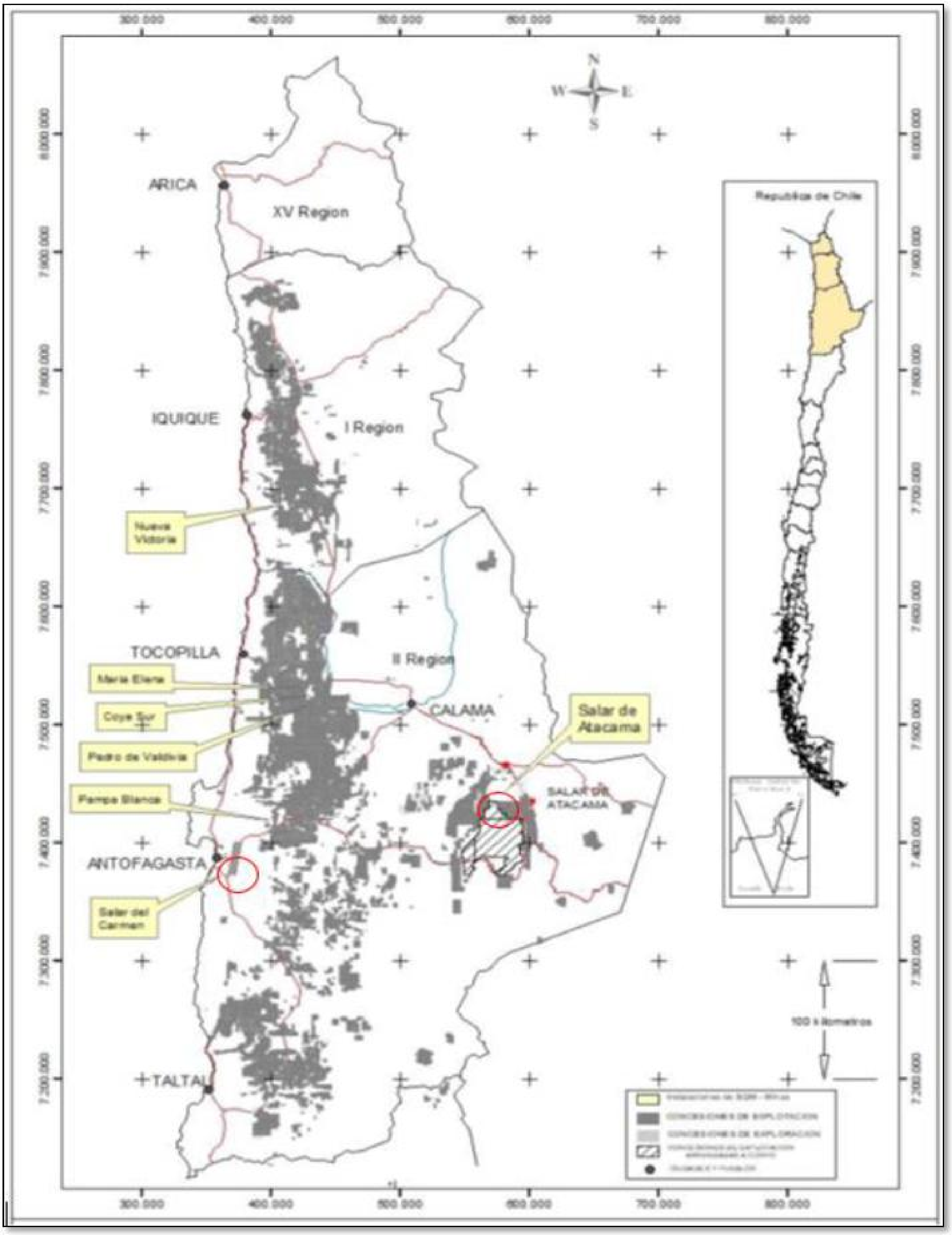
15 INFRASTRUCTURE

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

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

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

Figure 15-1. General Location Salar de Atacama Site



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

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

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

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

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

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

15.1 Access to Production Areas, Storage, and Port Shipping

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

15.2 Productive Areas and Infrastructure

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

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

Figure 15-2. SOP and MOP Plants

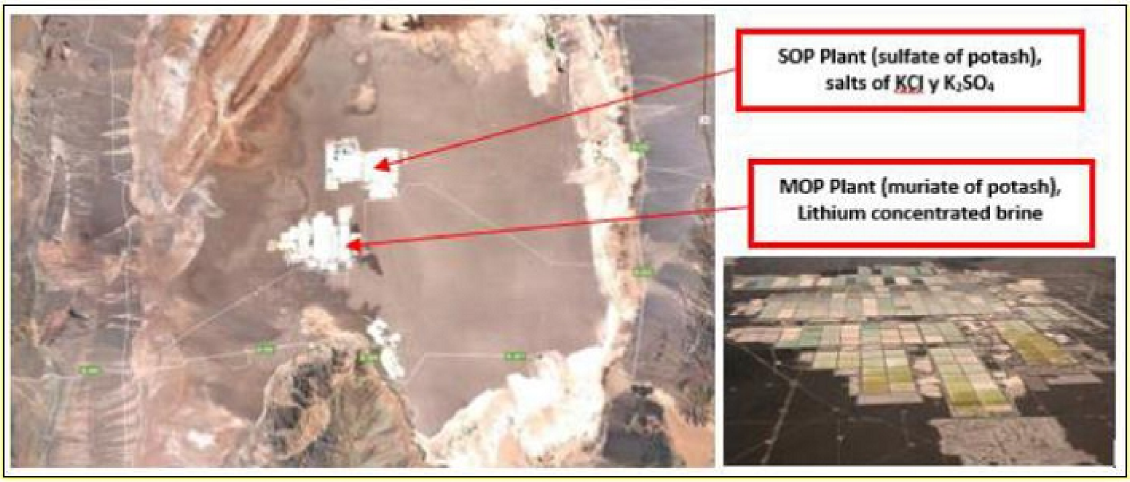


Figure 15-3. Location SOP and MOP Plants

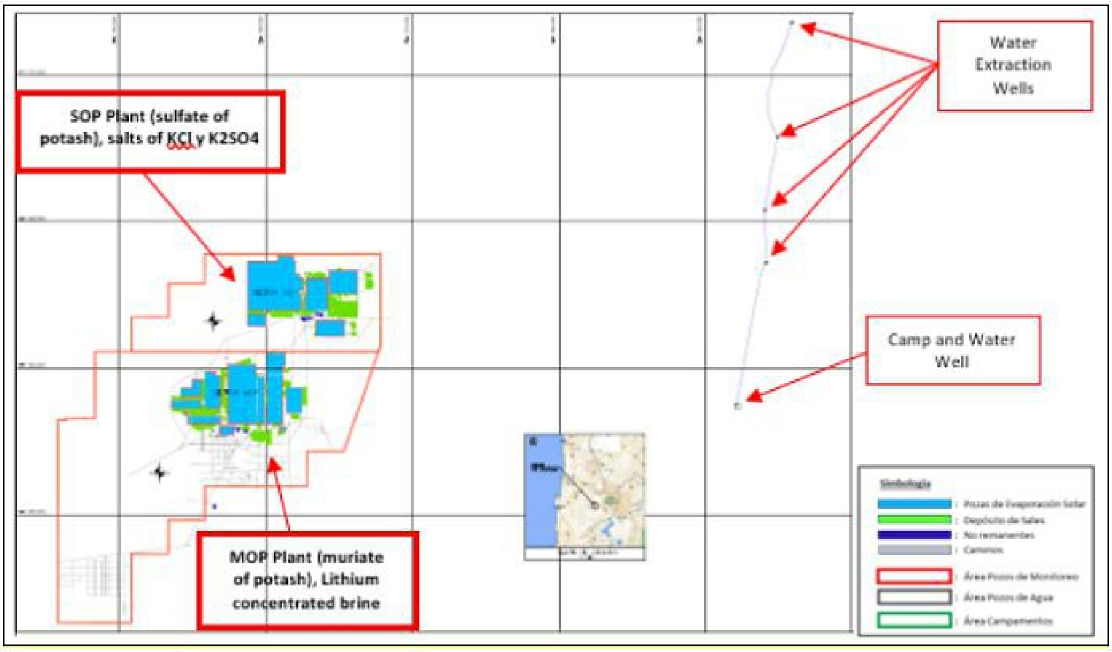
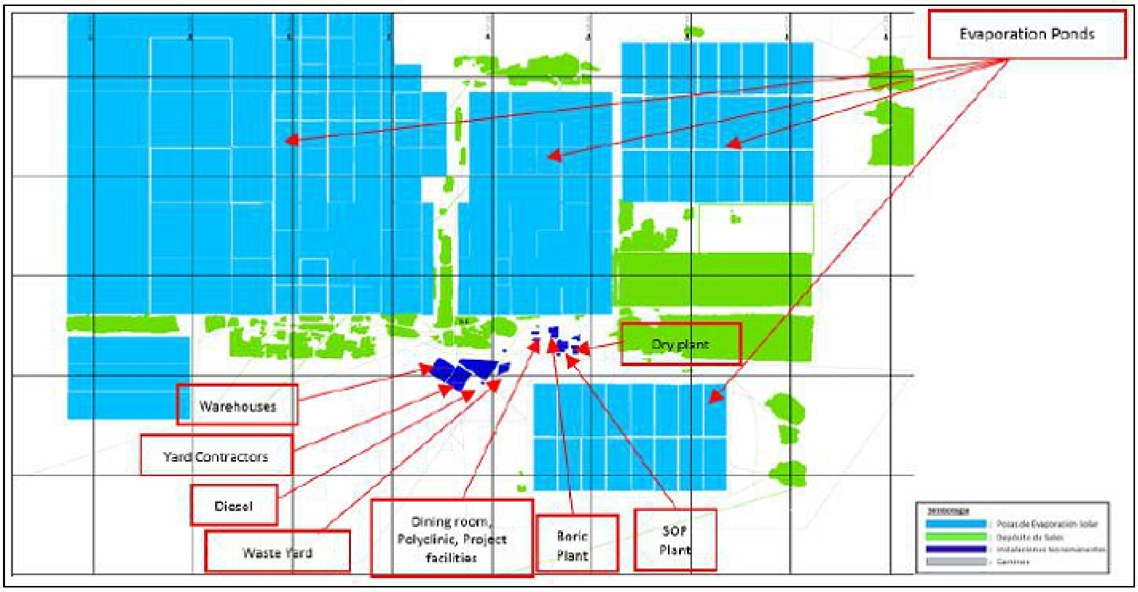


Figure 15-4. Facilities MOP

Figure 15-5. Facilities SOP



The Salar de Atacama facilities are broken down as follows:

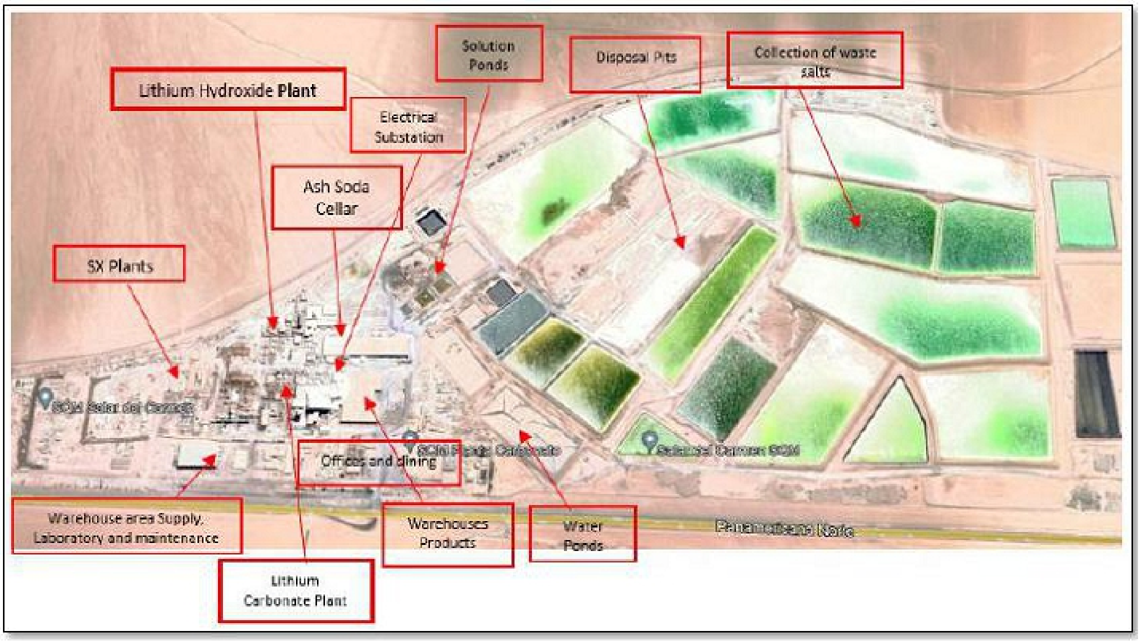
- Extraction Wells:
    - Operating Wells 2021: 379 Operating Wells / Average Depth: 39.5 m each.
    - Wells Out of Offer 2021: 31 Wells Out of Offer during 2021.
    - 45 pumps in SDD, (19 are stand-by pumps)
    - 379 Submersible Well Pumps (Each operating well has 1 pump)
    - HDPE pipe
- Evaporation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

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

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

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

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



Infrastructure and main equipment in Lithium Carbonate Plant:

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

Infrastructure and main equipment in Lithium Hydroxide Plant::

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

Infrastructure and main equipment Powerhouse:

- Transformer // Electrical equipment facilities

Infrastructure and main equipment in stockpiling and dispatch:

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

15.3 Communications

15.3.1 Salar de Atacama and Salar del Carmen:

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

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

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

15.4 Power Supply

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

15.4.1 Salar de Atacama

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

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

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

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

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

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

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

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

15.5 Supply of Fuels

15.5.1 Salar de Atacama

The facilities require:

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

15.5.2 Salar del Carmen

The facilities require:

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

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

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

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

15.6 Water Supply

15.6.1 Salar de Atacama

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

15.6.2 Salar del Carmen

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

16 MARKET STUDIES

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

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

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

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

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

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

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

16.1 Material Contracts for Salar de Atacama

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

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

SQM is a leading producer of lithium carbonate, which is used in a variety of applications, including electrochemical materials for batteries used in electric vehicles, portable computers, tablets, cellular telephones and electronic apparatus, frits for the ceramic and enamel industries, heat-resistant glass (ceramic glass), air conditioning chemicals, continuous casting powder for steel extrusion, pharmaceuticals, and lithium derivatives. It is also a leading supplier of lithium hydroxide, which is primarily used as an input for the lubricating greases industry and for cathodes for high energy capacity batteries.

In 2020, the SQM´s revenues from lithium sales amounted to US$383.4 million, representing 21.1% of the total revenues. The lithium chemicals’ sales volumes accounted for approximately 19% of the global sales volumes.

Lithium: Market

The lithium market can be divided into:

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

II. basic lithium chemicals, which include lithium carbonate and lithium hydroxide (as well as lithium chloride, from which lithium carbonate may be made), and

III. inorganic and organic lithium derivatives, which include numerous compounds produced from basic lithium chemicals (in which market SQM does not participate directly).

Lithium carbonate and lithium hydroxide are principally used to produce the cathodes for rechargeable batteries, taking advantage of lithium’s extreme electrochemical potential and low density. Batteries are the leading application for lithium, accounting for approximately 75% of total lithium demand, including batteries for electric vehicles, which accounted for approximately 54% of total lithium demand. There are many other applications both for basic lithium chemicals and lithium derivatives, such as lubricating greases (approximately 5% of total lithium demand), heat-resistant glass (ceramic glass) (approximately 5% of total lithium demand), chips for the ceramics and glaze industry (approximately 2% of total lithium demand), chemicals for air conditioning (approximately 1% of total lithium demand), and many others, including pharmaceutical synthesis and metal alloys.

During 2020, lithium chemicals demand increased by approximately 6%, reaching approximately 330,000 metric tonnes. It expects applications related to energy storage to continue driving demand in the coming years.

Lithium: Products

The annual production capacity of the lithium carbonate plant at the Salar del Carmen is now 120,000 metric tonnes per year. SQM is in the process of increasing the production capacity to 180,000 metric tonnes per year. Technologies used, together with the high concentrations of lithium and the characteristics of the Salar de Atacama, such as high evaporation rate and concentration of other minerals, allow SQM to be one of the lowest cost producers worldwide.

The lithium hydroxide facility has a production capacity of 21,500 metric tonnes per year and SQM is in the process of increasing this production capacity to 30,000 metric tonnes per year. In addition, in February 2021 SQM approved the investment for the 50% share of the development costs in the Mt. Holland lithium project in the joint venture with Wesfarmers, which SQM expects will have a total production capacity of 50,000 metric tonnes.

Lithium: Marketing and Customers

In 2020, SQM sold the lithium products in 42 countries to 187 customers, and most of the sales were to customers outside of Chile. SQM make lease payments to CORFO which are associated with the sale of different products produced in the Salar de Atacama, including lithium carbonate, lithium hydroxide and potassium chloride.

SQM sells lithium carbonate and lithium hydroxide through the own worldwide network of representative offices and through the sales, support, and distribution affiliates. In December 2020, SQM signed a nine-year sales contract with LG Energy Solution for up to 55,000 metric tonnes of lithium carbonate equivalent.

Lithium: Competition

Lithium is produced mainly from two sources: concentrated brines and minerals. During 2020, the main lithium brines producers were Chile, Argentina and China, while the main lithium mineral producers were Australia and China.

With total sales of approximately 64,600 metric tonnes of lithium carbonate and hydroxide, SQM’s market share of lithium chemicals were approximately 19% in 2020.

One of the main competitors is Albemarle Corporation (“Albemarle”), which produces lithium carbonate and lithium chloride in Chile and the United States, along with lithium derivatives in the United States, Germany, Taiwan and China, with a market share of approximately 22%.

Albemarle also owns 49% of Talison Lithium Pty Ltd. (“Talison”), an Australian company, that is the largest producer of concentrated lithium minerals in the world, based in Western Australia. The remaining 51% of Talison is owned by Tianqi Lithium Corp. (“Tianqi”), a Chinese company producing basic lithium chemicals in China from concentrated lithium minerals. Talison sells a part of its concentrated lithium mineral production to the direct use market, but most of its production, representing approximately 21% of total lithium chemical demand, is converted into basic lithium chemicals in China by Tianqi and Albemarle. They are planning to begin production at its lithium hydroxide plant in Australia in late 2021. Tianqi is also a significant shareholder of SQM, holding 25.86% of the shares.

Another important competitor is Livent Corporation ("Livent"), with an estimated market share of approximately 6%. Livent has production facilities in Argentina through Minera del Altiplano S.A., where it produces lithium chloride and lithium carbonate. In addition, Livent produces lithium derivatives in the United States, the United Kingdom and China. Orocobre Ltd., based in Argentina, produces lithium carbonate, with a market share of approximately 3%.

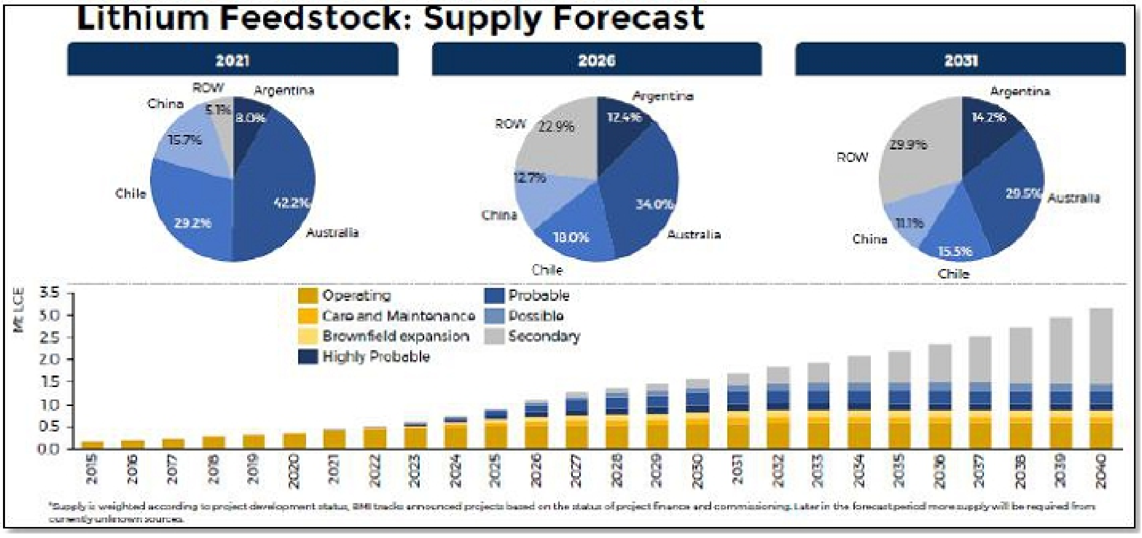
In addition, there were at least ten other companies producing lithium in China from brines or minerals in 2020.

It is expected that lithium production will continue to increase in the near future, in response to an increase in demand growth. A number of new projects to develop lithium deposits has been announced recently. Some of these projects are already in the advanced stages of development and others could materialize in the medium term.

16.3 Supply

According to Benchmark Mineral Intelligence "Q3 2021 Forecast", 2021 mined supply has been revised up to 458.6 kt LCE. It is estimated that 136.3kt of lithium hydroxide and 283kt of lithium carbonate will be produced in 2021. This increase is unlikely to meet rising demand, placing both chemicals in a deficit position, reflecting the strong demand-pull for feedstocks currently being felt in China.

Figure 16-1. Lithium Feedstock, supply forecast



Source: SQM-Benchmark Mineral Intelligence Lithium Forecast Q3 2021

In China is expected to produce around 153kt LCE of lithium carbonate, and 110kt LCE of lithium hydroxide in 2021. The majority of feedstock is imported. Most lithium chemical production in China is produced from Australian spodumene, in addition to a very small amount imported from Brazil. Supplementing this, and largely feeding directly into battery demand, is 41kt LCE of lithium carbonate imported from Chile and Argentina in 1H21.

In Australia, there are four spodumene producers currently operating, with around 191kt LCE of spodumene concentrates expected to be produced in 2021.

In Argentina, there are currently two lithium producers: Livent and Orocobre. These producers operate from the Salar del Hombre Muerto and Salar de Olaroz respectively. Expectations on output for 2021 remains unchanged this quarter, with both operating at or close to production capacity.

SQM is expected to produce 90kt LCE of lithium carbonate at Salar del Carmen (up from 78kt LCE previously) and convert 10kt LCE of this to lithium hydroxide. Output is not expected to reach 130kt LCE capacity until around 2023, with production from a second round of expansions not expected to hit markets until 2025. Albemarle is expected to produce around 42kt LCE of lithium carbonate in 2021. MSB (majority owned by Lithium power International) is targeting an initial capacity of 15kt LCE for its Maricunga project, not expected to enter the market until 2025 at the earliest.

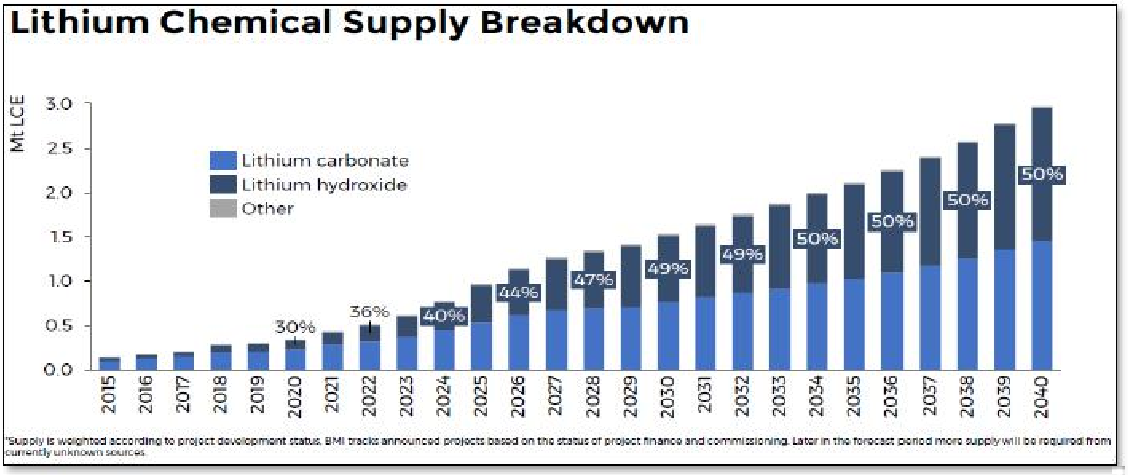
16.4 Demand

Demand estimates for lithium in LFP (Lithium Ferro Phosphate) cathodes have increased in Q3 2021 to 66.4kt LCE in 2021. Medium and long-term demand has also been revised upwards as cell manufacturers continue to bring new LFP capacity into production.

Increased demand for LFP cathodes comes at the expense of NCM (Nickel, Cadmium and Manganese) cathodes. LFP cathode market share is expected to make up roughly 22% of cathode demand in 2030, while NCM has been downgraded to 60% of the market.

Total base-case battery demand is expected to climb to 346 GWh in 2021, translating to an adjusted 339kt LCE lithium demand in 2021, up from 225kt LCE in 2020. Adjusted base case demand from battery end-use is expected to reach 473kt LCE in 2021. The upward revision comes as China’s EV penetration rates continue to climb.

Figure 16-2. Lithium Chemical Supply Breakdown



*Supply is weighted according to project development status. BMI tracks announced projects based on the status of project finance and commissioning. Later in the forecast period more supply will be required from currently unknown sources.

Source: SQM-Benchmark Mineral Intelligence Lithium Forecast Q3 2021

16.5 Balance

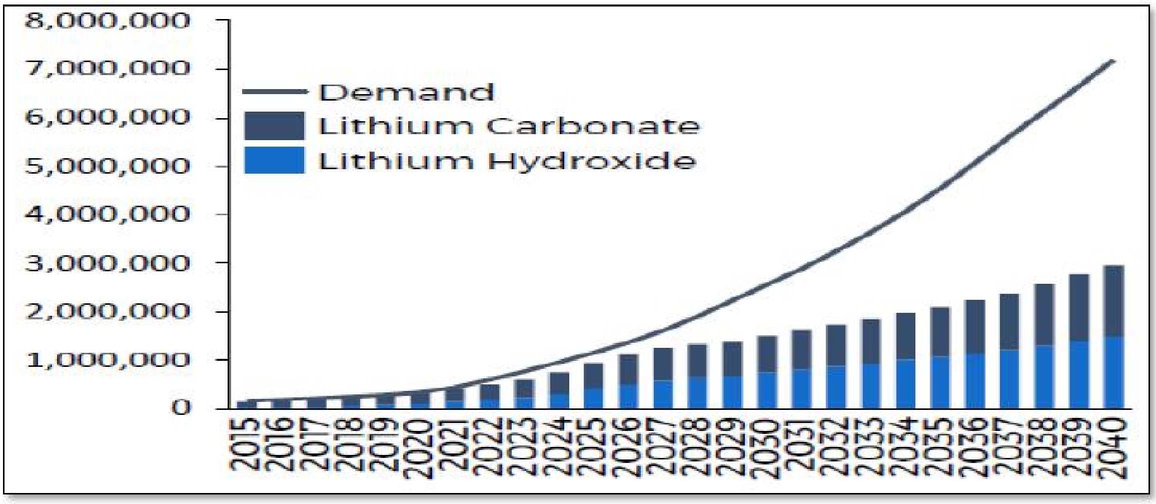
Short-term market

- 2021 is expected to finish in a deficit position of around 14.8kt LCE tonnes. The deficit position is despite a stronger than expected response from Talison and SQM, with the latter being able to leverage pond capacity originally intended for the potash market.
- 2021 base-case demand has been revised up to 473kt LCE this quarter, with further upside potential.
- The deficit in lithium chemicals is greater than that of overall supply, owing primarily to conversion losses but also the lack of ability to ramp up to full capacity targets, particularly in China.
- A renewed focus on LFP battery production is expected keep pressure on carbonate supply in the short-term. This latest update shifts the deficit more heavily towards carbonate from 2021-2023.

Medium to long term market dynamics

- 2023 is expected to be in a significant deficit position despite the restart of various idled operations.
- Due to the ramp-up time and investment required to bring new projects online, there is little chance that the market will move into surplus before 2025.
- In the extremely unlikely event that all projects to enter production on or before 2025, the market has the potential to balance from that year until 2029. However, in this case, it would be likely that demand would enter an upside scenario, placing the market back into a deficit.
- It is likely that in the medium-long term that PEV penetration will be limited by material supply, rather than demand.

Figure 16-3. Lithium Carbonate and Hydroxide demand

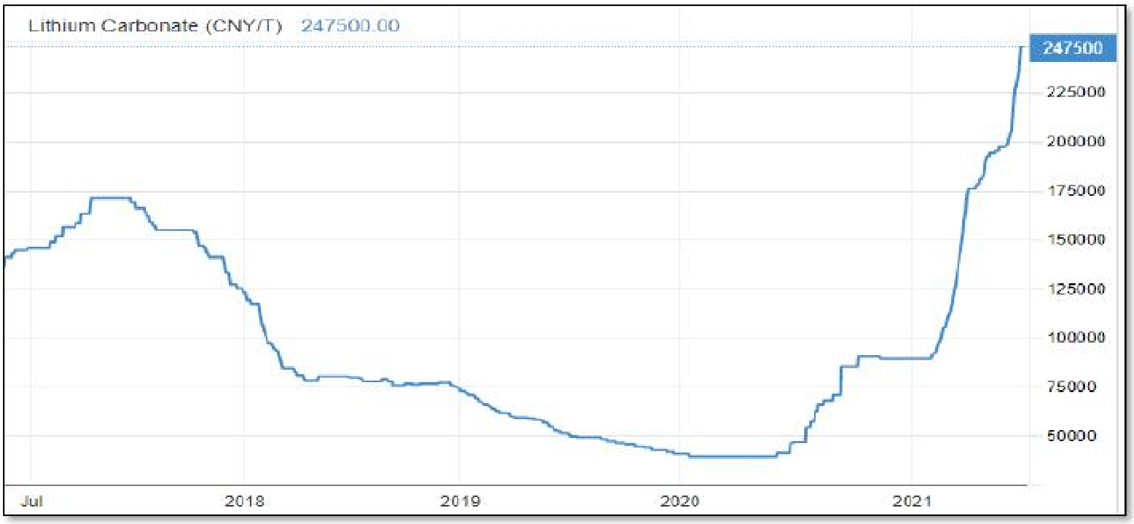


Source: SQM-Benchmark Mineral Intelligence Lithium Forecast Q3 2021

16.6 Lithium Price

<u>Historic Price Evolution (in Chinese Yuan)</u>

Figure 16-4. Lithium historic Price Evolution



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

Short term

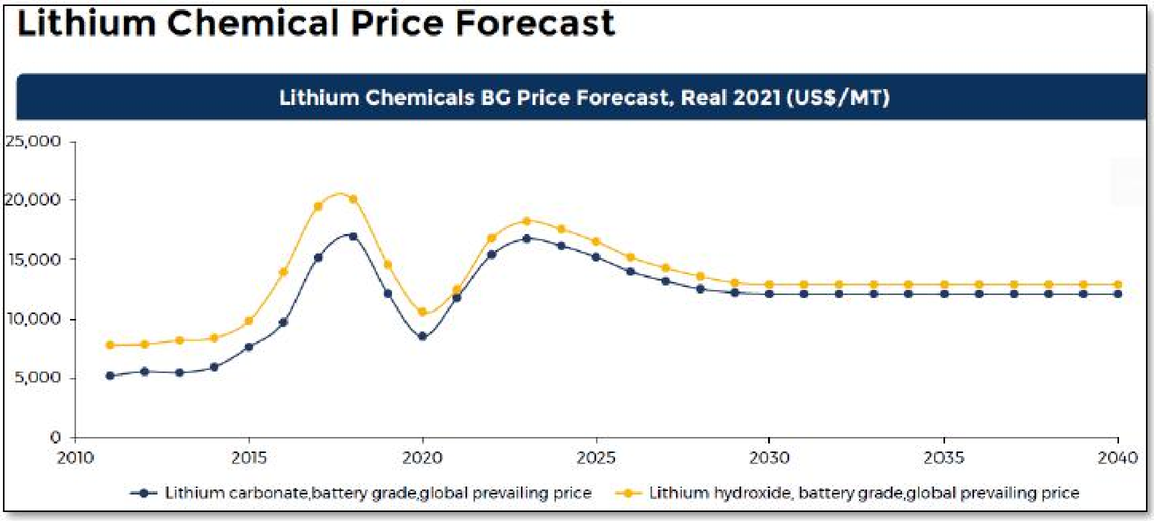
- In the near-term, prices are expected to continue to rise as demand outstrips supply, with no additional tonnage available to ease market tightness in the coming months.

Long term

- Prices are expected to increase but likely to be unsustainable at US$16,000-18,000/ton. Even in the case where supply cannot meet demand, prices will likely stay high but fall back to a sustainably higher price which is able to incentivize new supply. While the chemicals industry in China seems to have little barrier to ramping up, supply bottlenecks at the mine-site level exist and will need to be solved.

- Long-term price incentives: it remains the view that long-term incentive price for lithium carbonate of USD12,110/ton will be required to sustain new project development post-2030.

Figure 16-5. Lithium chemical Price forecast



Source: SQM-Benchmark Mineral Intelligence Lithium Forecast Q3 2021

16.7 Potassium

SQM produces potassium chloride and potassium sulfate from brines extracted from the Salar de Atacama. Potassium chloride is a commodity fertilizer used to fertilize a variety of crops including corn, rice, sugar, soybean, and wheat. Potassium sulfate is a specialty fertilizer used mainly in crops such as vegetables, fruits, and industrial crops.

Potassium Market, Competition, Customers, Products

In 2020, the potassium chloride and potassium sulfate revenues amounted to US$209.3 million, representing 11.5% of the total revenues and a 1.3% decrease compared to 2019, because of decreased average prices. SQM accounted for approximately 1% of global sales of potassium chloride in 2020. Since 2009, the effective product capacity has increased to over 2 million metric tonnes per year, granting us improved flexibility and market coverage.

Potassium: Market

During the last decade, growth in demand for potassium chloride, and for fertilizers in general, has been driven by several key factors, such as a growing world population, higher demand for protein-based diets and less arable land. All these factors contribute to fertilizer demand growth as a result of efforts to maximize crop yields and use resources more efficiently. For the last ten years, the compound annual growth for the global potassium chloride market was approximately 1 to 2%. That demand increased 3 million metric tonnes in 2020, reaching approximately 67 million metric tonnes.

Potassium: Products

Potassium chloride differs from the specialty plant nutrition products because it is a commodity fertilizer and contains chloride. SQM offers potassium chloride in two grades: standard and compacted. Potassium sulfate is considered a specialty fertilizer and SQM offer this product in soluble grades. The following table shows the sales volumes of and revenues from potassium chloride and potassium sulfate for 2020, 2019 and 2018:

Table 16-1. Volumes of and Revenues from Potassium Chloride and Potassium Sulfate

	2020	2019	2018
Potassium chloride and potassium sulfate (Th. MT)	726.7	597.3	831.8
Total revenues (in US$ millions)	209.3	212.2	267.5

The sales volumes in 2020 were approximately 21.7% higher than sales volumes reported last year. Average prices for potassium chloride during the fourth quarter of 2020 were about US$244/metric ton, flat when compared to the third quarter of 2020.

Potassium chloride and potassium sulfate revenues for the nine months ended September 30, 2021, totaled US$208.0 million, higher than revenues reported for the nine months ended September 30, 2020, which totaled US$143.0.

Potassium Chloride and Potassium Sulfate Volume and Revenues:

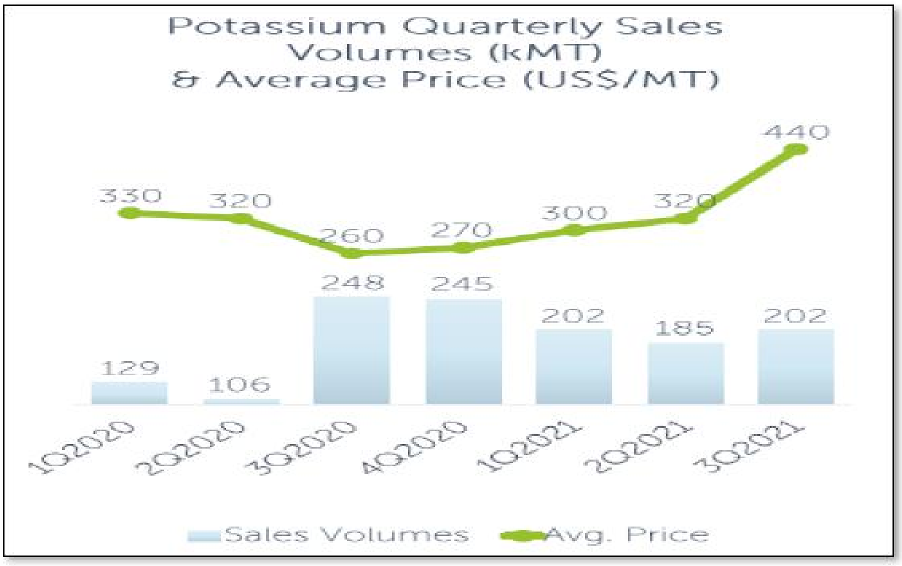
Table 16-2. Potassium Chloride and Potassium Sulfate Volume and Revenues

		9M2021	9M2020	2021/2020	
Potassium Chloride and Potassium Sulfate	Th. MT	588.6	482.1	106.5	22.1%
Potassium Chloride and Potassium Sulfate Revenues	MUS$	208.0	143.0	65.0	45.5%

		3Q2021	3Q2020	2021/2020	
Potassium Chloride and Potassium Sulfate	Th. MT	201.8	247.5	-45.7	-18%
Potassium Chloride and Potassium Sulfate Revenues	MUS$	88.7	65.5	23.3	36%

Source: SQM Reports Earnings for third Quarter of 2021

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



Source: SQM Third Quarter 2021 Results

Average prices in the potassium market increased significantly in the first nine months of 2021, with an SQM realized average price close to US$ 440 per metric ton in the third quarter, an increase of over 66% compared to the same period of 2020.

Potassium: Marketing and Customers

In 2020, SQM sold potassium chloride and potassium sulfate to approximately 509 customers in 41 countries. No individual customer accounted for more than 10% of the revenues of potassium chloride and potassium sulfate in 2020. SQM sends about 10% of its production to another SQM facility (Coya Sur) as raw material for production of Nitrates. SQM make lease payments to CORFO which are associated with the sale of different products produced in the Salar de Atacama, including lithium carbonate, lithium hydroxide and potassium chloride.

Potassium: Competition

SQM accounted for approximately 1% of global sales of potassium chloride in 2020. Main competitors are Nutrient, Uralkali, Belaruskali and Mosaic. In 2020, Belaruskali accounted for approximately 18% of global sales, Nutrient accounted for approximately 19% of global sales, Uralkali accounted for approximately 16% of global sales, and Mosaic accounted for approximately 14% of global sales.

17 ENVIRONMENTAL STUDIES, PERMITTING AND PLANS, NEGOTIATIONS OR AGREEMENT WITH LOCAL INDIVIDUAL OR GROUPS

This sub-section contains forward-looking information related to permitting requirements, plans and agreements with local individuals or groups as related to the project the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this sub-section including regulatory framework is unchanged for Study period and no unforeseen environmental, social or community events disrupt timely approvals and project execution.

The following section details the regulatory environment of the Project. It presents the applicable laws and regulations and lists the permits that will be needed in order to begin the mining operations. The environmental impact assessment (EIA) process requires that data be gathered on many components and consultations be held to inform the Project relevant stakeholders. The main results of this inventory and consultation process are also documented in this section. The design criteria for the water and mining waste infrastructure are also outlined. Finally, the general outline of the mine's rehabilitation plan is presented to the extent of the information available now.

17.1 Environmental Studies

The Law 19,300/1994 General Bases of the Environment (Law 19.300 or Environmental Law), its modification by Law 20.417/2010 and Supreme Decree N°40/2012 Environmental Impact Assessment System regulations (DS N°40/2012 or RSEIA)) determines how projects that generate some type of environmental impact must be developed, operated, and closed. Regarding mining projects, the art. 10.i of the Environmental Law defines that mining project must be submitted to the Environmental Impact Assessment System (SEIA) before being developed.

Salar de Atacama project is in the commune of San Pedro de Atacama commune in Antofagasta Region. The Project produces mainly potassium chloride and low lithium chloride solution for the production of lithium hydroxide, and lithium carbonate in Sala del Carmen- Antofagasta. The productive process considers the extraction of underground water and the extraction of brine from Salar de Atacama.

17.1.1 Base Line of different components

Each time the project has been submitted to the SEIA, baseline environmental studies have been carried out. The following is a more detailed analysis of the baseline components, taking into consideration the EIA of the project "Plan de Reducción de Extracciones en el Salar de Atacama" submitted in January 2022 and other previous studies:

17.1.1.1 Soil and land use:

In the area of influence of the project were identified 5 soil units, which are:

- Soil in old alluvial fans: the use observed in this unit was seasonal grasslands with very open cover or shrublands with very open to open canopy cover
- Soil in active channels and recent alluvial fans: the use observed in all the sampling points is seasonal grasslands with very open cover or shrublands with very open to open canopy cover
- Soil in depressive area: the use soil observed in all the samplings points was hydromorphic vegetation.
- Soil in evaporitic deposit in transition: the used observed in all the samplings points is shrublands with variable cover between very open to dense
- Soil in evaporitic deposit: in all samplings points was observed bare soil.

Additionally, two other units were observed. The units observed were lagoons and intervened areas. The intervened areas are areas where the original characteristic were modified as consequence of construction of towns, or mine operations in the area.

Table 17-1. Soil units observed in the project area

Unit	Soil use classification	Surface (ha)
Soil in old alluvial fans	VI-VIII	3.56
Soil in active channels and recent alluvial fans	VII-VIII	2.18
Soil in depressive area	V	1,039.02
Soil in evaporitic deposit in transition	VIII	1.74
Soil in evaporitic deposit	VIII	8.62

17.1.1.2 Terrestrial fauna

The EIA submitted in January 2022, identified a total of 60 species in the study area: 1 amphibian species, 4 reptile species, 42 bird species and 13 mammal species. of the total species observed 22 are listed according with their conservation status, 1 of them considered as a threatened species (Lagartija de Fabián).

17.1.1.3 Vegetation

In the area of influence were observed the following type of vegetation:

- Bushes (19,1 % of the total surface).
- Grasslands (8% of the total surface).
- Mixed formations conformed by bushes and herbaceous (1% of the total surface).
- Xerophyte plants which are originated from the presence of Proposis alba and Proposis tamarugo.
- Vascular Flora: 36 species are in this area.

Of the total of species observed, 2 species are native of Chile (Proposis alba and Proposis tamarugo) and 3 species are in some conservation category (Proposis alba, Nitrophila atacamensis and Proposis tamarugo).

17.1.1.4 Aquatic Flora and Fauna

In the EIA submitted in 2022, it was defined as area of influence the easter and southern edge of the Salar de Atacama, divided in 5 sectors (Solor, Soncor, Aguas de Quelana, Peine and Tilopozo)

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

As general points, it has been found that the benthonic microalgae populations have a significative association to nitrite, the phytoplankton and zooplankton communities are no linked to any variable of water quality and zoobenthos communities are associated to a combination of calcium, electrical conductivity and total nitrogen.

17.1.1.5 Hydrology and Hydrogeology

The Salar de Atacama basin is an endorheic basin, infiltrating much of its feed water as it moves towards the center of the salar. Rainfall occurs mainly during the months of December to March. In the Salar basin 5 morphometric zones were observed. Table 17-2 details each zone.

Table 17-2. Hydrological Zones Defined in Salar Basin

Zone	Surface (km2)	Characteristics
Nucleus Zone	1,328.1	Has a low altitudinal variation, with an almost completely flat surface without surface runoff almost all year
Marginal Zone	1,648	It is characterized by very low topographic gradients, with no surface runoff throughout the year, except for the Burro Muerto Channel, which originates from groundwater emergence
Alluvial Zone	2,219.4	It is characterized by a low to medium topographic gradients, without superficial runoff during almost all year.
Subbasin zone	11,550.4	It has two domains divided by a north-south axis: the Andean subzone (east) is characterized by medium to high topographic gradients, with permanent or intermittent surface runoff throughout the year. In this subzone are the streams and rivers that recharge the Salar, whose resources come from precipitation in the upper and middle zones of the basin. In the Domeyko subzone (west) the gradients are generally high, with no permanent runoff throughout the year, except during significant rainfall events.
Arreicas zone	252.3	It is characterized by combined topographic and lithological characteristics that prevent them from being grouped in the previous classification and, in turn, do not allow the generation of any type of runoff during the year

- Additionally, 5 local system existed in the area, which are: Soncor System: Located to the northwest of the Núcleo del Salar, it holds the Puilar, Chaxa and Barros Negros lagoons. Aguas de Quelana Systems: this system is conformed for a group of shallow lagoons, located in a flat topographic zone.

- Peine System: Located southeast of the Salar Core, containing the Salada, Saladita and Interna lagoons, aligned in a southeast-northwest direction.

- Tilopozo System: Located to the south of the salar core and home to a series of vegas (most notably the Vega de Tilopozo) in addition to the La Punta and La Brava lagoon systems.

In particular, RCA 226/2006 establishes as objects of protection the Puilar, Chaxa and Barros negros lagoons (Soncor system); the vegetation of the Borde Este system, the lagoon bodies of the Aguas de Quelana system, the Salada, Saladita and Interna lagoons (Peine system) .

The latest baseline study prepared by SQM found that the water level in the nucleus of the salt flat and the alluvial aquifer system have been affected by the water extraction carried out between 1986 to 2020. Regarding the core of the Salar the largest declines occurred in the West block. In the alluvial aquifer system, the cones of descent of the extraction wells can be seen; however, in the marginal area, the decline is insignificant.

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

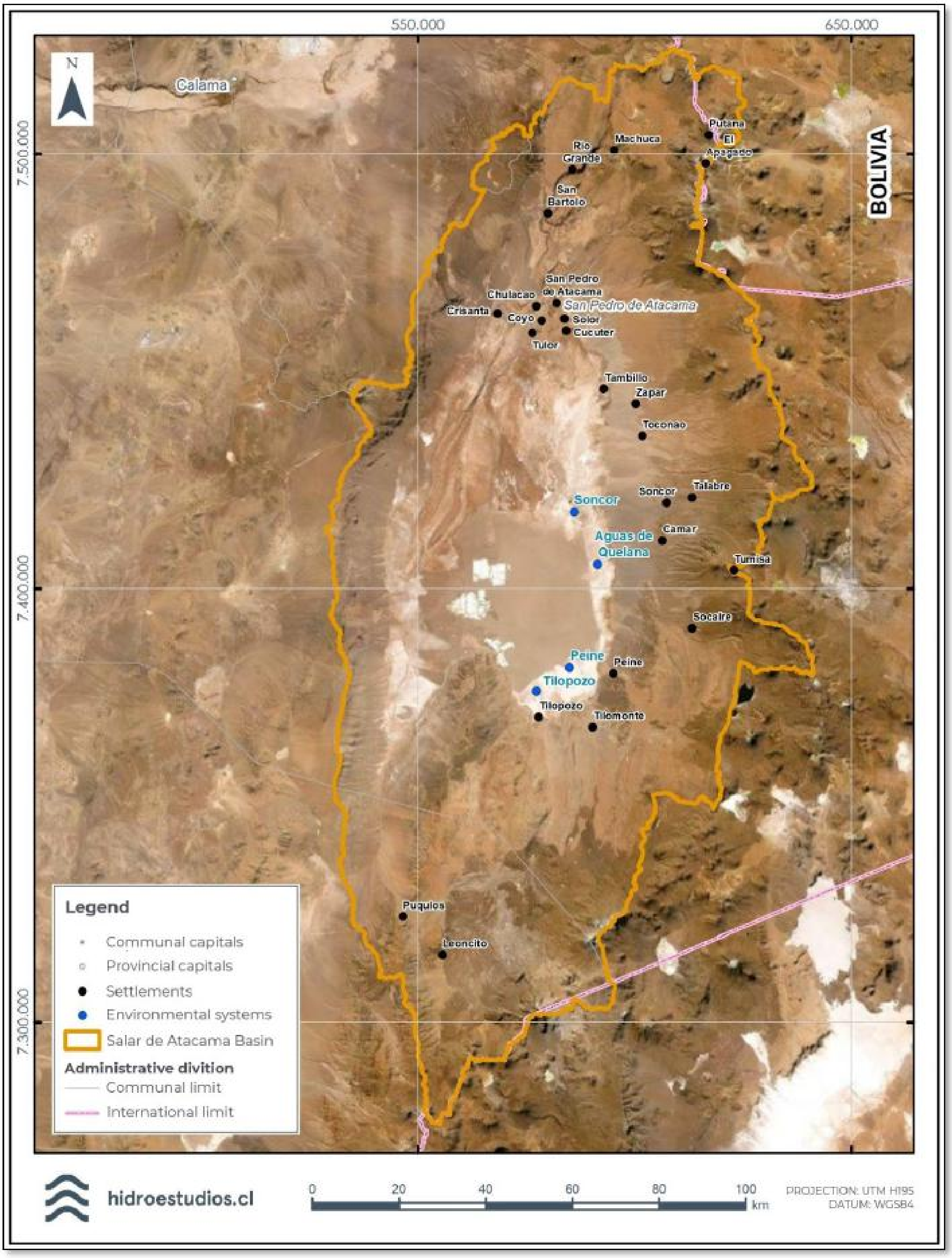
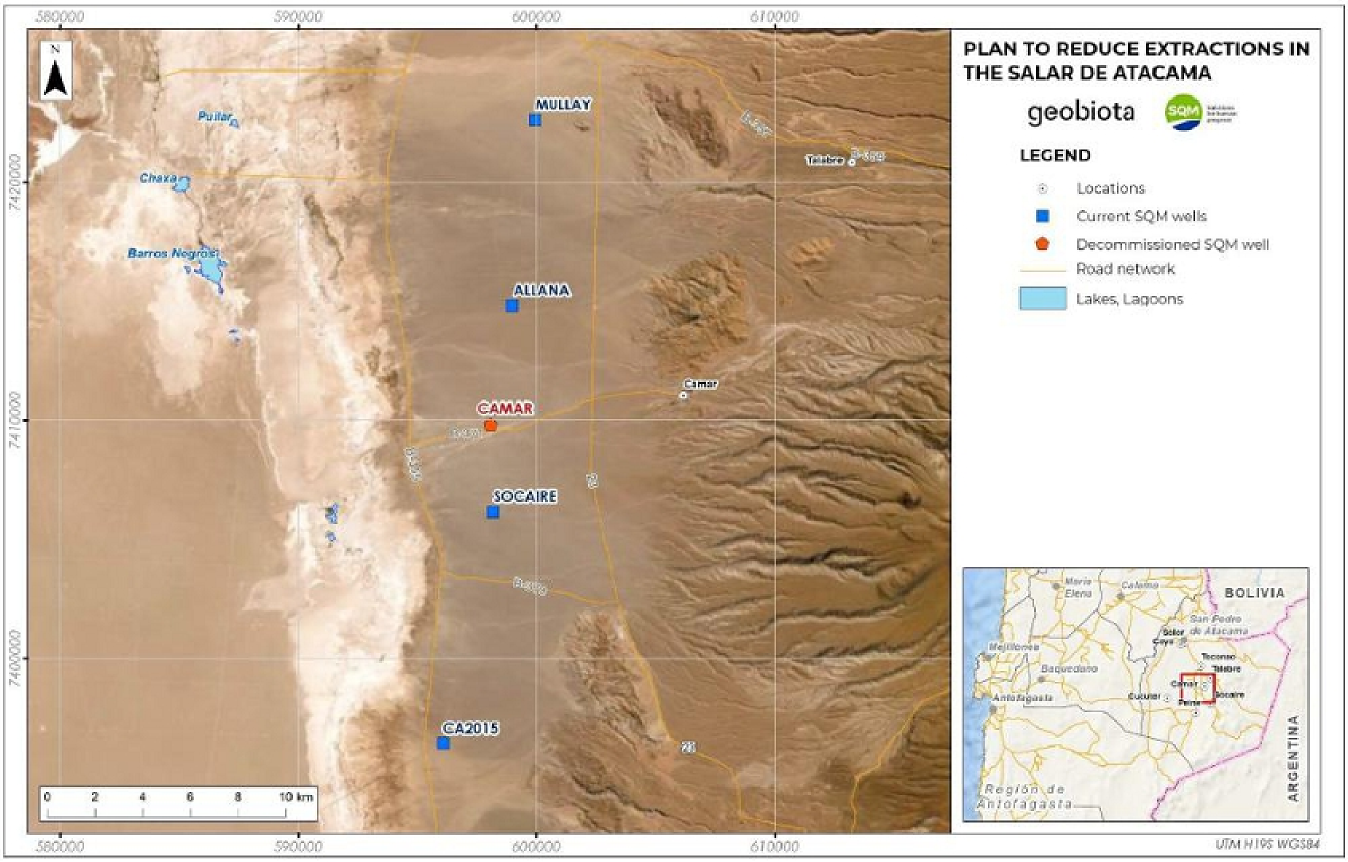


Figure 17-2. Location of Existing Wells in the Salar de Atacama



17.1.1.6 Cultural Heritage

Regarding cultural heritage, in the latest EIA no historical monuments or archeological findings were found in the area of influence.

However, considering the characteristic of the area it is not possible to rule out unanticipated findings are encountered during the construction of the works.

Regarding paleontological component, the presence of Quaternary sedimentary units was confirmed in the field, which correspond to the Salar de Atacama Saline Deposits (PlHs), Alluvial Deposits (PlHa) and Recent Alluvial and Fluvial Deposits (Ha).

In the case of the Alluvial Deposits (PlHa), paleontological findings were made at two control points, corresponding to ichnofossils, so it was granted a Medium to High paleontological potential and a Fossiliferous paleontological category.

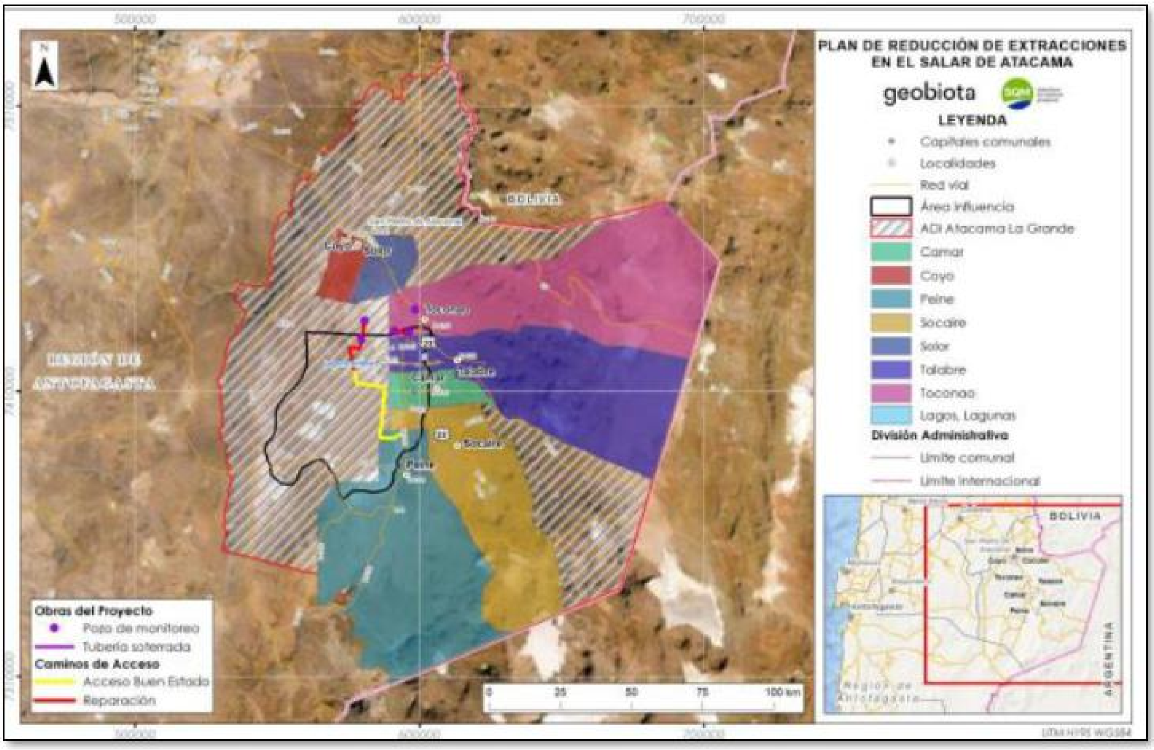
On the other hand, the units Saline Deposits of the Salar de Atacama (PlHs) and Recent Alluvial and Fluvial Deposits (Ha) were assigned a Medium to High paleontological potential and a Fossiliferous paleontological category.

17.1.1.7 Human Environment

The project and its area of influence are located within the Atacama La Grande Indigenous Location Area (ADI), a place historically inhabited by the Atacameño people. Here they have developed grazing and natural resource gathering activities. The communities located in the area are those that inhabit of the following localities:

- Locality of Toconao
- Locality of Talabre
- Locality of Camar
- Locality of Socaire
- Locality of Peine
- Rural entity of Coyo
- Rural entity of Solor
- Rural entity of Cucuter

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



17.1.2 Environmental Impact Assesment

Since the begging of the Project operation in 1996, the holder has submitted different DIAs/EIAs to the SEIA. The environmental authority has issued 20 permits have been issued to SQM Salar S.A., but just 13 to authorize the operation of Atacama site and 7 to authorize Lithium Plant in Salar del Carmen.

The project was submitted through an Environmental Impact Study for an eventual affection of the groundwater level as a consequence of water and brine extraction. To avoid impacts in the groundwater the RCA 226/2006 defined an Environmental Monitoring Plan focused on monitoring underground water (quality and quantity), flora and vegetation, and Fauna on 6 natural systems which are "Sistema Lacustre Soncor", "Sistema Aguas de Quelana", "Sistema Peine", "Sistema Vegetación Borde Este" and "Sector Vegas de Tilopozo"

In 2016, as consequence of six non-compliance with the environmental commitment stablished in the environmental authorizations (RCA), the Environmental Superintendency started a sanction process against SQM. The infractions formulated by the SMA were the following:

- Extraction of brine over the amount authorized between 2013 and 2015: this infraction was qualified as serious.

- Failure to take measures to deal with the affectation of Algarrobo trees around the well called Camar 2: this infraction was qualified as serious
- Provide incomplete information about freshwater and natural systems linked to a water source: this infraction was qualified as minor
- The Contingency Plan (Environmental Monitoring Plan) implemented for Peine System (Sistema Peine) doesn't have the same characters as the Contingency Plan of the others systems. The Contingency Plan developed for Peine System doesn't allow to ensure maintaining the conditions of the system: this infraction was qualified as serious
- Lack of analysis of the historical data regarding meteorology, hydrological variables, and others: this infraction was qualified as minor
- Modification of the Contingency Plan (Environmental Monitoring Plan) without having environmental authorization: this infraction was qualified as very serious.

In this context, the company submitted a compliance program (PdC) to correct noncompliance. This PdC was approved in 2019 (Res. 24/2019), however, as consequence of claims presented by indigenous communities located around the project, it was revoked by the Environmental Court and the processing of the PdC was restarted.

SQM submitted a new version of the PdC in September 2021, and currently it's being reviewed by the SMA and receiving the comments of indigenous communities. If the SMA doesn't approve the PdC, the sanction process will continue, and the applicable penalties could be the revocation of the RCA, the closure of the project or fines of up to 10,000 UTA for each infraction.

Even though the PdC has not yet been approved, SQM is already implementing it. In fact, several of the actions proposed by SQM have already been executed such as:

- Reduction of the total net brine extraction flow, with respect to the authorized flow, by 9,800,922 m^3;
- Closure and dismantling of Camar 2 well.
- Online monitoring system (sqmsenlinea.com), including updated information of hydrogeological and biotic variables and parameters.
- To carry out a diagnosis of the environmental monitoring information available in the Salar de Atacama Basin;
- Inform the sectoral authority about changes in the presentation of vegetation cover data of the Biotic Environmental Monitoring Plan starting in 2013 and submit a "Consulta de Pertinencia" (screening analysis request) regarding those modifications;

- Define the wells of the Environmental Monotoring Plan of “Sistema Peine” that will be considered as System status indicators and assign them thresholds that will allow for the adoption of measures;

- Define control measures to be implemented in case the activation condition of phase I and phase II is verified in the “Sistema Peine”;

- Correlation study of hydrological, hydrogeological and meteorological variables with soil pH and salinity;

Correlation study of historical meteorological events with microenvironmental variables.

Additionally, in November 2021 (Res. 2389/2021) the SMA ordered provisional procedural measures, for a period of 30 days, against SQM, due to the fact that the approved PdC was left without effect by judgment Rol R-017-2019 of the First Environmental Court, a situation that could imply risk situations of damaging the environment and people's health. These measures mandate: to continue the implementation of the PdC, i.e to continue the operation of the online monitoring system for brine extraction; to continue the operation of an online monitoring system for industrial water extraction, available through its website; to apply the activation thresholds of Phase I and II, defined for the Peine System, both in the monitoring of the project qualified by RCA N° 226/2006, as well as in wells PN-05B and PN-08A of the sector “Alerta Núcleo” of the Plan de Alerta Temprana (point 10.18 of RCA No. 21/2016), and the corresponding control measures, when appropriate; and, finally, restrict the maximum brine flow to be pumped to 1280 l/s and the maximum industrial water flow to be pumped to 120 l/s.

It should be added, in May 2020 SQM submitted to the SEIA the EIA of the Project “Actualización Plan de Alerta Temprana y Seguimiento Ambiental, Salar de Atacama”, with the objective to modify and update the Early Warning Plan. However, this project was withdrawn in May 2021 in order to update baseline studies, since it was not processed by the Environmental Assessment System (SEA) due to Covid 19-based lockdowns and additional health measures

Finally, on January 24, 2022, SQM submitted to the SEIA the EIA of the Project “Plan de Reducción de Extracciones en el Salar de Atacama” in order to reduce the maximum amount of brine to be pumped from the authorized extraction zones in the core of the Salar and water to be extracted from wells located in the alluvial zone on the eastern margin of the Salar; implement adjustments to the environmental monitoring plan and early warning plans, and adopt measures associated with the loss of Algarrobo specimens in the Camar-2 well sector. This study was admitted for processing on January 31, 2022, and it’s currently under environmental impact assessment process. It’s worth mentioning that the presentation of this EIA was incorporated as a commitment in the Compliance Program proposed in the sanctioning process F-041-2016 of the SMA.

17.2 Environmental Management Plan

17.2.1 Requirements and Plans for Waste Disposal

Two types of waste are generated during mining operations. Mineral and non-mineral wastes. The chapter 14 detailed the amount of wastes generated.

- Mineral wastes:

  In this case, the mineral wastes or mining residues correspond to inert salts called waste salts, which vary according to the type of product. These salts are transported to certain areas for deposit, piled on the ground in the form of piles and located in the core of the Salar. The area of disposal was approved by the sectorial authority with a total surface of 20.35 km^2 divided in 12 areas with a maximum height of 30 m per deposit. However, currently de deposit area has a total surface of 17 km2.

  Regarding the management of these deposits, it should be noted that the hygroscopic properties of the salts that make up the deposits favor their high capacity for compaction and subsequent cementation.

  The storage area does not have a rainwater collection or management system, given that the porosity of the soil in the salt flat area allows rainwater to infiltrate naturally into the ground. Historically, there have been very few episodes of rainfall in the study area that could be considered for a rainwater harvesting or management solution.

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

- Non-mineral wastes:

  The disposal of this type of waste has the current environmental and sectoral legal authorizations described in section 17.3 below.

  In addition, the company's 2020 Sustainable Development Plan contains a set of commitments, including reducing industrial waste generation by 50% by 2025.

17.2.2 Monitoring and Management Plan Defined in the Environmental Authorization

In the Environmental Impact Study for the “Cambios y Mejoras de la Operación Minera en el Salar de Atacama” project, one of the commitments established in the RCA (RCA 226/2006) corresponds to the implementation of an Environmental Monitoring Plan (Plan de Seguimiento Ambiental), which aims to evaluate the state of the Salar de Atacama systems over time. This monitoring plan includes:

- Measurements of water levels and physicochemical quality of the water
- Measurements of meteorological variables, through two stations

The Biotic Environmental Monitoring Plan (PSAB) is used to track relevant variables to verify the state of vegetation, flora, fauna, and aquatic life in the ecosystems to be protected. The PSAB of the Salar de Atacama contemplates vegetation evaluations, in April of each year, to detect the extent of change at the end of the vegetative growth period of each season.

Regarding the report of April 2020, it was necessary to carry out a complementary campaign. This was because in April it was not possible to collect all the data for the period due to restrictions derived from Resolution N°56/2019, which approves the protocol for entering Sectors 4, 5, and 7 of Los Flamencos National Reserve. The sanitary restricts surrounding the Covid-19 pandemic contributed to this issue.

SQM also has a Hydrogeological Environmental Monitoring Plan to maintain control over the relevant hydrogeological variables in environmentally sensitive areas This is an extensive monitoring network that includes 225 monitoring points, 112 shallow wells, 84 deep wells, 5 freshwater pumping wells, 18 grids (surface water), 4 surface water gauges, 2 meteorological stations, and 48 continuous measurement points.

Regarding this Plan compromised in RCA 266/2006, biannual reports of water monitoring show that Phase 1 of the Contingency Plan was activated in 2018 in the areas of “Sistema Peine”, “Sistema Soncor” and “Sistema Agua Quelana” (note that the plan was deactivated in some wells after January 2019 rains), and during 2019 in “Sistema Vegetación Borde Este”. Phase 2 was activated during 2019 in “Sistema Soncor”; however, this was due to natural causes. In Phase 2, different measures must be developed, including the reduction of brine extraction. Additionally, during 2019, SQM has not been able to monitor inSistema Peine due to issues with the homonymous local community which has not allowed the entrance to the wells sector. This makes it impossible to complete the monitoring of the variables in this area .

According to the report for the reporting period January 2020 to June 2020, there was one activation and subsequent deactivation of Phase II (corresponding to Hydromorphic Vegetation) and for Phase I, the activation of eight indicators (of the 37 that make up the Contingency Plan), corresponding to the Soncor system and Brea-Atriplex and Hydromorphic Vegetation, adopting in all cases the committed control actions. The rest of the monitored variables showed a stable behavior, with no relevant variations except for specific situations that would not reflect a long-term trend of the system.

Concerning the report (for the reporting period July 2020 to December 2020), there was one activation and subsequent deactivation of Phase II (corresponding to status indicators L1-5 and L1-G4 of the Soncor System). During this period, there were six indicators that were shown with Phase I activated, which in some cases was continuous during the entire period (L7-6, L2-7, and L1-3 of the Borde Este- Brea Atriplex Vegetation System); in others it was intercalated with the deactivations of the Contingency Plan (L1-5 of the Soncor System and L2-28 of the Borde Este- Brea Atriplex Vegetation System), or with the activation of Phase II (mentioned above). In all cases, the committed control actions were adopted. The rest of the monitored variables showed a stable behavior, with no relevant variations except for specific situations that would not reflect a long-term trend of the system. This leads to the conclusion that the objects of protection are within their natural variability and within the expected range.

Likewise, during 2020, SQM couldn’t monitor the Peine System since the community didn’t allow the entrance to the wells sector.

The 2021 reports have not yet been submitted by SQM to SMA.

Also, to verify the compliance with the environmental commitments established in the RCA, the COREMA of Antofagasta ordered SQM to conduct an annual Independent Environmental Audit (AAI). Golder Associates S.A. is the independent consultant selected by COREMA, according to Ord. N° 383 of April 8, 2009, and hired by SQM in the same year to perform the AAI of the Project. Additionally, most of the environmental monitoring is performed by accredited, independent inspectors under an Enforcement Technical Entity (ETFA), supervised by the Enforcement Authority (SMA).

17.2.3 Requirements and Plans for Water Management during Operations and After Closure

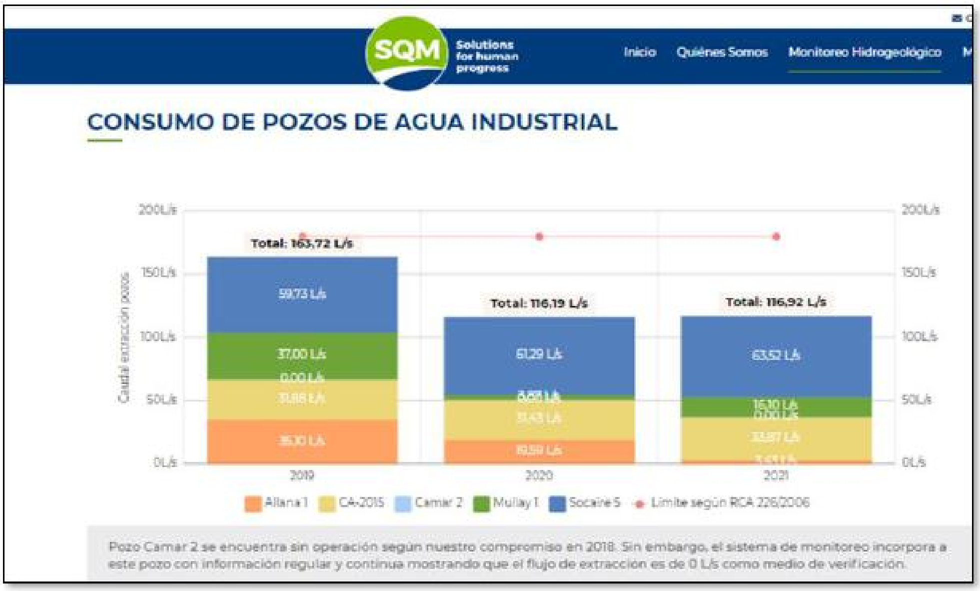
The extraction of water (not brine) for the industrial operation is environmentally approved in RCA 226/2006 for a flow of up to 240 L/s and considers the extraction from five wells in the Alluvial area in the eastern border of the Salar de Atacama that have measuring equipment with current calibration certificates.

The catchment wells are as follows:

- CA-2015 (35 L/s)
- Socaire 5 (65 L/s)
- Camar 2 (60 L/s) (this well is closed and dismantled)
- Allana (40 L/s)
- Mullay 1 (40 L/s).

The extraction information is public and transparent since it is automatically processed every day and reported online at https://www.sqmsenlinea.com/, where it is possible to find the average daily extraction flow, the historical piezometric levels measured manually, and the continuous data measured with level sensors since the beginning of the year.

Figure 17-4. Industrial Water Consumption, Total Authorized Limit and Authorized Limit in Well CA-2015



CONSUMO DE POZOS DE AGUA INDUSTRIAL

Pozo Camar 2 se encuentra sin operación según nuestro compromiso en 2018. Sin embargo, el sistema de monitoreo incorpora a este pozo con información regular y continua mostrando que el flujo de extracción es de 0 L/s como medio de verificación.

Caudal Diario - CA-2015

2019_Certificado Calibración Flujómetro_SSV203117

Enero 2020_Certificado Calibración Flujómetro_SSW504499

The extraction of brine (mining resource) extracted from the core of the Salar is also monitored through a series of Environmental Control Points (PCA)

It is important to note that 100% of the PCAs are incorporated into the Monitoring System. Further details on the brine extraction management and pumping plan are presented in Chapter 13 of the TRS.

Another important aspect is that SQM's 2020 Sustainable Development Plan contains a set of sustainability commitments. In more specific terms, it establishes reductions in the pumping of industrial water and brine, which are adopted with a gradual approach until the end of the useful life of the project "Cambios y mejoras de la operación minera en el Salar de Atacama", environmentally qualified by RCA 226/2006 (2030). Specifically, the project considers reducing freshwater consumption in the processes by 40% by 2030 and 65% by 2040 and reducing brine extraction by 50% by 2030, a process that began with a 20% reduction in extraction in November 2020.

These extraction reductions have been incorporated in the Compliance Program (PdC) submitted to the authority (Superintendencia del Medio Ambiente) within the current sanctioning process, mentioned in section 17.1.2, establishing the commitment to formalize them in the next Environmental Impact Study “Plan de Reducción de Emisiones en el Salar de Atacama”, submitted for environmental assessment, under Chilean environmental regulations. Finally, the EIA currently under assessment includes the reduction of the extraction of freshwater and brine from 2023 to 2030.

Regarding the management and environmental monitoring of water resources, there is an Environmental Monitoring Plan (PSA) to protect the main environmentally sensitive systems, that has as objective improving knowledge of their hydrogeological and hydrological dynamics and take preventive actions in case of deviations.

Likewise, the existence of the Contingency Plan or Early Warning Plan defines actions and measures with the objective of maintaining the environmentally sensitive systems in the conditions that have historically been observed in the event that certain thresholds are exceeded in 4 objects of protection that correspond to the hydrogeological systems Soncor, Aguas de Quelana and Vegetación Borde Este and Peine.

Regarding the Hydrogeological Monitoring Plan and Contingency or Early Warning Plan, it is prudent to point out that these are being subject of modifications in the Compliance Plan submitted to the authority in September 2021, within the framework of the ongoing sanctioning process, given that the infractions raised are related to the water resource.

- Water management at closure

  As stated in the Salar Plant Closure Plan Update (in process) the works or actions contemplated for the closure of the operation and subsequent monitoring are:

  - Disable the monitoring wells.
  - Leave the limnimeters and gauging stations unaltered.
  - The perimeter staking of the lagoons will be removed, if necessary.

- The Environmental Monitoring Plan will be maintained for 5 years during the abandonment stage, at the end of which the need to extend the monitoring work will be evaluated.

17.3 Environmental and sectorial permits status

The project has been submitted 20 times to the SEIA. 20 of the projects have environmental authorization:

- RCA 403/1995: Proyecto para producción de 300 mil toneladas anuales de cloruro de potasio
- RCA 15/1997 Producción de sulfato de potasio ácido bórico con ampliación de la capacidad productiva de cloruro de potasio
- RCA 381/1997 Producción de 17500 ton/año de carbonato de litio
- RCA 110/1998 Planta secado y compactado de cloruro de potasio
- RCA 214/1999 Reemplazo parcial de pozas de evaporación solar del proyecto de producción de sulfato de potasio y ácido bórico
- RCA 24/1999 Poza auxiliar de descarte en la planta de carbonato de litio
- RCA 100/2001 Ampliación de planta carbonato de litio a 32.000 ton/año
- RCA 180/2002 Producción de cloruro de potasio a partir de sales de carnalita de potasio
- RCA 109/2002 Cambio de combustible a gas natural en planta de carbonato de litio
- RCA 18/2004 Planta de hidroxido de litio
- RCA 226/2006 Cambios y mejoras de la operación minera en el salar de atacama
- RCA 252/2009 Ampliación producción cloruro de potasio salar
- RCA 271/2009 Modificación planta SOP
- RCA 294/2009 Aumento de capacidad de secado y compactado de cloruro de potasio
- RCA 273/2010 Nueva Planta de secado y compactado de cloruro de potasio
- RCA 30/2010 Ampliación planta SOP
- RCA 1/2011 Aumento de capacidad de procesamiento de carnalita de potasio
- RCA 154/2013 Ampliación planta de secado y compactado de cloruro de potasio
- RCA 262/2017 Ampliación faena Salar del Carmen
- RCA 57/2019 AMPLIACION DE LA PLANTA DE CARBONATO DE LITIO A 180.000 TON/AÑO

Finally, the project Plan de Reducción de Extracciones en el Salar de Atacama was submitted to the SEIA in January 2022 being currently under environmental assessment.

Additionally, the Project required different sectorial permitting for operating. The following table shows the sectorial permits defined in each RCA as applicable to each project:

Table 17-3. Environmental Sectorial Permits applied to the project

Name of the Sectorial Permit (PAS)	PAS Number	Sectorial Approval Resolution
Permit for archaeological excavations	132	In the context of RCA 57/2019, the information for the PAS were submitted to the CMN, but a final decision hasn't been enacted
Permit for stockpiling mining waste	136	Res. Ex. N° 4380/98. An actualization was submitted to Sernageomin, however there is not final decision yet
Approval of the mining closing plan	137	Closure Plan was approved by Resolution No. 1426 of May 27, 2015. An updating of the Closure Plan was submitted in December 2020 to the authority for it approval
Permit for the construction, modification and expansion of any public or private work for the evacuation, treatment or final disposal of sewage water	138	Res. Ex. N° 3515/98; Res. Ex. N° 3307(03; Res. Ex. N° 4958/04; Res. Ex. N° 4550/10; Res. Ex. N° 3395/08; Res. Ex. N° 1634/08; Res. Ex. N° 1634/11; Res. Ex. N° 372/11; Res. Ex. N°2120/97; Res. Ex. N° 87/05; Res. Ex. N° 2822/18; Res. Ex 3817/18; Res. Ex. N° 4980/19
Permit for the construction, modification and expansion of any public or private facility for the evacuation, treatment or final disposal of industrial or mining waste	139	Res. Ex. N° 2520/04; Res. Ex. N° 5986/2002; Res. Ex. N° 2215/1997; Res. Ex. N° 5982/02; Res. Ex. N° 5985/02; Res. Ex. N° 542/08; Res. Ex. N° 128/06; Res. Ex. N° 1015/05; Res. Ex. N° 2589/14; Res. Ex. N° 1872/2020. In the context of RCA 57/2019, the information for the PAS were submitted to the Sernageomin, but a final decision hasn't been enacted.
Permit for the construction, modification and expansion of any garbage and waste treatment plant of any kind; or for the installation of any place for the accumulation, selection, industrialization, trade or final disposal of garbage and waste of any kind.	140	Res. Ex. N° 79/05; Res. Ex. 80/05; Res. Ex. N° 4458/04; Res. Ex. N° 1178/10; Res. Ex. N° 1016/05; Res. Ex. N° 1017/05; Res. Ex. N° 2839/08; Res. Ex. N° 5273/18; Res. Ex. N° 5464/19.
Permit for the construction of a site for the storage of hazardous wastes	142	Res. Ex. N° 5883/18.
Permit for the construction of some hydraulic works	155	Doesn't apply to the evaporation ponds. A pronouncement was requested to the DGA regarding the non-applicability of the PAS, which has not been issued.
Permit for the modification of a watercourse	156	The field is being prepared for being submitted to the DGA
Permit to subdivide and urbanize rural land to complement an industrial activity with housing, to equip a rural sector, or to set up a spa or tourist camp; or for industrial, equipment, tourism and population constructions outside the urban limits.	160	Res. Ex n° 3/05; Res. Ex. N° 15/01; Res. Ex. N° 15/01; Res. Ex. N° 32/08; Res. Ex. N°
Permit for the qualification of industrial or warehousing establishments.	161	Res. Ex N° 723/03; Res. Ex. N° 4679/10; Res. Ex N° 4680/10; Res. Ex. N° 4678/10; Res. Ex. N° 841/12; Res. Ex. N° 841/12; Res. Ex. N° 842/12; Res. Ex. N° 843/12.

Source: own elaboration based in letter sent by SQM

17.4 Social and Community Aspect

This sub-section contains forward-looking information related to plans, negotiations or agreements with local individuals or groups for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this sub-section including that regulatory framework is unchanged for the Project and no unforeseen environmental, social or community events disrupt timely approvals.

17.4.1 Social commitments defined in the environmental instruments

Regarding the social components around the project, in one hand must be mentioned that the environmental impact assessments carried out doesn't define major social commitments.

On the other hand, in the sanction process the last version of the PdC submitted in September 2021, includes some measures or activities related with the communities existed close to the project, the main actions committed are:

a) Enabling a web system with information about water and brine extraction and monitoring of biotic and hydrogeological components available to the community. The system is available since June 2019[2] (Action N° 7 of the PdC).

b) Communicate periodically to the community and other relevant stakeholder the result of the monitoring activities. This action will be implemented when the PdC is approved (Action N°18 of the PdC).

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[2] https://www.sqmsenlinea.com/

c) Delivery of fodder to the Camar Community. The action should start in September 2021. (Action N° 25 of the PdC)

d) Enabling a fodder plot. The community of Camar will work and explote the fodder plot. This action will be implemented when the PdC is approved (Action N°29 of the PdC).

e) Incorporate the community of Camar in the monitoring activities of environmental variables. This action will be executed three months after the resolution approving the PdC is issued. (Action N°30 of the PdC).

f) Implementation a Conservation Plan of the Algarrobo of Camar. The titleholder must include the community of Camar in the development and implementation of the Plan. This action will be implemented when the PdC is approved (Action N°31 of the PdC).

g) Elaboration of an Ethnobotanical Study of the Flora and Vegetation of Camar. The Study will remain in possession the Community of Camar, for its custody and custody and updating. Also, the execution of the study will include work with indigenous communities, preferably with Atacameño communities. This action will be executed 18 months after the resolution approving the PdC is issued. (Action N° 33).

Additionally, it's worth mentioning that, during 2020 and 2021, several communities have submitted comments to the PdC proposed by SQM. These communities that have participated in the review process are:

a) Comunidad de Peine.

b) Comunidad Indígena Atacameña de Socaire.

  - 09/04/2021: the community required to be considered part in the process.

  - 21/09/2021: The community submitted observations to the PdC. The main observation is that there is great uncertainty about the state of the ecosystem where the project is located and the risk on it, and the actions committed in the PdC are not enough to ensure ecosystem conservation and avoid risks.

c) Comunidad Indígena Atacameña de Toconao.

  - 16/12/2020: the community did observations to the PdC and mentioned dis shouldn't be process by the SMA.

d) Pueblos Atacameños.

  - 08/09/2021: The community points out that because of the operation of the project in contravention of its environmental obligations, a situation of imminent environmental damage has been generated.

  - 21/09/2021: the community submitted observations to the PdC submitted by SQM.

e) Comunidad de Camar.

  - 13/10/2021: the community submitted observations to the PdC submitted by SQM.

17.4.2 Plans, negotiations or agreements with individuals or local groups

In August 2020, the Community of Camar entered into an out-of-court settlement called “Convenio de debida diligencia, cooperación y sustentabilidad en beneficio mutuo para una nueva etapa de relacionamiento comunitario”[3] with SQM.

Nevertheless, a document or agreement was considered, in standard format, with contents such as the following: general background of the agreement; background on the community relationship; long-term relationship; validation of agreements; contributions; rendering of funds; external audit; working group and operation; obligations of the parties; environmental commitments for the sustainability of the territory; communications between the parties; dispute resolution; mechanisms for reviewing the agreement; assignment of rights; anti-corruption clause; other commitments; term of the agreement; domicile.

On the other hand, the company has established agreements with indigenous and non-indigenous communities on different aspects that derive both from previous commitments and from programs associated with corporate guidelines on community relations, for example:

a) CORFO Program: the following were taken into consideration: the minutes of SQM's support in the context of the COVID pandemic contingency; the specific agreements with the communities of Cucuter and Catarpe; the meetings to define long-term agreements with the communities of Socaire and Río Grande; the monitoring campaigns and joint work with Toconao; the environmental and technical meetings with Camar; and the education, productive development, social development, and heritage programs.

b) Independent Environmental Audit Reports for the indigenous community (IC) of Camar; the IC of Peine; the IC of Talabre; the IC of Toconao and the IC of Socaire, during 2019. More recent reports were not available.

c) Working Groups for communities such as Talabre, Toconao, San Pedro, Camar and others, with respect to the year 2020.

d) Sales Force claim mechanism with activities such as: training, reports, follow-up, flows, among other aspects developed during 2021.

e) Participatory monitoring in programs with: Toconao and Laguna Chayas, which includes CONAF.

f) Other reports such as: PdC progress status (Talabre), or status of wells to Socaire. No reports or activities were seen during 2021.

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[3] Agreement subscribed by public deed on June 2, 2020.

17.4.3 Local Hiring Commitments

SQM's voluntary commitment, as specified in RCA No. 226/2006, to report annually the local workforce hired for the operation of the project, as well as the background and results regarding the percentage of the total number of workers currently providing services and being local workforce.

Regarding hiring of local workers for the construction and/or operation of the “Proyecto Cambios y Mejoras de la Operación Minera en el Salar de Atacama”, a voluntary commitment established in the RCA N° 226/2006, in 2020 the follow-up report shows an average of 2,931 workers per month, with February 2020 being the month with the highest number of registered workers at 2,975.

In addition, as part of its community relations policy, SQM has programs aimed at hiring local labor, such as:

- Employability workshops aimed at improving the resume and job interview situation.
- More Suppliers Tarapacá Program
- Program for the Development of Agricultural Suppliers in the Province of Tamarugal.
- Cowork Port.

17.4.4 Social Risk Matrix

There is no social risk matrix at SQM.

In the framework of the work meetings for the preparation of this report, it was indicated that there are initiatives to evaluate these aspects, but they lack a specific program or derive from a specific commitment or goal.

17.5 Mine closure

This sub-section contains forward-looking information related to mine closure for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this sub-section including prevailing economic conditions continue such that costs are as estimated, projected labor and equipment productivity levels are appropriate at time of closure and estimated infrastructure and mining facilities are appropriate at the time of closure.

17.5.1 Closure, remediation, and reclamation plans

During the abandonment stage of the Project, the measures established in the Closure Plan "Faena Salar de Atacama" approved by the National Geology and Mining Service, through Resolution No. 1426 of May 27, 2015, will be implemented.

Among the measures to be implemented are the removal of metal structures, equipment, materials, panels and electrical systems, de-energization of facilities, closure of accesses and installation of signage. The activities related to the cessation of operation of the Project will be carried out in full compliance with the legal provisions in force at the date of closure of the Project, especially those related to the protection of workers and the environment.

However, currently the Closure Plan Update is in processing and pending approval by the authority, in compliance with the provisions of Law 20.551 that "Regulates the Closure of Mining Sites and Facilities" since 2012. This update includes all closure measures and actions included in the documents of the Environmental Qualification Resolution (RCA) and sectorial Resolutions, including the closure plans Res Exe. N° 768/2009 that approves the project "Planta de Beneficio y Plan de Cierre Faena Salar de Atacama"; Res Exe. N°1909/2012 approving the project "Actualización Planta de Beneficio y Plan de Cierre Faena Salar de Atacama ", and Res Exe. N°1426/2015 approving the Salar de Atacama Mine Closure Plan project. These actions and measures seek to ensure the physical and chemical stability of the mine after operational cessation.

- Closing measures

The following are the closure and post-closure measures for the main or remaining facilities, i.e., those that remain on site after the end of the mine's useful life. In the particular case of lithium mining, the remaining facilities are evaporation ponds (currently 45 ha) and waste salt deposits (currently 17 ha).

Evaporation ponds closure measures include land leveling, road closures, and installation of signage. The waste salts will remain in the disposal areas. Warning signs or signage will be installed, and slopes will be stabilized and shaped to avoid risks to the environment and people.

For the rest of the complementary and auxiliary facilities, the measures also have the objective of protecting the safety of people and animals, and these are basically the removal of structures, road closures, installation of signage, de-energization of facilities and perimeter closures, and land leveling.

Table 17-4. Closure measures and actions of the Closure Plan for the Salar de Atacama Mine.

Facility Name	Installation Type	Closing Measure	Source	Type of measure	Means of Verification
Wells	Principal	Land leveling m^2 well	Closure Plan (Res. Exe. N°1426/2015)	Personal safety	Photographic report
		Road Closure (mobile barrier 6 mt.)	Closure Plan (Res. Exe. N°1426/2015)	Personal safety	Photographic report
		Signage (set of 4 units)	Closure Plan (Res. Exe. N°1426/2015)	Personal safety	Photographic report
Salt Deposit	Principal	Slope stabilization and profiling (10 mt.)	Risk assessment Closure Plan in process	Personal safety	Photographic report
		Signage (set of 4 units)	Risk assessment Closure Plan in process	Personal safety	Photographic report

Post-closure measures are aimed at ensuring the physical and chemical stability of the facilities, for the care of the environment and people's health, these correspond to maintenance and inspection measures, detailed below (see Table 17-5).

Table 17-5. Post-closure measures of the Closure Plan of the Salar de Atacama Mine.

Post-closure measure	Type of measure	Frequency	Duration of the measure
Maintenance of access closure	Maintenance	Every 5 years	Perpetuity
Maintenance of signage	Maintenance	Every 5 years	Perpetuity
Inspections	Monitoring	1 month	1 month
Slope correction	Maintenance	Every 50 years, and then every 100 years	Perpetuity

- Risk analysis

17.5.2 Closing costs

The total amount of the closure of the Salar de Atacama mine site, considering closure and post-closure activities, adds up to 346.411 UF (30.264 UF for closure and 40.147 UF for post-closure). Below is a summary of the costs reported to the authority in the Salar de Atacama Mine Closure Plan Update (in process) (see Table 17-6 and Table 17-7).

Table 17-6. Salar de Atacama Mine site closure costs

Item	Total (UF)
Total direct closing cost	159,339
Indirect cost and engineering	55,132
Contingencies (20% CD + CI)	42,894
Subtotal	257,365
IVA (19%)	48,899
Closing Plan Amount (UF)	306,264

Source: Annex 10 of Closure Plan Update (in process).

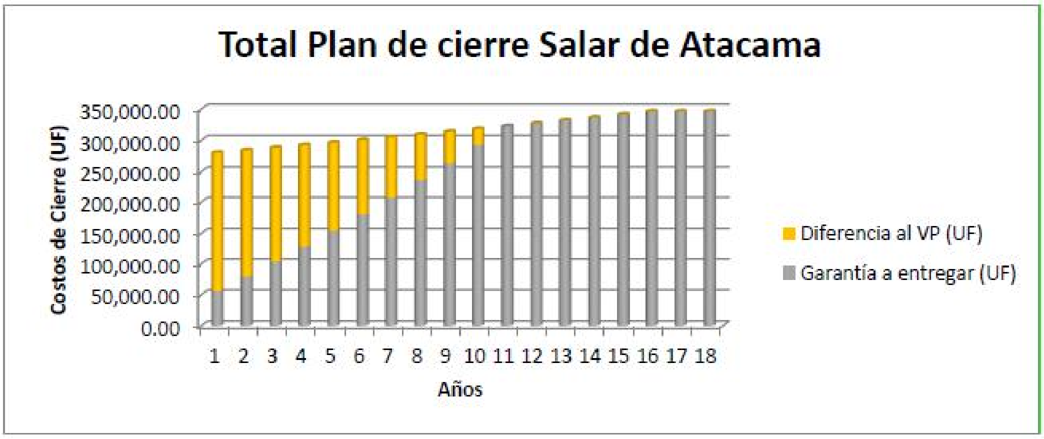
Table 17-7. Salar de Atacama Mining Site post-closure costs

Item	Total (UF)
Total direct closing cost	20,887
Indirect cost and engineering	7,227
Contingencies (20% CD+CI)	5,623
Subtotal	33,737
IVA (19%)	6,410
Closing Plan Amount (UF)	40,147

Source: Annex 10 of Closure Plan Update (in process).

The result of the calculation of the useful life for the Salar de Atacama mine in accordance with the provisions of RCA 226/2006 and the Reserves (Annual Report 2019; SQM S.A., 2020) is 22.2 years. However, the constitution of the guarantees was carried out considering the total cost of the Closure Plan, and a useful life of 16 years, as stated in the Closure Plan in Process. The development of the constitution of guarantees is shown below.

Figure 17-5. Guarantee chart Update of the Salar de Atacama Plant Closure Plan (in process).



17.6 Qualified Person´s Opinion

In terms of environmental studies, permits, plans and relations with local groups, the most relevant situation for SQM's Salar de Atacama mine is that it’s currently undergoing a sanctioning process (Sanctioning File F-041-2016) due to violations detected by the authority during 2016. In this line, SQM has recently presented (September 2021) a suitable plan to address this problem that consists of a Refined, Coordinated and Systematized Environmental Compliance Program, which incorporates the observations recorded by the authority, complying with the established contents and criteria and legal requirements to ensure compliance with the infringed requirements, establishing concrete actions to improve knowledge of the environmental systems that make up the Salar de Atacama, recognize the role of the communities and provide greater transparency in the monitoring of environmental variables.

SQM has assumed the need to correct the facts that motivated the initiation of the process in the shortest possible time, and therefore, to date, a significant percentage of the proposed actions have already been implemented or are currently being implemented. Regarding this, a new EIA was submitted to the SEIA in January 2022, to assess the modification to the Contingency Plan, which was one of the infractions detected by the SMA which gave rise to the sanction process. However, considering the sanctioning process and the final judgement of the Environmental Court (R-17-2019), it can be concluded that is not possible to ensure that the management plans defined by the project are sufficient to take care and address the project’s effects in the environment, especially regarding water, flora and fauna components.

In addition, however SQM has developed community relations activities, some of the communities existed near the project have shown a high level of opposition to the project. This is observed in the context of the sanction process, where communities have submitted observations and claims against the Compliance Program.

18 CAPITAL AND OPERATING COSTS

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

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

The main facilities to produce lithium and potassium are in the Salar de Atacama and the Salar del Carmen and are distributed in the following productive areas:

- Brine extraction wells
- Evaporation and harvest ponds
- Wet Plants
- Dry plants
- Lithium plants
- Offices, services, warehouses, others

The investment made in the administrative and operating infrastructure in each of the mentioned areas allows to know the aggregate Capital Cost in all the facilities related to the lithium and potassium production operations.

18.1 Capital Costs

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

At the end of 2020, the capital cost that has been invested in these facilities was close to 2,300 million dollars. The cost of capital distributed in the areas related to lithium and chloride and sulfate potassium production, is shown in the following table.

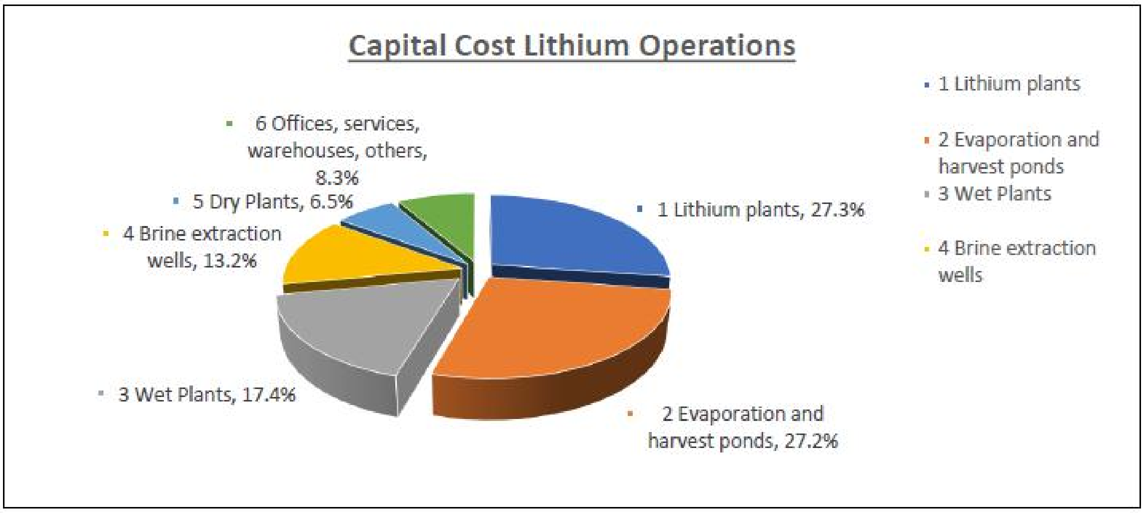
Table 18-1. Capital Costs

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

The highest capital cost is invested in “Lithium Production Plants” and “Evaporation and harvest ponds”, together covering about 55% of the capital cost, which added to the “Wet Plants and Brine Extraction Wells”, cover close to of 85% of the entire cost of capital of lithium operations.

The main investments are presented in the following graph:

Figure 18-1. Capital Cost of Lithium Operations



As shown, the main investments in lithium and potassium production are the “Lithium Carbonate and Lithium Hydroxide Plants”, as well as the “Evaporation and Harvest Ponds”, which account for about 55% of the total investment.

This is followed by the area of “Wet Plants” with 17% and the “Brine Extraction Wells” with 13%, which, complemented by the area of “Dry Plants”, cover an accumulated close to 85% of capital investment of the entire operating system of the lithium extraction and production.

18.1.1 Lithium Plants

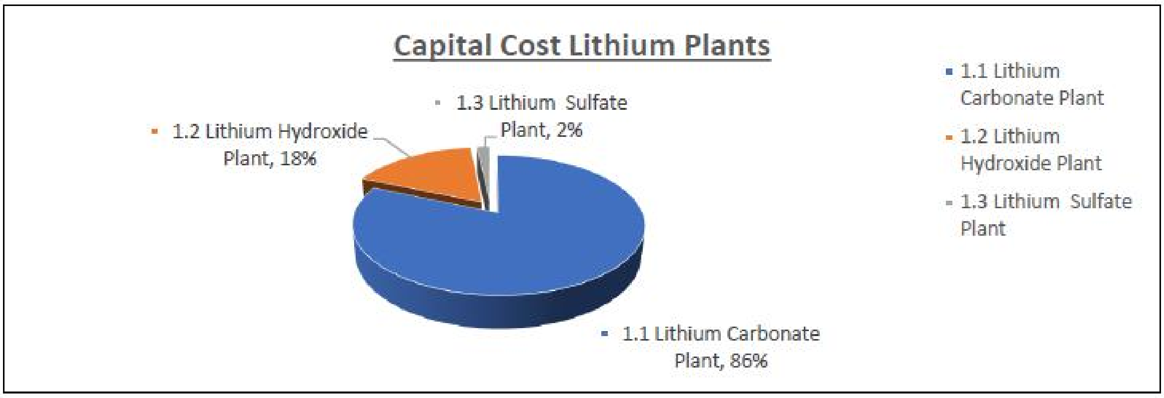
SQM produces lithium carbonate at Salar del Carmen facilities, near Antofagasta, Chile, from highly concentrated lithium chloride produced in the Salar de Atacama. The annual production capacity of the lithium carbonate plant at the Salar del Camen is 120,000 metric tonnes per year which during 2022 is expected to expand to produce 180,000 tonnes of lithium carbonate.

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

Table 18-2. Lithium Plants

1	Lithium Plants	%
1.1	Lithium Carbonate Plant	81%
1.2	Lithium Hydroxide Plant	17%
1.3	Lithium Sulfate Plant	2%

Figure 18-2. Capital cost Lithium plants



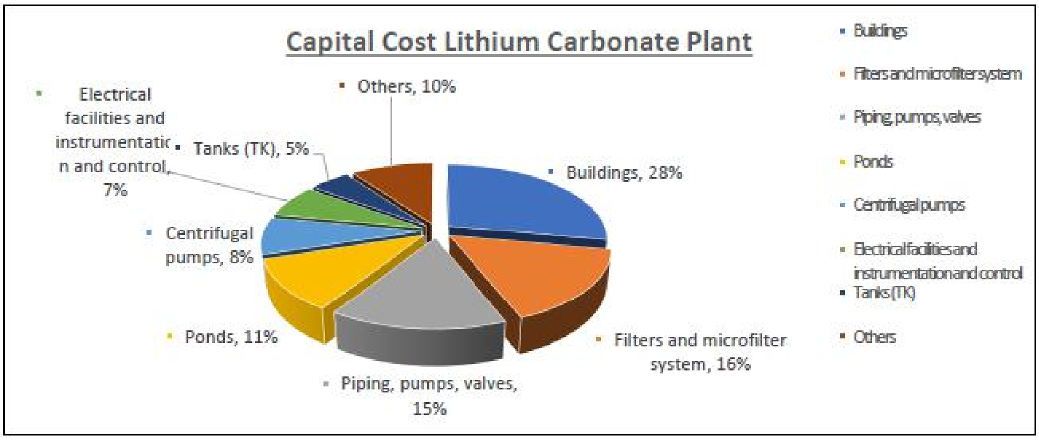
18.1.1.1 Lithium Carbonate Plant

The main investment in the lithium carbonate plant is in buildings, mechanical equipment, such as filters, centrifugal pumps, other pumps, valves, pipes, ponds, drying equipment, electrical installations and instrumentation and control, as well as warehouses.

Table 18-3. Investment in the lithium carbonate plant

1.1	Lithium Carbonate Plant	%
	Buildings	28%
	Filters and microfilter system	16%
	Piping, pumps, valves	15%
	Ponds	11%
	Centrifugal pumps	8%
	Electrical facilities and instrumentation and control	7%
	Tanks (TK)	5%
	Others	10%

Figure 18-3. Capital cost Lithium Carbonate plant



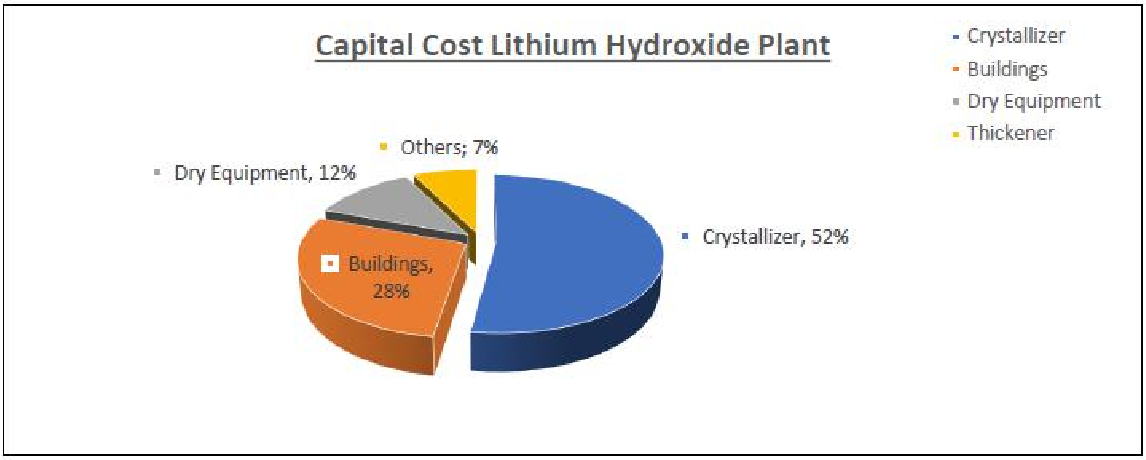
18.1.1.2 The main facilities Lithium Hydroxide Plant

The main investment in the lithium hydroxide plant is in crystallizer, buildings, drying equipment and thickener.

Table 18-4. Investment in the lithium hydroxide plant

1.2	Lithium Hydroxide Plant	%
	Crystallizer	52%
	Buildings	28%
	Dry Equipment	12%
	Thickener	7%

Figure 18-4. Capital cost Lithium Hydroxide plant



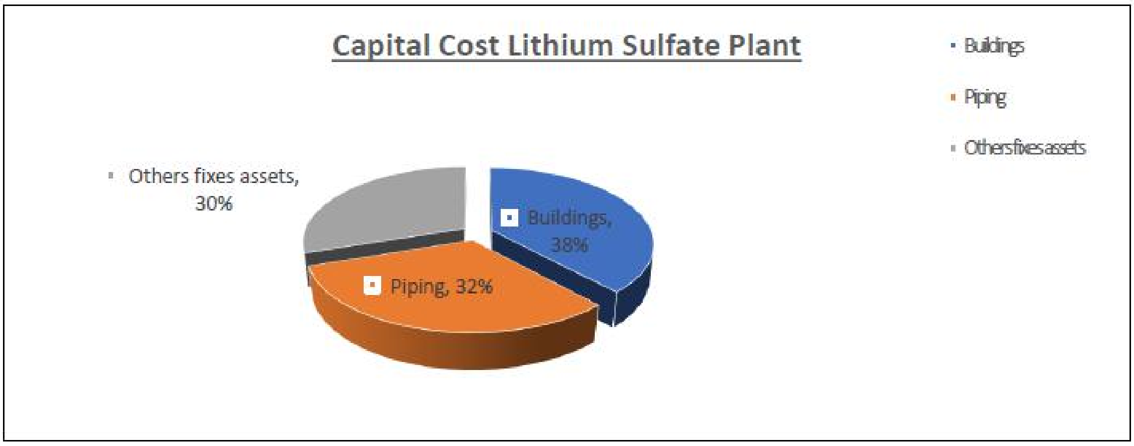
18.1.1.3 The main facilities Lithium Sulfate Plant

The main investment in the lithium sulfate plant is in buildings and piping.

Table 18-5. Investment in the lithium sulfate plant

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

Figure 18-5. Capital cost Lithium Sulfate plant



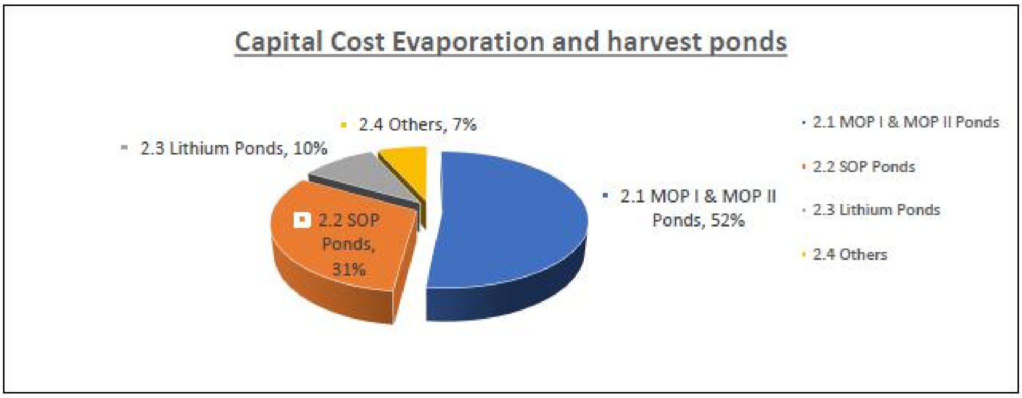
18.1.2 Evaporation and harvest ponds

At the Evaporation and Harvest Ponds, the main investments are in the following subareas, in which the MOP I and II, and SOP ponds cover 83% of the total investment in the ponds:

Table 18-6. Main Investment in evaporation and harvest ponds

2	Evaporation and harvest ponds	%
2.1	MOP I & MOP II Ponds	52%
2.2	SOP Ponds	31%
2.3	Lithium Ponds	10%
2.4	Others	7%

Figure 18-6. Capital cost Evaporation and Harvest ponds



The main investment in the evaporation and harvest ponds is found in the earthworks and operation in the ponds, added to the piping, and in almost no degree related to buildings and electrical facilities.

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

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

Table 18-8. Main Investment in SOP Ponds

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

Table 18-9. Main Investment in Lithium Ponds

2.3	Lithium Ponds	%
	Pond	71%
	Others	29%

18.1.3 Wet Plants

Regarding the facilities of the wet plants, the main investments are in the following subareas, in which the Muriate of potash, MOP H I and H II Plants, cover 84% of the total investment of the wet plants:

Table 18-10. Main Investment in Wet Plants

3	Wet Plants	%
3.1	MOP H II Plant	44%
3.2	MOP H I Plant	40%
3.3	SOP H Plant	10%
3.4	PC I	6%

The main investment in the Wet Plants is found in buildings, pumps, comminution equipment, conveyor belts, filters, flotation equipment and electrical facilities.

Table 18-11. Main Investment in in wet Plants detail

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

18.1.4 Brine Extraction Wells

The primary investments in the Brine Extraction Wells are in the following components with the MOP extraction well area amounting to almost 80% of the total investment.

Table 18-12. Main Investment in Brine Extraction Wells

4	Brine Extraction Wells	%
4.1	MOP Wells	80%
4.2	Lithium Wells	13%
4.3	SOP Wells	7%

The main investment in the Brine Extraction Wells is found in wells, piping, pumps and electrical installations.

Table 18-13. Main Investment in Brine Extraction details

MOP Wells / Lithium Wells / SOP Wells	%
Wells	35%
Piping and pumps	35%
Facilities/electrical equipment and autonomous equipment / Engine Control Center / Transformer	13%
Other fixed assets	16%

18.1.5 Dry Plants

The Muriate of Potash, MOP G III Plant, accounts for 75% of the total investment in the dry plants.

The main investment in the Dry Plants is found in compaction equipment, drying equipment, buildings, comminution equipment.

18.1.6 Future Investment

SQM has plans to continue the capacity expansion of its plants, complying with the CORFO quotas agreed. Lithium Carbonate plant will be upgraded and expanded to reach a 180 kTonnes in 2023 and 250 kTonnes in 2026. Investments in the Lithium Hydroxide plant is in course, to increase the production up to 30 kTonnes per annum which is expected in 2024.

For the expansion of lithium carbonate production from 120 kTonnes to 180 kTonnes an addiinal investment of about US$130 million is anticipated. Part of this investment has been made during 2021 and the construction phase will be completed in 2022.

In the case of the investment for the expansion of lithium carbonate production from 180 kTonnes to 250 kTonnes, an additional investment of about US$500 million is anticipated. This projects will be completed between 2022 and 2024.

In the case of expansion from 120 kTon to 180 kTon, a higher return is achieved per dollar invested due to the lifting of existing bottlenecks in the current plant and taking advantage of part of the installed capacity.

The expansion from 180 kTonnes to 250 kTonnes requires additional site, investments in the Salar de Atacama, and the additiona of a new waste evaporation plant.

Projects planned for execution in 2021 through 2024 is presented in the following table. These investments address improving aspects of quality, performance, sustainability and increasing production capacity.

Table 18-14. Projects in execution, and to be executed in the period 2021 to 2022

Projects Grouped by Objective	2021	2022	2023	2024	Category
Well Exploration and Qualification SdA	X	X	X	X	Quality and Performance
Lithium Well Improvements	X	X	X	X	Performance Increase
Research Products and Process Optimization SdA	X	X	X	X	Performance Increase
Lithium Carbonate Plant Quality (70 ktpa)	X	X	-	-	Improves Quality
Lithium Carbonate Plant Expansion and Quality (120 ktpa)	X	X	-	-	Increase Capacity
Quality Lithium Carbonate Plant (180 ktpa)	X	X	X	-	Improves Quality
Evaporation Plant (120-180 ktpa)	X	X	-	-	Sustainability
Site Facilities (120-250 ktpa)	X	X	X	X	Increase Capacity
Line 3 Lithium Hydroxide (+ Extensions)	X	X	X	-	Increase Capacity
Quality and Performance Lithium Hydroxide	X	X	-	-	Performance Increase
Sustainability and Environment	X	X	X	X	Sustainability
Plant Support	X	X	X	X	Lift

The major investments in the 12 months ended in June 2021, and the future investments projected through June 2022 in the Potassium and Lithium operations are as follows:

1. Wells: Future investments in Lithium wells.
2. Ponds and Harvest: in Lithium Ponds and future investments.
3. Wet Plants: investment in MOP H I and MOP H II Plants.
4. Lithium Plants:
    a) Lithium Carbonate Plant: current and future investments.
    b) Lithium Hydroxide Plant: current and future investments.
    c) Lithium Sulfate Plant: current and future investments.

18.2 Operating Costs

Use of up-to-date technology, together with the high concentrations of lithium and the characteristics of the Salar de Atacama, such as high evaporation rate and concentration of other minerals, allows SQM to be one of the lowest cost producers in the world.

SQM also produces lithium hydroxide at the same plant at the Salar del Carmen, next to the lithium carbonate operation. The lithium hydroxide facility has a production capacity of 13,500 metric tonnes per year. Currently SQM is in the process of increasing this production capacity to 30,000 metric tonnes per year. In addition, in February 2021 the Board approved the investment for the 50% share of the development costs in the Mt. Holland lithium project in the joint venture with Wesfarmers, which SQM expects will have a total production capacity of 50,000 metric tonnes.

At the end of 2020, the operating cost that has been spent to produce lithium and potassium chloride and sulfate at the Salar de Atacama and Salar del Carmen plants was close to 500 million dollars. The distribution of the operating cost is presented in the following table:

Table 18-15. Distribution of operating cost

Description of operational cost		**share %**
1	Raw materials and consumables	25%
2	Depreciation expense	18%
3	CORFO rights and other agreements	14%
4	Contractor works	14%
5	Employee benefit expenses	12%
6	Freight / Transportation cost of products & Export Costs	8%
7	Operation transports	5%
8	Others	4%

The highest operating cost is in raw material and consumables. For 2021, the operating cost was close 700 million of dollars, due mainly to greater production of lithium carbonate and hydroxide, increasing the consumption of raw materials and consumables (that have also incremented their prices), as well as contributions to CORFO (due to higher prices and higher volume of sales).

The following provides additional detail on a few key operating cost items:

a) Raw materials and consumables

In the production of the Salar de Atacama, the main inputs in the MOP and SOP are: KCL flotation agents, HCl, vegetable oil, iron oxide, anti-caking / anti-dust.

In the case of the Salar del Carmen, the main inputs for its production are: soda ash, lime, HCl, and water.

The main raw material to produce potassium chloride, lithium carbonate and potassium sulfate are the brine extracted from the operations in the Salar de Atacama.

Other important raw materials and consumables are sodium carbonate (used in the production of lithium carbonate, sulfuric acid, kerosene, anti-caking and anti-dust agents, ammonium nitrate (used in the preparation of explosives in mining operations), bags for the packaging of final products, electricity purchased from electricity generation companies, and gas and oil to generate heat.

b) CORFO Rights and other agreements cost

According to the terms of the Lease Agreement CCHEN established a total accumulated sales limit, as amended by the CORFO Arbitration Agreement in January 2018, of up to 349,553 metric tonnes of metallic lithium (1,860,670 tonnes of lithium carbonate equivalent). This is in addition to the approximately 64,816 metric tonnes of metallic lithium (345,015 tonnes of lithium carbonate equivalent) remaining from the originally authorized amount (from the Arbitration Agreement of 2018) in the aggregate for all periods while the Lease Agreement is in force. The Project Agreement expires on December 31, 2030.

There are payment agreements with CORFO that are related to the sale prices of Lithium Carbonate and Lithium Hydroxide according to the following table.

Table 18-16. Payment agreements with CORFO

Payments [1]

Li_2CO_3		LiOH	
US$/MT	%	US$/MT	%
<4,000	6.80	<5,000	6.80
4,000-5,000	8.00	5,000-6,000	8.00
5,000-6,000	10.00	6,000-7,000	10.00
6,000-7,000	17.00	7,000-10,000	17.00
7,000-10,000	25.00	10,000-12,000	25.00
>10,000	40.00	>12,000	40.00

Source Company

(1) Effective as of April 10, 2018
(2) % of final sale price
(3) % of FOB price

It shows that in the case of Lithium carbonate, for price lower than USD4,000/metric tonne, 6.8% of the final sale price is paid to tCORFO.

In the case of lithium hydroxide for a price lower than USD5,000/metric tonne, 6.8% of the final sale price is paid to CORFO.

The payment to CORFO could be a maximum of 40% of the final sale price, for prices higher than USD10,000/metric tonne for lithium carbonate and USD12,000/metric tonne for lithium hydroxide, respectively.

In addition to the above, there are contribution agreements to development and to the surrounding communities, which are agreed upon in accordance with the following points:

Contribution to the Regional Development and Communities:

- Annual contribution of USD 11 to 19 million for Research and development efforts.
- Annual contribution of USD 10 to 15 million to neighboring communities of the Salar de Atacama.
- Annual contribution of 1.7% of SQM Salar´s sales per year to regional development.

The foregoing accounts for the variation in operational cost depending on the current sales prices for lithium carbonate and lithium hydroxide, as well as the contribution to regional development.

c) Contractor Works:

The majority correspond to costs associated with contractors such as EXCON, “Rent Construction Machinery and ground movements” (close to 45%), which contributes with the rental of machinery for construction and ground movements.

Additionally, there are costs for “Intercompany Corporate Services” that are invoiced between subsidiaries (close to 17%).

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

d) Employee benefit expenses

This cost is related to the salaries and benefits of about 1,900 SQM employees for operations, that includes: Salar de Atacama, Lithium Production plants in Salar del Carmen, as well as Environment, Hydrogeology, Supply Chain, Development and Innovation.

e) Freight / Product transportation Cost & Export Costs:

This corresponds to the expenses associated with the sales of finished products from Tocopilla to customers (subsidiaries or third parties) and its export costs.

f) Operation Transports Cost:

This corresponds mainly to costs associated with product transport from the Salar de Atacama Plant to the Port; Transportation of Brine from Salar de Atacama to Salar del Carmen; and in minor proportion to the transportation of personnel at the site.

19 ECONOMIC ANALYSIS

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

Cashflows related to the production of Li_2CO_3, LiOH and KCl for the period 2022 to 2030 with the investments projected for a 180 ktpy plant and its expansion to 250 ktpy have been considered, assuming the latter as the case base.

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

Additionally, it is assumed that everything that is produced annually at the Plant is sold.

The economic analysis considers operational and non-operational costs addressing raw materials and consumables, salaries and benefits to workers, contractors and others, as well as those related to depreciation, CORFO Rights and other regional agreements.

The after-tax discounted cashflow considers a discount rate of 10% with a tax of around 28%.

To calculate the contributions to CORFO, the polynomial in force since April 2018 has been considered (see Table 18-14. Payment agreements with CORFO), which depends on the sale price of Li_2CO_3.

Once the cashflow for the Base Case (250 ktpy) was determined, the sensitivities to sales prices and operating costs were implemented.

19.1 Production and Revenues

The estimated sales production of lithium carbonate, lithium hydroxide and potassium chloride for the LOM until 2030 is presented in Table 19-1.

Table 19-1. Projected Sales of Lithium and KCl

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

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

It is expected that the sale of the first two products is the same as the production while annual sales of potassium chloride at 1,200 ktpy considers build-up and management of inventory in stockpiles.

According to current market studies, it has been conservatively estimated that the prices of lithium carbonate, lithium hydroxide and potassium chloride will be around 11,000 USD/tonne, 11,550 USD/tonne and 400 USD/tonne, respectively. The price of potassium chloride is expected to decrease to USD 300/tonne from 2024.

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

Table 19-2. Revenues of Lithium and KCl

		2022	2023	2024	2025	2026	2027	2028	2029	2030
Lithium Carbonate Sales	ktpy	95	130	150	220	220	220	220	220	200
Lithium Hydroxide Sales	ktpy	21	25	30	30	30	30	30	30	30
Potassium Chloride Sales	ktpy	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
Lithium Carbonate Price	USD/Ton	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000
Lithium Hydroxide Price	USD/Ton	11,550	11,550	11,550	11,550	11,550	11,550	11,550	11,550	11,550
Potassium Chloride Price	USD/Ton	400	400	300	300	300	300	300	300	300
Lithium Revenues	M US$	1,288	1,719	1,997	2,767	2,767	2,767	2,767	2,767	2,547
KCl Revenues	M US$	480	480	360	360	360	360	360	360	360

19.2 Production Costs

The main costs to produce Lithium and KCL involve the following components: raw materials and consumables, salaries and benefits to workers, depreciation, contractors, CORFO Rights and other Agreements, and others (include: Operation transports, Freight & Transportation cost of products, Export cost, Operation lease, Insurance, Depreciation of assets for right of use (IFRS 16 Contract), Investment plan expenses, Expenses related to Variable Financial Leasing (IFRS No. 16 contracts), Mining concessions, Amortization expense, Provision of costs for site closure).

The estimate of total costs per item is obtained from approximate estimates of its unit cost (for the 12 months ending 3Q2021), considering a variable part and a fixed part. These unit costs are shown in Table 19-3.

Table 19-3. Main Costs of Lithium and KCl production

Main Cost	Estimated Unit Cost	Estimated % Variable Cost
Raw Materials and Consumables	2,000 USD/Ton	80% Variable
Employee Benefits	1,000 USD/Ton	60% Variable
Depreciation	1,000 USD/Ton	0% Variable
Contractors	700 USD/Ton	10% Variable
CORFO Rights and other Agreements	Calculated	
Others	1,000 USD/Ton	15% Variable

According to the terms of the Lease Agreement, with respect to lithium production, the CCHEN established a total accumulated sales limit, as amended by the CORFO Arbitration Agreement in January 2018.

There are payment agreements with CORFO that are related to the sale prices of Lithium Carbonate and Lithium Hydroxide according to what is indicated in chapter 18.2 Operating Costs letter c) "CORFO Rights and other agreements cost".

The estimate of total costs for Salar de Atacama and Salar del Carmen for the operations is shown in Table 19-4 for Lithium and KCl.

Table 19-4. Operating Costs

		2022	2023	2024	2025	2026	2027	2028	2029	2030
Costs										
Raw Materials and Consumables	M US$	232	294	334	446	446	446	446	446	414
Employee Benefits	M US$	116	139	154	196	196	196	196	196	184
Depreciation	M US$	116	122	126	136	136	136	136	136	133
Contractors	M US$	81	84	86	91	91	91	91	91	89
CORFO Rights and other Agreements	M US$	267	344	391	529	529	529	529	529	489
Others	M US$	116	122	126	136	136	136	136	136	133
Total Costs M US$		929	1,106	1,217	1,534	1,534	1,534	1,534	1,534	1,444

19.3 Capital Investments

SQM produces lithium carbonate at Salar del Carmen facilities, near Antofagasta, Chile, from highly concentrated lithium chloride produced in the Salar de Atacama. To fully utilize the billing quota agreed with CORFO (~ 2 MTonnes between 2021 - 2030), it is necessary to expand the Lithium Carbonate plant to 180 kTonnes from 2023 and to 250 kTonnes from 2026.

For the expansion of lithium carbonate production from 120 kTonnes to 180 kTonnes about 130 million US Dollars was invested. Part of this investment will be completed in 2022. In the case of the investment for the expansion of lithium carbonate production from 180 kTonnes to 250 kTonnes. It is estimated that the investment will be completed between the years 2022 and 2024. The total investment to achieve this expansion is close to 480 million US Dollars.

In the case of expansion from 120 kTonnes to 180 kTonnes, a higher return is achieved per dollar invested due to the removal of existing bottlenecks in the current plant and taking advantage of the increased installed capacity.

On the other hand, the expansion from 180 kTonnes to 250 kTonnes requires an additional area for new evaporation plant and investments in the Salar de Atacama.

Additionally, there are other projects in execution for improving aspects of quality, performance, sustainability and increasing production capacity.

The estimated investments in the period 2022 to 2030 are presented in Table 19-5.

Table 19-5. Estimated Capital Investments

		2022	2023	2024	2025	2026	2027	2028	2029	2030
Investments	M US$	300	250	350	60	60	60	30	30	30

19.4 Discounted Cashflow Analysis

The key assumptions used in the economic model consider a discount rate of 10% and a tax rate of 28%. The estimated Net Present Value (NPV), before and after financial costs and taxes, for the period is presented in Table 19-6. CORFO payments are included in Costs.

Table 19-6. Estimated Cashflow Analysis

			2022	2023	2024	2025	2026	2027	2028	2029	2030
Revenues	M US$	-	1,768	2,199	2,357	3,127	3,127	3,127	3,127	3,127	2,907
Costs	M US$	-	-929	-1,106	-1,217	-1,534	-1,534	-1,534	-1,534	-1,534	-1,443
Investments	M US$	-	-300	-250	-350	-60	-60	-60	-30	-30	-30
Depreciation	M US$	-	116	122	126	136	136	136	136	136	133
Cashflow before Financial Costs and Taxes	M US$	-	655	965	915	1,668	1,668	1,668	1,698	1,698	1,566
Financial Costs (FC)	M US$	-	-40	-40	-40	-40	-40	-40	-40	-40	-40
Taxes	-	28%	-172	-259	-245	-456	-456	-456	-464	-464	-427
Cashflow after Financial Costs and Taxes	M US$	-	443	666	630	1,172	1,172	1,172	1,194	1,194	1,099
Net Present Value (NPV) before Financial Cost & Taxes. (M US$)		10%	7,526								
Net Present Value (NPV) after Financial Cost & Taxes. (M US$)		10%	5,253								

The summary estimate of the sum of payments to CORFO and other agreements and taxes in the period is as follows:

Table 19-7. Estimated sum of payments to CORFO and other agreements and taxes for the period

CORFO Rights and other Agreements	Sum in M US$	4,135
Taxes	Sum in M US$	3,400
Total CORFO Rights and other Agreements and taxes		7,535

19.5 Sensitivity Analysis

Sensitivity analysis provides insight into the key components that have the biggest impact on the project. Table 19-8 shows the assumptions for the Base Case.

Table 19-8. Assumptions for the Base Case

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

19.5.1 Li_2CO_3 Price

Lithium carbonate price sensitivities were analyzed with variations from USD 7,000 / tonne to USD 15,000 / tonne. The remaining assumptions of the base case are maintained, and results shown in Table 19-9.

Table 19-9. Lithium Carbonate Price Sensitivity at 250 ktpy

Price Sensitivities (Production Plant 250 ktpy)		Lithium Carbonate Sensitivity			Net Present Value (NPV) after FC & Taxes (M US$)			NPV Variation (M US$)		
Scenarios	**Unit**	**Base**	**Pessimistic**	**Optimistic**	**Base**	**Pessimistic**	**Optimistic**	**Base**	**Pessimistic**	**Optimistic**
Lithium Carbonate Price	USD/tonne	11,000	7,000	15,000	**5,253**	2,874	7,241	0	-2,378	1,989

19.5.2 Operational Cost Sensitivities

Increases in costs related to Raw Materials and Consumables, Employee Benefits, Contractors and Others, affect the NPV to be earned.

The following table shows the variations in NPV considering a 20% increase and 20% decrease in the costs indicated above, keeping the rest of the assumptions of the base case.

Table 19-10. Cost Sensitivities

Costs Sensitivities				
Scenarios	**Unit**	**Sensitivity**	**Net Present Value (NPV) after FC & Taxes (M US$)**	**NPV Variation (M US$)**
Lithium Carbonate to 250 ktpy	USD/ton	11,000	**5,253**	0
Lithium Carbonate to 250 ktpy & 20% increase costs	USD/ton	11,000	4,623	-630
Lithium Carbonate to 250 ktpy & 20% decrease costs	USD/ton	11,000	5,883	630

19.5.3 KCl Price

Table 19-11 shows the variations in NPV considering a 20% decrease and 20% increase in the KCl sales prices, keeping the rest of the assumptions of the base case. Values are presented in million USD and the NPV is after taxes.

Table 19-11. KCl Price Sensitivities

Price Sensitivities		KCl Sensitivity			Net Present Value (NPV) after FC & Taxes (M US$)			NPV Variation (M US$)		
Scenarios	**Unit**	**Base price 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: 400 yr 24 to 30: 300	320 240	480 360	**5,258**	4,930	5,576	0	-323	323

19.5.4 CORFO Rights and other Agreements Sensitivities

Variations in the production of lithium carbonate, as well as in its prices, affect the contributions that must be paid to CORFO and other regional agreements.

The following table shows the variations in the contributions according to the variation in production and the variation in prices. The rest of the assumptions of the base case are maintained.

Table 19-12. CORFO Rights and other Agreements Sensitivities

CORFO Rights and other Agreements Sensitivities		Sensitivity			Payments to CORFO an Agreements (M US$)			Payments Variation (M US$)		
Scenarios	**Unit**	**Base**	**Pessimistic**	**Optimistic**	**Base**	**Pessimistic**	**Optimistic**	**Base**	**Pessimistic**	**Optimistic**
Lithium Carbonate Price to 250 ktpy	USD/ton	11,000	7,000	15,000	**4,135**	1,771	7,385	0	-2,364	3,250

19.5.5 Tax Sensitivities

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

The following table shows the variations in tax payments according to the variation in price. The rest of the assumptions of the base case are maintained.

Table 19-13. Tax Sensitivities

Tax Sensitivities		Sensitivity			Taxes (MUSD)			Taxes Variation (MUSD)		
Scenarios	**Unit**	**Base**	**Pessimistic**	**Optimistic**	**Base**	**Pessimistic**	**Optimistic**	**Base**	**Pessimistic**	**Optimistic**
Lithium Carbonate Price to 250 ktpy	USD/ton	11,000	7,000	15,000	**3,400**	2,387	4,667	0	-1,013	1,267

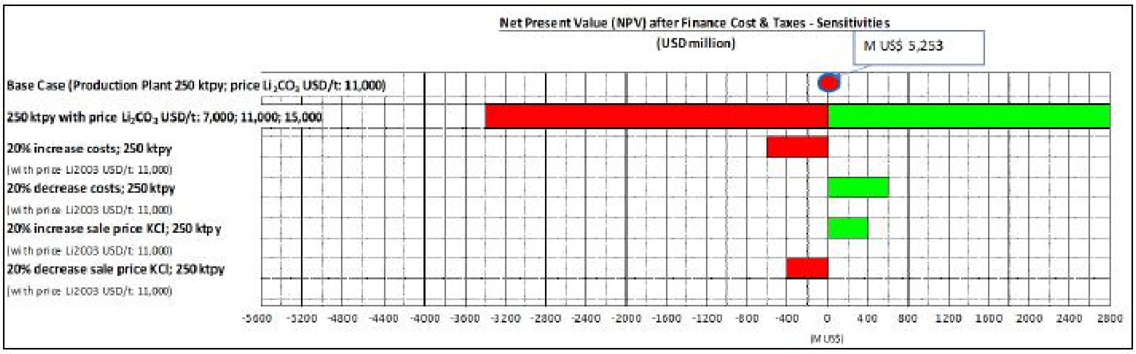
The sum of the contribution to the State of Chile for Taxes and for CORFO Rights and Others is shown in the following table, considering the cases of production of 250 ktpy, with Li2CO3 prices of USD/ ton of 7,000, 11,000 and 15,000.

Table 19-14. Contribution to the State of Chile (Taxes, CORFO Rights and Others)

CORFO Rights and other Agreements Sensitivities + Taxes Sensitivities		Sensitivity			CORFO Rights and other Agreements Sensitivities + Taxes (MUSD)			CORFO Rights and other Agreements Sensitivities +Taxes - Variation (MUSD)		
Scenarios	**Unit**	**Base**	**Pessimistic**	**Optimistic**	**Base**	**Pessimistic**	**Optimistic**	**Base**	**Pessimistic**	**Optimistic**
Lithium Carbonate Price to 250 ktpy	USD/ton	11,000	7,000	15,000	**7,535**	4,159	12,052	0	-3,376	4,517

The following figure shows the sensitivity of NPV upon the key variables discussed above.

Table 19-15. Li_2CO_3 Price, Costs, KCl Price – NPV Sensitivities



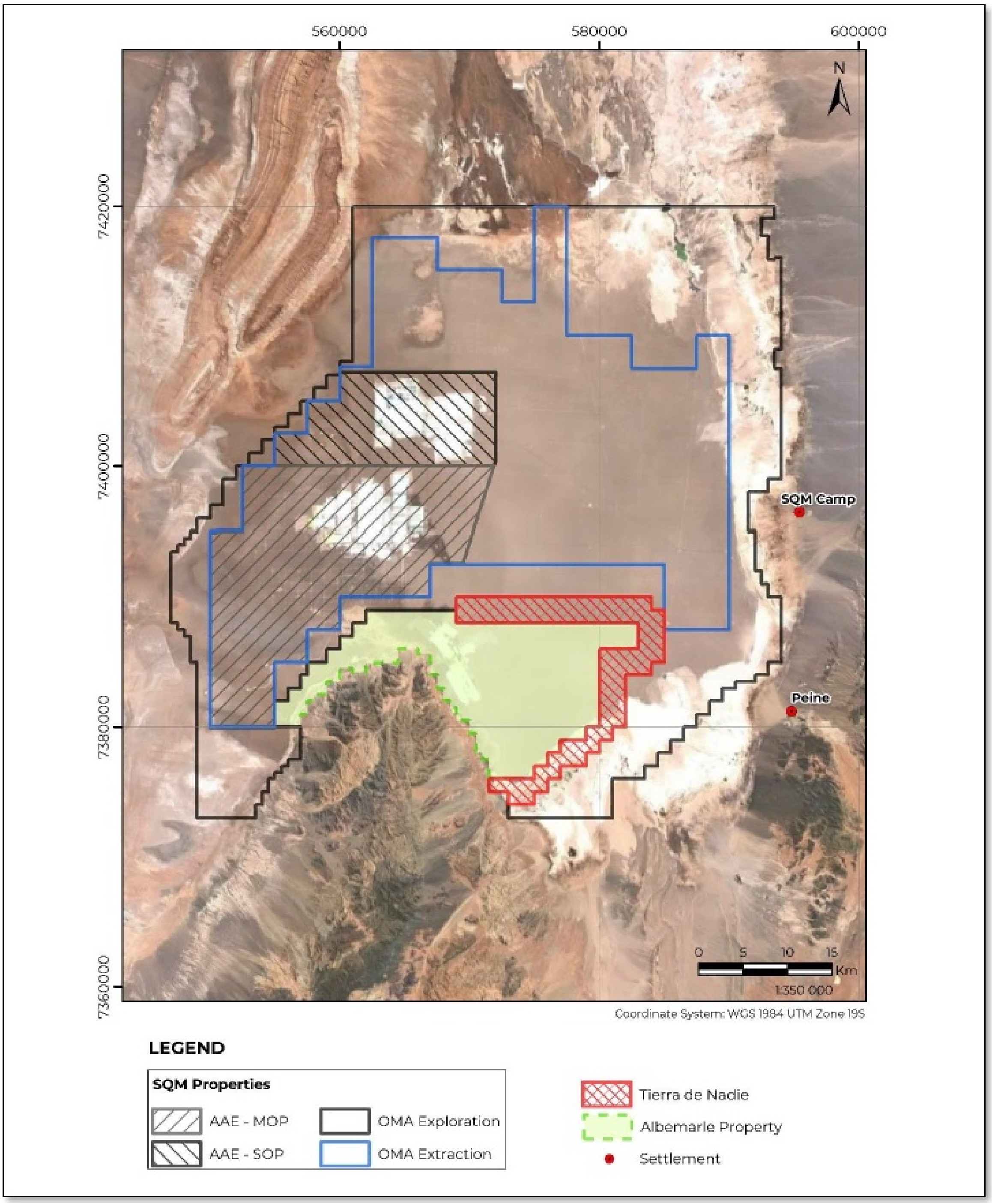
20 ADJACENT PROPERTIES

Outside of SQM’s properties of the Salar de Atacama, Albemarle has a lease agreement with CORFO to extract and produce lithium from the brines stored in the salt flat deposit. Albemarle is a North American mining company (former Rockwood and former Sociedad Chilena del Litio, SCL) that rents an area of 137 km^2 and operates in the southeast. Their operation is dedicated to the extraction of lithium at a fixed extraction quota of 200,000 tonnes until 2043, however in 2017, a new agreement was made between Albemarle and CORFO which authorizes a tripling of the production of technical-grade and battery-grade lithium salts. On January 28, 2022, Albemarle in conjunction with SRK Consulting (U.S.), Inc., prepared a SEC Technical Report Summary for a Pre-Feasibility Study; this report contains details of Albemarle’s estimated resource and reserve over a projected period of 21 years, as well as relevant processing, environmental, and financial information.

There are additionally 1,370 OMA belongings, called Nobody's Land (*Tierra de Nadie*), which is a protection strip for the extraction area of the Chilean Lithium Society (currently Albermarle), whose patents are protected by Albemarle.

The QP has been unable to verify the information relating to adjacent properties and cautions that the information relating to the adjacent properties is not necessarily indicative of the mineralization on the SQM’s Salar de Atacama Project.

Figure 20-1: Properties Adjacent to SQM's Concessions, Salar de Atacama.



21 OTHER RELEVANT DATA AND INFORMATION

The QPs are not aware of any other relevant data or information to disclose in this TRS.

22 INTERPRETATION AND CONCLUSIONS

This section contains forward-looking information related to the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were forth in this sub-section including geology and Mineral Resources, and Mining and Mineral Reserves.

Based on the results of this study, it has been concluded that the Salar de Atacama Project in operation for the treatment of brines to obtain lithium and potassium salts is economically viable according to financial and reserve parameters.

SQM has vast experience in the treatment of brines and salts; their track record includes vast knowledge of the mineral resources and raw materials during the different processing stages, including operational data on reagent consumption and costs.

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

22.1 Conclusions

Geology and Mineral Resources

- The Salar de Atacama nucleus is mainly constituted by evaporite deposits which include chlorides, sulfates, with occasional organic matter and a minor percentage of clastic sediments and thin tuff layers; local fault systems and related displacement have contributed to deformation of the various geological units.

- The perforation and sampling procedures, as well as the analysis and verification of data comply with industry norms and are adequate for the mineral resource estimation. The described procedures are in accordance with SEC's new mining rules.

- Geophysical information utilized by SQM includes both data obtained from surface survey lines and downhole geophysical instruments deployed in boreholes. It includes data obtained by SQM as well as other organizations and companies.

- The large database of drilled wells with lithologic and brine chemistry information are sufficient to determine Measured, Indicated, and Inferred resources.

- As of December 31, 2021, the Measured + Indicated Mineral Resources (exclusive of Mineral Reserves) of SQM are 8.2 million tonnes of lithium and 79.8 million tonnes of potassium, while the Inferred Mineral Resources are 2.6 million tonnes of lithium and 34.9 million tonnes of potassium. For the Measured + Indicated, the mean grade of lithium and potassium is 0.18% and 1.77%, respectively.

- The average Mineral Resource concentrations are above the cut-off grades of 0.05% lithium and 1% potassium, reflecting that the potential extraction is economically viable.

- In the QP's opinion, the Mineral Resource was estimated in accordance with industry standards for brine projects, and the Mineral Resource categorization conservatively utilizes two separate methods (geostatistical parameters and the hydrogeological understanding of each unit).

Mining and Mineral Reserves

- The geological and hydrogeological interpretations, metallurgical hypotheses, and extensive field data are sufficient to define and declare Proven and Probable Reserves within SQM's concessions of the Salar de Atacama. It is the QP's opinion that the hydrogeological characterization, hydraulic testing, sampling, and laboratory methods meet the standards for a lithium project of this development status. Additionally, the amount of data obtained from exploration and testing is considerable compared to other lithium brine projects. The characterization of the brine deposit is believed to have the level of detail necessary to support the Reserve Estimate declared in this report.

- It is the QP's opinion that the preparation of the samples and the analytical procedures used by SQM in the Salar de Atacama follows general accepted industry standards and practices that supports the analysis and results provided in this TRS.

- The process of brine extraction in the Salar de Atacama by pumping wells is limited by the location of the wellfield, well efficiency, extraction rates, and specific retention of the porous media (among other factors), implying that only a proportion of the Resource can be extracted.

- Predicted pumping weighted concentrations from the extraction wells are above the specified cut-off grades of lithium (0.05%) and potassium (1%), and numerical model results show that a majority of the total extracted mass during the LOM comes from Measured Resources.

- The current mine life ends on December 31, 2030, and the predicted brine production is approximately 290 Mm^3 for the 2022-2030 period, with a decreasing total flow rate from 2022 (1,280 L/s) to 2030 (822 L/s).

- During the first 5 years of the LOM, the Proven Reserves correspond to 1.20 million tonnes of LCE and 7.45 million tonnes of KCl. During the last 4 years of the LOM, the Probable Reserves correspond to 0.75 million tonnes of LCE and 4.04 million tonnes of KCl. These estimates consider process losses of Li and K after extraction from the production wellfield, as the reserves are estimated for processed brine, after passing through the evaporation ponds.

Metallurgy and Mineral Processing

According to Gino Slanzi Guerra, the QP in charge of metallurgy and resource treatment:

- The physical, chemical metallurgical test work performed to date has been adequate to establish appropriate processing routes for the resource.

- Metallurgical test data for the resources planned to be processed in the projected 2030 production plan indicate that the recovery methods are reasonable and optimizable.

- The samples used to generate the metallurgical data are representative and support the estimates of future performance.

- The effluent treatment requirements for impregnated brine and reinjected brine are considered adequate, since there is a brine management plan for optimized recovery of lithium for the former and a plan to reduce total brine extraction for the latter.

- There is a high degree of interaction with process and operations management that has leveraged staff expertise and ideas generated by the research and development team to move quickly from experimental phases to direct plant application.

- The optimization of operations and maintenance activities are carried out under the Lean management methodologies approach (called M1 in SQM), which has successfully penetrated in the different levels. This fact was confirmed during field visits to the different operations of the company.

Infrastructure

- SQM's production processes are carried out in two key facilities: Salar de Atacama and Salar del Carmen. High production facilities are supported by requisite supplies and infrastructure elements such as administration buildings, laboratories, warehouses, roads, power lines, water wells and water lines, reagent storage and other auxiliary facilities.

- The installed infrastructure is operational and provides all necessary support for ongoing operations, as summarized in this report.

Environment/Social Aspects/Closure

- The Project requires different permits for its operations. The company submitted a compliance program (PdC), which is currently being reviewed by the SMA which also receives comments from the indigenous communities.

- An Environmental Impact Study was submitted to assess the eventual impact to the groundwater level because of water and brine extraction. To avoid impacts to the groundwater, an Environmental Monitoring Plan was developed to focus on monitoring groundwater (quality and quantity), flora and vegetation, as well as fauna in natural systems.

- Regarding social aspects related to the Project, it should be noted that the environmental impact studies carried out do not define major social commitments; however, they do include some measures or activities related to the existing communities in the vicinity of the Project. The company has agreements with some of the indigenous and non-indigenous communities close to the Project for different aspects related to the commitments defined in the different environmental authorizations and with programs associated with corporate guidelines on community relations. However, in the context of the PdC process, there has been opposition from the communities and no agreements have been reached.

- There is no social risk matrix at SQM. There are currently initiatives to evaluate these aspects, but SQM does not have a specific program from which a specific commitment or objective is derived.

- During the final stage of the Project, the measures and actions established in the Closure Plan will be implemented including the removal of metal structures, equipment, materials, boards and electrical systems, de-energization of facilities, closure of accesses and installation of signs, as well as other more specific measures which seek to ensure the physical and chemical stability of the mine after ceasing operations.

- The activities related to Project closure will be carried out in full compliance with the legal provisions in effect and they will involve the protection of workers and the environment.

Cost and Economic Analysis

- By the end of 2020, the distributed capital cost in the invested areas related to lithium and potassium chloride and potassium sulfate production is close to US$2.3 billion.

- The largest capital cost is invested in the "Lithium Production Plants" and in the "Evaporation and Collection Ponds", together covering about 55% of the capital cost, which added to the "Wet Plants and Brine Extraction Wells", covers about 85% of the entire capital cost of the lithium operations.

- SQM has plans to continue expanding the capacity of its plants. The lithium carbonate plant will be upgraded and expanded to reach 180 kTon and investments in the lithium hydroxide plant are underway to increase production to 30 kTon per year.

- In the case of the expansion, the projects underway, which will be executed in the period 2021 to 2022, consider improving aspects of quality, performance, sustainability and increasing production capacity.

- The highest operating cost is in raw materials and consumables, employee benefit expenses, depreciation expenses, contractor works, CORFO rights and other agreements, operational transports, freight and transportation costs of products, covering 96% of the operating cost.

- Production sensitivities, sales prices, and operating costs have been calculated for the revenue stream for the Base Case. This allows estimating revenues in situations other than the Base Case, which have a certain probability of occurring during operation between 2022 and 2030.

22.2 Risks

Mineral Resource Estimate

- The use of effective porosity versus specific yield could result in an overestimation of the estimated brine volume, however based on the geological and hydrogeological characterization of the OMA (Chapters 6 and 7), the site does not present significant volumes of material, such as clay, where specific retention can be significant (when compared to specific yield). This implies that effective porosity is believed to be an adequate parameter for the brine volume estimate.

- SQM's brine chemistry and porosity labs are not accredited, however a Round-Robin analysis was performed for brine samples to confirm the QA/QC procedures and overall accuracy and precision. To further mitigate this uncertainty, various QA/QC procedures are in place for measured brine chemistry and effective porosity (Chapters 8 and 9).

- Near the ponds, and reinjection points, potential infiltration could have affected the natural reservoir chemistry, however those areas were conservatively categorized as less certain (e.g., Measured Resource to Indicated Resource).

Mineral Reserve Estimate

- Potential brine dilution can occur over time due to lateral inflows. To address this, representative historical concentrations were assigned for modeled lateral inflows and direct recharge concentrations during the LOM were specified as 0.

- Density driven flow could impact the hydraulic gradient near environmental sensitive areas, however the numerical model limit is set within the salt flat nucleus where brine density does not vary significantly based on measured values, and therefore does not take this into account.

- Potential pond infiltration represents an additional source of uncertainty, and it was intentionally not modeled to avoid introducing an "artificial" source of lithium and potassium in the reserve estimate.

- Hydraulic parameters were calibrated based on available information, however future exploration and testing could improve the assigned model parameters and updated water balance; to alleviate this uncertainty, Probable Reserves were specified for the last 4 years of the LOM.

- A steady-state model calibration was not conducted given the long period of SQM's historical production; however, a comprehensive flow and transport calibration was conducted for the 2015 to 2020 (inclusive) period.

- Future Albemarle pumping is unknown; however, a maximum rate of 442 L/s was conservatively assumed for the entire LOM based on their recent environmental assessment.

Metallurgy and Mineral Processing

- There is a risk that the process, as currently defined, will not produce the expected quantity and/or quality required due to the mobile nature of the Salar de Atacama brine mineral resource. In this sense, monitoring and studying the variability of key species concentrations and their ratio (Mg/Li, SO4/Ca) is essential and relevant for production and engineering development decisions.

- A relevant aspect is the projection of the SO_4/Ca ratiowhich impacts the overall efficiency levels of the lithium production system. This ratio must be controlled and forecasted for the 2022-2030 production period in order to identify the need to incorporate a liming plant to supply calcium, during the sequential evaporation process in the ponds, in adequate quantity to avoid lithium sulfate precipitation.

- Another risk arises from the new recovery methodologies that underpin the plan to increase the lithium system's performance. It is possible that the expected results, so far estimated, may be lower than the markers for various factors and therefore, the target of stepwise yield increase may be difficult to achieve.

Operating Permits/Environment

- There is a risk of obtaining the final necessary environmental approvals, licenses, and permits from the authorities on time. In certain cases, obtaining permits can cause significant delays in the execution and implementation of projects.

- For the PdC, the risk of disapproval could imply applicable sanctions such as revoking of the RCA, closure of the project, or fines for infraction.

- Risks associated with governmental regulations regarding exploitation could affect the Project activities. Changes in policies involving the exploitation of natural resources, taxes, and other matters related to the industry may adversely affect the business, financial condition and results of operations.

Cost and Economic Analysis

- The technical and economic evaluation presented in this TRS are reasonable. However, it is also recognized that the results are subject to many risks, including, but not limited to the following: raw material and currency assumptions, and unforeseen inflation of capital or operating costs. Production sensitivities, sales prices, and operating costs have been calculated for the revenue stream for the Base Case. This allows for the estimation of revenue in situations other than the Base Case, which have a certain probability of occurring during operation between 2022 and 2030.

23 RECOMMENDATIONS

Mineral Resource Estimate

- Utilize an independent methodology on collected core (e.g., Relative Brine Release Capacity testing) to confirm the estimated porosity values.
- Confirm the accuracy and precision of SQM internal laboratory implementing an external QA/QC check with a representative number of brine samples as a routine procedure.

Mineral Reserve Estimate

- Conduct a sensitivity analysis of key model parameters such as K, Sy, recharge rates and Albemarle Pumping scheme, and evaluate the differences compared to the base case scenario.
- Extend the model calibration period annually and continually to improve the model parameters based on new field data and hydraulic testing.

Metallurgy and Mineral Processing

- During operations, level control and careful monitoring of deleterious elements in the solutions will be required to minimize impacts and maximize recoveries.
- For an optimization of lithium recovery operations, there are several technologies that should be studied to evaluate the capability of each as an alternative to ensure the company's long-term future production. In particular, membrane filtration technology processes, which are driven by pressure gradient, electric or thermal field, as well as new processes under development, such as ionic filtration (LIS), have received considerable attention recently due to multiple advantages shown by available studies, therefore it would be advisable to study the possibility of using them for lithium recovery by evaluating costs, energy efficiency, achieved performance, selectivity and environmental impact.
- In reference to the tests on the use of a calcium source to avoid and/or reduce losses due to lithium sulfate precipitation, it is first necessary to carry out a projection study of the variation of the calcium content in the brines throughout the useful life of the mine.
- In addition to the above, it is recommended to carry out a comparative study of two or more calcium sources, other than $CaCl_2$, to have alternative reagent alternatives to control the eventual precipitation of lithium sulfate.
- Variability impact studies of ionic ratios such as sulfate-magnesium (SO_4/Mg), potassium-magnesium (K/Mg), sulfate-calcium (SO_4/Ca) and lithium-magnesium (Li/Mg) are recommended to evaluate different scenarios and the success of the operations. In addition, a study of this type will inform the decision to carry out engineering works for operational continuity and to optimize the performance of the operations in the future.

Environment/Social Aspects/Closure

- Develop a social risk matrix and a specific program to address the community relationship issues.
- Continue with the execution of the actions committed in the Compliance Program, even though it has not yet been approved.

All the above recommendations are considered within the context of the estimated CAPEX/OPEX in this TRS and do not imply additional costs for their execution.

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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.

APPENDIX

A Glossary

Acronym	Name	Description
acQuire	acQuire	Geoscientific Information Management Software
CONAMA	Comisión Nacional del Medio Ambiente	National Environment Commission of Chile. On October 1st, 2010, CONAMA was succeeded by the Ministerio de Medio Ambiente (Environment Ministry) and the Servicio de Evaluación Ambiental (SEA), the Environmental Evaluation Service of Chile.
COREMA	Comisión Regional del Medio Ambiente	Regional office of CONAMA.
CORFO	Corporación de Fomento de la Producción	Agency tasked with the promotion of economic growth in Chile
DICTUC	Dirección de Investigaciones Científicas y Tecnológicas de la UC	Directorate of Scientific and Technological Research of the Universidad Católica. A consulting company, established in 1947, of the Faculty of Engineering of the Pontificia Universidad Católica de Chile.
GHS	Gerencia Hidrogeología Salar	Hydrogeology Department of SQM
IIG	Instituto de Investigaciones Geológicas	A precursor of SERNAGEOMIN
Lab POR	Laboratorio de Porosidad del Salar de Atacama	Porosity Laboratory of SQM
Lab SA	Laboratorio Salar de Atacama	Laboratory of SQM
MINSAL	Sociedad Minera Salar de Atacama Limitada	Joint venture Amax (63.75%), Molymet (11.25%) y Corfo (25%) formed in 1986 to produce potassium chloride, lithium, potassium sulfate and boric acid from the Salar de Atacama. In 1993 SQM acquired 75% of MINSAL. In 1995, SQM acquired the remaining 25% share held by CORFO.
Salar	Salar	Salt flat
SCL	Sociedad Chilena de Litio	Joint venture established in 1981 between Foote Mineral Company & CORFO. In 2012, CORFO sold its participation in SCL which became Rockwood Lithium. In January 2015, Albemarle Corporation acquired Rockwood Lithium.
SERNAGEOMIN	Servicio Nacional de Geología y Minería	National Geology & Mining Service of Chile

Exhibit 96.2

TECHNICAL REPORT SUMMARY

MT. HOLLAND LITHIUM PROJECT

Sociedad Química y Minera de Chile

Date: April 25, 2022

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TABLE LIST

FIGURE LIST

APPENDIX

1 EXECUTIVE SUMMARY

1.1 Property Summary and Ownership

The Mount Holland Lithium Project, hereafter the Project, is an integrated lithium project in Western Australia consisting of (i) an open pit mine and lithium concentrator operation (MCO), at Mount Holland, 120 km southeast of the settlement of Southern Cross, and (ii) a lithium hydroxide (LiOH) refinery located in the Town of Kwinana, 26.5 km from the port of Fremantle, from where the LiOH will be shipped.

The Project is conducted through an unincorporated joint venture (Joint Venture) between MH Gold Pty Ltd (a wholly owned subsidiary of Wesfarmers Limited (Wesfarmers)) and SQM Australia Pty Ltd (SQM Australia) (a wholly owned subsidiary of Sociedad Química y Minera de Chile (SQM)). Each joint venturer has a 50% interest in the Project. The Project is managed by Covalent Lithium Pty Ltd (Covalent), an entity that is jointly owned by the joint venturers, as agent for and on behalf of the Joint Venture.

1.2 Geology and Mineralization

The Mt. Holland project is focused on the exploitation of the resource in the Earl Grey pegmatite group. The Earl Grey pegmatite group consists of a main tabular pegmatite body flanked by numerous narrower hanging wall and footwall apophyses. The pegmatite has a strike length of at least 1 km, and a dip extent of over 2 kilometers and a thickness of up to 100 meters. The pegmatites become progressively narrower and more branched to the south and the east of the main pegmatite until even the main body divides into several narrower dikes. Narrow blocks of enclosed wall rock rafts are present within some areas of the pegmatites.

The pegmatites intrude with an approximate strike of 210° to 220° and dip of 5° to 15° to the northwest. At their western margin, the pegmatites appear to be affected by gentle folding. The dip of the pegmatites is variable, with the pegmatite steepening from sub-horizontal in the south to 10° to 15° to the northwest north of the Earl Grey gold pit.

The Earl Grey pegmatite group consists of a simple albite-quartz-microcline-spodumene petalite dominated assemblage with minor biotite, muscovite, and tourmaline. The lithium aluminosilicates spodumene and petalite are by far the most abundant lithium-bearing minerals in the Earl Grey pegmatite; however, a wide array of trace lithium phases has also been documented in distinct domains. These are mostly late-stage alteration related phases, and except for cookeite, are a rare occurrence. Textures range from extremely coarse pegmatite through to finer grained seriate granitic to aplitic and late-stage replacement textures. The Earl Grey pegmatite group does not display the strong concentric mineralogical zonation commonly associated with complex rare element pegmatites. The spodumene, petalite, and alteration assemblages are restricted to distinct zones within the pegmatite and are strongly correlated with individual fault blocks and their bounding structures.

Extensive exploration supports the characterization of the Earl Grey Pegmatite, as the resource and reserve estimation, and it is comprised of surface mapping and extensive subsurface drilling carried out on the property in consideration that the pegmatite is not outcropping in the area. Exploration has predominantly been carried out by Kidman Resources since 2016, for the discovery and resource definition. Since 2020, Covalent has conducted additional diamond drilling for metallurgical sampling, grade control drilling campaigns and improvement definition of the Orebody geometry in the proposed starter pit area

1.3 Status of exploration, development, and operations

The project is classified under development or construction according to the S-K 1300 regulations. Basic exploration and the resource definition is completed since 2018, but Grade Control Drilling campaigns have been done since 2020. The mine, concentrator and refinery are currently under construction with most construction contracts awarded and ongoing. Primero group has been awarded with the engineering, procurement, and construction (EPC) of the concentrator while Civmec Limited, through a wholly owned subsidiary, has been awarded with the major construction contract of the Refinery. In addition, a four-year mining services contract was awarded to the Thiess Pty Ltd.

1.4 Mineral Resource Statement

Mineral resource for the Project, representing in-situ lithium bearing pegmatites are reported below in accordance with SEC Regulation S-K 1300 standards and are therefore suitable for public release. The current Mineral Resource for the Earl Grey Deposit, contained within the pit shell has been reported at a cut-off of 0.5 Li_2O% and is detailed in Table 1-1 for mineral inclusive of the reserve and Table 1-2 for mineral exclusive of the reserve.

Table 1-1. October 2021 Mineral Resource Estimate Inclusive of Mineral Reserves for the Earl Grey Deposit

Classification	Cut-off Grade (%Li_2O)	Kilotonnes (kt)	SQM Attributable tonnes	Li_2O%	Fe_2O_3%	Ta ppm
Measured	0.5	71,000	35,500	1.57	1.17	56
Indicated	0.5	107,000	53,500	1.51	1.02	45
Measured + Indicated	**0.5**	**178,000**	**89,000**	**1.54**	**1.08**	**50**
Inferred	0.5	8,000	4,000	1.44	1.30	47
Total	**0.5**	**186,000**	**93,000**	**1.53**	**1.09**	**49**

- The SQM attributable portion of mineral resources and reserves is 50%.
- Mineral resources are **reported inclusive of mineral reserves**. Mineral resources are not mineral reserves and do not have demonstrated economic viability.
- Resources have been reported as in situ (hard rock within optimized pit shell).
- Resources have been categorized subject to the opinion of a Qualified Person (“QP”) based on the amount/robustness of informing data for the estimate and consistency of geological/grade distribution.

- Resources which are contained within the mineral Resource Pit design may be excluded from reserves due to an Inferred classification. They are disclosed separately from the resources contained within the Resource Pit.
- There is reasonable expectation that some Inferred resources within the mineral reserve pit design may be converted to higher confidence materials with additional drilling and exploration effort.
- Mineral resources are reported considering a nominal set of assumptions for reporting purposes:
- Pit optimization and economics for derivation of cut-off grade ("CoG") include mine gate pricing of US$800/t of 6% Li2O concentrate, AU$19/bcm mining cost (Life of Mine ("LoM") average cost-variable by depth), AU$65/t processing cost. Mining dilution set at 5% and recovery at 95%. Royalty fees 5%. The recovery considered for the concentrator is 75%.
- Costs estimated in Australian Dollars were converted to US Dollars based on an exchange rate of 0.75US$:1.00AU$.
- These economics define a cut-off grade of 0.50% Li_2O.
- The slope angles vary from 40 degrees for oxide material to 45 degrees for fresh material.
- Resources were reported above this 0.5% Li_2O cut-off grade and are constrained by an optimized break-even pit shell.
- No infrastructure movement capital costs have been added to the optimization.
- Mineral resources tonnage and contained metal have been rounded to reflect the accuracy of the estimate, and numbers may not add due to rounding.
- Kerry Griffin is the QP responsible for the mineral resource estimate with an effective date: October 6, 2021.

Table 1-2. October 2021 Mineral Resource Estimate Exclusive of Mineral Reserves for the Earl Grey Deposit

Classification	Cut-off Grade (%Li_2O)	Kilotonnes (kt)	SQM Attributable tonnes	Li_2O%	Fe_2O_3%	Ta ppm
Measured	0.5	27,000	13,500	1.58	1.05	55
Indicated	0.5	61,000	30,500	1.45	1.04	43
Measured + Indicated	**0.5**	**88,000**	**44,000**	**1.49**	**1.04**	**47**
Inferred	0.5	7,000	3,500	1.38	1.35	47
Total	**0.5**	**95,000**	**47,500**	**1.48**	**1.06**	**47**

- The SQM attributable portion of mineral resources and reserves is 50%.
- Mineral resources are **reported is exclusive of mineral reserves**. Mineral resources are not mineral reserves and do not have demonstrated economic viability.
- Resources have been reported as in situ (hard rock within optimized pit shell).
- Resources have been categorized subject to the opinion of a QP based on the amount/robustness of informing data for the estimate and consistency of geological/grade distribution.

- Resources which are contained within the mineral resource pit design may be excluded from reserves due to an Inferred classification. They are disclosed separately from the resources contained within the Resource Pit.

- There is reasonable expectation that some Inferred resources within the mineral reserve pit design may be converted to higher confidence materials with additional drilling and exploration effort.

- Mineral resources are reported considering a nominal set of assumptions for reporting purposes:

- Pit optimization and economics for derivation of CoG include mine gate pricing of US$800/t of 6% Li_2O concentrate, AU$19/bcm mining cost (LoM average cost-variable by depth), US$ 65/t processing cost. Mining dilution set at 5% and recovery at 95%. Royalty fees 5%. The optimisation considered for the concentrator is 75%. Costs estimated in Australian Dollars (AU$) were converted to US Dollars (US$) based on an exchange rate of 0.75US$:1.00AU$.

- These economics define a cut-off grade of 0.50% Li_2O.

- The slope angles vary from 40 degrees for oxide material to 45 degrees for fresh material.

- Resources were reported above this 0.5% Li_2O cut-off grade and are constrained by an optimized break-even pit shell.

- No infrastructure movement capital costs have been added to the optimization.

- Mineral resources tonnage and contained metal have been rounded to reflect the accuracy of the estimate, and numbers may not add due to rounding.

- Kerry Griffin is the QP responsible for the mineral resource estimate with an effective date: October 6, 2021.

1.5 Mineral Reserve Statement

Mineral reserve for the Project, representing in-situ lithium bearing pegmatites are reported in Table 1-3 accordance with SEC Regulation S-K 1300 standards and are therefore suitable for public release. The reserves are reported above a cut-off grade of 0.5% Li_2O based on an assumed Lithium Hydroxide Selling price at of US$11,000 per tonne FOB. Such price assumption was used for the purpose of evaluating the robustness and economic viability of the Project and does not represent a view of, and may differ from those used by, any of the joint venturers for their own valuation or commercial strategies in relation to the Project. No by-product extraction is considered in the reserve estimation.

Table 1-3 Ore Reserve category

Ore Reserve Category	Quantity (Mt)	SQM Attributable (Mt)	Li_2O (%)	Fe_2O_3 (%)
Proven	21.5	10.8	1.48	1.36
Probable	62.4	31.2	1.60	1.19
Total	83.9	42.0	1.57	1.24

- The SQM attributable portion of mineral resources and reserves is 50%.

- Mineral reserves are reported exclusive of mineral resources.

- Indicated in situ resources have been converted to Probable reserves.

- Measured resources have been converted to Probable mineral reserves. Measured resources outside the Updated Integrated Definitive Feasibility Study (UIDFS) 10-year boundary will be considered as “Probable” in line with the 2018 Ore Reserves

- Mineral reserves are reported considering a nominal set of assumptions for reporting purposes:

- Mining Dilution has been calculated through the utilization of a regularized model, with 5m x 5m x 2.5m block sizes. Additionally, mining recovery of 98% of the diluted Spodumene Quartz Intergrowth mineralization has been used.

- Metallurgical processes are designed for nominal 2Mtpa ore feed. Process recovery to concentrate is estimated at 75% for Li_2O for predominantly Spodumene Mineralisation and 0% for other mineralization types. Refinery process recovery is estimated at 85%. Tantalum recovery is estimated at 0%. A total operating cost of US$4,979 for LiOH production was considered for the reserve evaluation.

- Costs estimated in Australian Dollars were converted to US Dollars based on an exchange rate of 0.75US$:1.00AU$.

- The price, cost, and mass yield parameters, along with the internal constraints of the current operations, result in a mineral reserves CoG of 0.5% Li_2O based on an assumed selling Lithium Hydroxide price of US$11,000/t FOB.

- Waste tonnage within the reserve pit is 427.1 Mt.

- Mineral reserve tonnage and grade have been rounded to reflect the accuracy of the estimate, and numbers may not add due to rounding

- David Billington is responsible for the mineral reserves with an effective date: December 15, 2021.

1.6 Metallurgy and Mineral Processing

Testwork campaigns to support the concentrator flowsheet and engineering design were completed at accredited laboratories under the supervision of Covalent. Testwork execution follows best practice guidelines, including review of current practices, tracking of information and verification of test methodologies. The results disclosed in this report are based on the UIDFS elaborated by Covalent in 2020.

Samples for the concentrator metallurgical testwork were sourced via drilling campaigns using both reverse circulation (RC) and diamond drill holes. Most of the metallurgical samples collected were in the area of the proposed starting pit for the mine. Bulk composites were generated by combining the drill core ore samples identified for each pilot run. All composites were prepared by combining downhole samples, providing an average ore grade for testing. The existing metallurgical samples does not capture the complete orebody, but from geologic data and drillhole reviews the pegmatite mineralogy across the deposit is similar. In the QP's opinion, the metallurgical samples are representative of the first 10 years of mining and, based on the mineralogical data and geological descriptions, the metallurgical test results are indicative of the expected recoveries for the remaining Spodumene and Quartz Intergrowth (SQI) pegmatite identified in the deposit. The concentrator design, and the ability to blend ore from the ROM pad and the low-grade ore stockpile, is expected to allow minimization of fluctuation in feed grade, and the associated variation in lithium mass flow through the process circuit. The following conclusions can be drawn from the concentrator testworks: testwork has confirmed that the target product quality for spodumene concentrate of 5.5 per cent Li2O can be achieved: pilot run recoveries exceeded the nominal 75 per cent target recovery with an average Li2O recovery of 77.6 per cent reported.

The refinery testwork program has been developed to deliver a robust refinery process flowsheet based on testworks, to ensure the process design produce LiOH product that meets the quality specification consistently, based on the outputs from concentrator testworks. From the refinery testworks results, the lithium deportment analysis predicts an overall refinery recovery of 85.9 per cent, with the potential range between 82.0 and 91.5 per cent. For the valuation a recovery of 85.0 per cent has been selected.

1.7 Mine Design, Optimization and Scheduling

Mining of the Earl Grey Deposit at Mount Holland will utilize conventional open pit mining methods in consideration of the pegmatite body geometry and economic factors. The mine plan gives a Life of Mine of approximately 50 years at a production rate of around 2 Mt/year of ore, with a total material movement 511 Mt (including waste material). The operation will be serviced by contractor-owned and operated drill & blast, as well as load & haul equipment. Mining equipment will include excavators, haul trucks, drilling rigs and ancillary equipment including dozers, water trucks, service trucks and graders. Material movement initiated in February 2022 by removal and stockpiling of topsoil, followed by pre-stripping of waste to provide access to the first ore.

The deposit geometry presents relatively large bulk areas of both ore and waste; however, the ore/waste contact is designed to be mined as cleanly as possible to prevent ore loss and dilution of the ore with the high Fe_2O_3 waste. It is anticipated that precision drill and blast techniques will be employed on these ore/waste contacts, with dozers cutting to visual ore/waste contacts. Based on ore grade, excavated material will be hauled from the pit to specific locations, as follows:

- Ore which meets or surpasses the Li_2O cutoff grade (high-grade ore) will be hauled to the ROM pad.
- Ore below the Li_2O grade blending specifications, will be moved to the low-grade ore stockpile.
- Mixed material, derived from the ore/waste contact zone will be stored at the sorting stockpile for processing at the end of the operational life of the mining operation.
- Storage of high-grade ore on the ROM pad and low-grade ore on the low-grade ore stockpile will permit its inspection and testing, as appropriate, prior to its introduction into the concentrator feed line, where high- and low-grade ores will blend to achieve the ore grade required by the concentrator at any given time.
- Waste rock will be disposed of at the various waste rock landforms (WRLs, waste rock dumps) considered in the mine plan.
- Other material, such as lithium-bearing petalite, other mixed lithium minerals and gold-bearing material will be separated and stockpiled separately.

The mining proposal, submitted to the regulator for approval, outlines the land management schedule for the first 10 years of operation. Further approvals are required to mine beyond the 10 years to the full LoM of the Ore Reserves. It is anticipated that all impacts of the LoM project beyond the first 10 years can be readily managed and offset as required.

1.8 Permitting Requirements

In terms of environmental studies, permits, plans, and relations with local groups, the Project submitted an Environmental Impact Assessment (EIA) complying with the established contents and criteria, and the legal requirements of current environmental regulations in Western Australia. The approvals for the Project have been received and the construction of the facilities are under way. The QP recognizes that further environmental approvals are required to mine beyond the 10 years to the full LoM of the Ore Reserves. It is anticipated that all impacts over the LoM of the Project, beyond the first 10 years, can be readily managed and offset as required.

In addition, the project committed to some ongoing monitoring measures (including groundwater sampling, soil analysis and vegetation health monitoring) to detect any effects on the environment them as a result of the project implementation. This will allow the project owner to implement controls and mitigations measures in the unlikely event that project related impacts were identified.

1.9 Capital Costs, Operating Costs and Financial Analysis

The Project is comprised of two main sites: the mine and concentrator plant at the Mt. Holland mine site and the refinery in the Kwinana strategic industrial area. The total capital cost for the Project has been estimated at US$1,226 million in real terms. The portion attributable to SQM is 50% of the total capital cost. A summary of the total capital cost is provided in the below.

Table 1-4 Capital cost by category

Capital cost category	**Amount (US$ million)**
Mine, concentrator and supporting infrastructure	37%
Refinery and non-processing infrastructure	45%
Corporate	5%
Contingency	13%
Total capital cost (including contingency)	1,226 (100)%
Escalation estimate (based on approx. 2.3 per cent per annum growth between the periods)	39
Total capital cost (including contingency and escalation)	1,265

The capital cost above is an updated estimate from the proposed amount presented to the joint venturers when making the investment decision in February 2021. The update from the amount presented to the joint venturers includes the mine plan that resulted from the reserves update performed during 2021 with the assumed exchange rate of 0.70US$:1.00AU$. At the time of the investment decision, the joint venturers were presented a risk-adjusted P50 estimate that, due to high uncertainty, excluded a risk allowance for impacts from COVID-19. SQM approved an investment of approximately US$700 million to cover its share of the Project. The capital cost estimate for the Project was compiled from various sources – each best placed to estimate the cost for a portion of the overall estimate.

A detailed, probabilistic Quantitative Risk Assessment (QRA) of the Project capital cost estimate was completed prior to finalization of the UIDFS (2020). The QRA process included workshops with multidisciplinary teams to assess risk factors applicable to various components of the capital cost estimate and define appropriate uncertainty ranges for each component based on its risk profile.

Project operating costs are shown on a LoM basis as from commencement of stable operation. Operating cost estimates are from inputs provided by Covalent, consultants, vendors, formal/informal tender processes, and other market information. Costs are categorized as follows: Mine and Concentrator, Refinery Corporate Royalty, and Depreciation

The total operating cost is estimated at US$4,989/t of LiOH. The distribution of operating cost is shown in Table 1-5 and summarises the make-up of the total cost per tonne of LiOH for the Project. The methodology to calculate the total cost per tonne considers the average production operating costs over LoM.

Table 1-5 Distribution of operating costs

Total LoM unit cost	**share %**
Mine and Concentrator	50%
Refinery	39%
Corporate	7%
Royalties	4%
Total	100%

The operating cost reported is an updated estimate from the proposed estimation prepared by Covalent in the UIDFS (2020). The sole update was the mine plan that resulted from the reserves update performed during 2021. The operating cost estimate for the Project was compiled from various sources – each best placed to estimate the cost for a portion of the overall estimate. For the purpose of the estimate, the exchange rate assumption from UIDFS was maintained at 0.70US$:1.00AU$.

Most key assumptions are maintained from those used in the UIDFS (2020), including valuation date, discount rate, and reagents prices. Such assumptions were used for the purpose of evaluating the robustness and economic viability of the Project and do not represent a view of, and may differ from those used by, any of the joint venturers for their own valuation of the Project. The financial model assumes the valuation of the Project independently and does not take into consideration tax deductions from accumulated losses, if any, within SQM. Valuation is in real terms. The key assumptions used in the financial model are outlined in Table 1-6.

Table 1-6 Key valuation assumptions

Key Valuation Assumptions		
Item	**Unit**	**Value**
Valuation date	Date	1 January 2021
Discount rate (real)	%	10
Tax rate	%	30.00
Foreign exchange US$:AU$	(:1)	0.70
Project Life	Years	51
Mine life	Years	50

The mine plan produces 83.7 million tonnes of ore as feed to the concentrator over LoM at varying grades. Spodumene concentrate is produced with an estimated average recovery of 77.2 per cent over the LoM to produce lithium oxide concentrate at a grade of 5.5 per cent. The concentrate is supplied to the refinery to produce a total of 2.37 million tonnes of LiOH (average of 50.3 ktpa) for the Project.

The primary revenue source for the Project is LiOH, a small revenue contribution is generated from the sale of the co-products, SSA and DBS. In addition, during ramp-up of the Refinery the model assumes revenue is generated from the sale of excess spodumene concentrate.

The financial model conservatively assumed a LiOH price of US$11,000 per tonne of LiOH on a CIF basis and a spodumene concentrate price of US$550 per tonne of concentrate at 6% grade on a FOB basis. The above prices are a conservative assumption used for the purpose of the valuation and do not represent a view or consensus of forward-looking prices by any of the joint venturers.

Based on the assumptions mentioned above, Table 1-7 shows the main financial outcomes for the Project. SQM's attributable portion of the net present value under such assumptions is US$288 million.

Table 1-7 Key financial outcomes

Key Project Metrics - LoM	Units	Mine Plan Optimization
NPV	US$ million	576
IRR	%	14.9
Payback	year	2029

A sensitivity analysis was applied over different variables affecting the financial outcome of the Project, with the objective to provide visibility of 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 upside and downside to value. The following variables were analyzed: LiOH price, CAPEX, OPEX, concentrator recovery, and ore feed grade. The results of this sensitivity analysis shows that the most relevant variable is the LiOH price.

1.10 Conclusions and Recommendations

1.10.1 Results

1.10.1.1 Geology and Resources

Sufficient data have been obtained through various exploration and grade control drilling programs in the main property. Exploration techniques and the quality assurance and quality control (QAQC) procedures employed on the project are appropriate and sufficient to support the mineral resources according to the S-K 1300 regulations. Geology and mineralization are well understood across the deposit and are sufficient to support a resource estimation and a feasibility study. In the QP's opinion, the mineral resources stated in this report are appropriated for public disclosure and meet the definitions established in the SEC guidelines and industry standards.

1.10.1.2 Reserve and Mining Methods

The Ore Reserves Estimate is in line with previous Ore Reserves for the project (2018). The mine plan gives a Life of Mine of approximately 50 years at a production rate of around 2 Mt/year of ore, with a total material movement 511 Mt (including waste material). The Qualified Person recognized that further approvals are required to mine beyond the 10 years to the full Life of Mine of the Ore Reserves. It is anticipated that all impacts of the Life of Mine project beyond the first 10 years can be readily managed and offset as required.

In the QP's opinion, the mineral reserve stated in this report are appropriated for public disclosure and meet the definitions established in the SEC guidelines and industry standards.

1.10.1.3 Mineral processing and Metallurgy

The metallurgical tests carried out support the forecast yield for the concentrator and the refinery. The physical, chemical, and metallurgical tests carried out to date by Covalent have been adequate to establish a suitable process to produce spodumene concentrate and lithium hydroxide. In the QP's opinion, the metallurgical testing and process designed by Covalent are adequate to establish the modifying factors needed for a reserve definition.

1.10.1.4 Environmental, Social and Governance

In terms of environmental studies, permits, plans, and relations with local groups, the Mt. Holland Project submitted an Environmental Impact Assessment (EIA) complying with the established contents and criteria, and the legal requirements of current environmental regulations in Western Australia. The approvals for the project are on track and at the moment of elaboration of this report are not considered to represent a significant risk for 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 to execute measures if necessary.

1.10.2 Significant Risks

- Resource: While the resource has been extensively drilled and tested and the nature of the mineralization is consistent and apparently well understood, there is a risk that the contained metal in the resource has been misestimated, that the metallurgical performance is not fully representative of the whole rock mass and the reported values cannot be extracted.

- Product sales prices: the price of Lithium Hydroxide is a forecast based on predicted supply and demand changes for the lithium market overall. There is considerable uncertainty about how future supply and demand will change, which will materially impact future Lithium Hydroxide prices. The reserve estimate may be sensitive to significant changes in revenue associated with changes in Lithium Hydroxide prices.

- Mining dilution and mining recoveries: The level of ore loss and dilution applied to the production schedule assumes a very selective mining method on the ore/waste contact. If the planned level of selectivity cannot be achieved there will be either higher ore loss and/or an increase in the Fe_2O_3 concentration due to dilution. This would potentially introduce more waste into the plant feed, which would decrease the feed grade, slow down the throughput and reduce the metallurgical recovery.

- Impact of currency exchange rates on production cost: costs are modeled in Australian Dollars (AU$) and converted to US Dollars (US$) within the cash flow model.

- Operations Risks: There are many potential operational risks ranging from the inability to hire, train and retain workers and professional necessary to conduct operations, to poor management. The lithium industry is in expansion, and this could lead to a personnel shortage. While similar operations are conducted in Western Australia, there is no reason to believe these risk factors cannot be eliminated.

- The impact of exceptional weather events or climate change that could negatively impact operations.

- The impact of exceptional pandemics events like COVID-19.

- The impact of possible war scenarios that could affect the market.

- Processing plant and refinery yields: The forecast assumes that the concentrator and refinery will be fully operational and that the estimated yield assumptions are achieved. If one or more of the plants does not operate in the future, or if any of the targeted yields are not achieved, the mineral reserves and estimated economic outcome would be adversely impacted.

1.10.3 Conclusions

The Project, currently in construction, has been evaluated in a feasibility study, UIDFS (2020), and its mineral resources and reserves updated with further studies carried out during 2021. Those studies confirm that there are no material changes from the 2020 evaluation. The evaluated project corresponds to an open pit mine, a concentrator plant to produce Spodumene Concentrate, and a refinery to produce lithium hydroxide.

The Qualified Persons consider that the exploration data accumulated available is reliable and adequate for the purpose of the declared mineral resource and reserve estimates at a feasibility study level. The report was prepared in accordance with the resource and reserve 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

This Technical Report Summary (TRS) was prepared for Sociedad Química y Minera de Chile S.A. (SQM) to provide investors a comprehensive understanding of the Mt. Holland Lithium Project (the Project) in accordance with the requirements of Regulation S-K, Subpart 1300 of the Securities Exchange Commission of the United States (SEC), hereafter referred to as regulation S-K 1300. The Project is an integrated lithium project in Western Australia consisting of (i) an open pit mine and lithium concentrator operation (MCO), at Mount Holland, 120 km southeast of the settlement of Southern Cross, and (ii) a lithium hydroxide (LiOH) refinery located in the industrial area within the Town of Kwinana, 26.5 km from the port of Fremantle, from where the LiOH will be shipped. The Project focus is to produce battery-grade lithium hydroxide meeting increased demand from the electric vehicle market.

The Project is conducted through an unincorporated joint venture (Joint Venture) between MH Gold Pty Ltd (a wholly owned subsidiary of Wesfarmers Limited (Wesfarmers)) and SQM Australia Pty Ltd (SQM Australia) (a wholly owned subsidiary of Sociedad Química y Minera de Chile (SQM)) Each joint venturer has a 50% interest in the Project. The Project is managed by Covalent Lithium Pty Ltd (Covalent), an entity that is jointly owned by the joint venturers, as agent for and on behalf of the Joint Venture.

2.1 Terms of Reference and Purpose of the Report

This TRS was prepared with the purpose to disclose resource and reserves for the Project located in Australia, in accordance with the requirements of Regulation S-K, Subpart 1300 of the SEC.

2.2 Source of Data and Information

This TRS is based on information prepared by Covalent and consultants for the purpose of the Project. The mineral resources and reserves studies were studies at feasibility study level according to JORC (2012) guidelines. All the information is cited throughout this document and listed in Section 24 “References” at the end of this Report.

2.3 Qualified Persons and details of Inspection

The details of Qualified Persons (QP) and the personal inspections on the property are listed in Table 2-1.

- Mr. Andrés Fock is a Geologist and MSC in Geology, with 17 years of experience in project evaluation, resource estimation, exploration and geostatistics, for different commodities (Li, K, I, NO_3, Cu, REE). Since 2019, he is a Qualified Person registered with No. 0388 in the Public Registry of Qualified Persons in Mining Resources and Reserves, following Law N°20.235 that regulates the role of Qualified Persons and creates the Qualifying Commission of Competences in Mining Resources and Reserves ("Law for Qualified Persons") and its current regulation in Chile. As a geologist, he has evaluated multiple lithium brine and lithium bearing pegmatite projects. He is a Qualified Person as defined by S-K 1300 regulations. Mr. Fock acted as project manager during preparation of this report. Mr. Fock is an employee of SQM.

Table 2-1 Qualified Persons, Site Visits and Responsibilities

Qualified Person	Date of Visit	Detail of Visit	Responsible of
Andrés Fock	Multiple visits since 2017. Last visit conducted between 12th to 13th January 2022.	In site visit was reviewed the drilling, sampling, and logging practices employed by Kidman Resources and to view the geology as evident in the drill core. In the last visit inspections were conducted of the concentrator construction plant site, the proposed pit, Run of Mine ore stockpile, waste landform areas, camp construction and water pipeline construction site.	Chapters 2, 3, 4, 5, 6, 7, 8, 9, 15, 17, 20, 21, 22, 23, 24 & 25.
David Billington	Multiple visits since 2016. Last visit was conducted between 6th to 8th December 2021	Previous visits were done to review the drilling, sampling, and logging practices employed by Kidman Resources and to view the geology as evident in the drill core. In the last visit inspections were conducted of the concentrator construction plant site, the proposed pit, Run of Mine ore stockpile, waste landform areas, camp construction and water pipeline construction site.	Chapters 10, 12, 13, 14, 18 & 19
Kerry Griffin	No inspection	Due to the current COVID-19 pandemic and associated travel restrictions a site visit has not been possible. Lisa Bascombe and David Billington, both employees of Mining Plus at the time, conducted a site visit to the Earl Grey Project on the 9th and 10th of November 2016. No mining has taken place since.	Chapter 11, Resource Estimation.

Source: Own Elaboration.

- Mr. David Billington is a mining engineer with a BE in Mining, he has over 35 years of experience in mine planning, mine operations and management and project evaluation and consulting, for different commodities (Li, Ta, Sn, Fe2O3, Au, Cu, REE). As a mining engineer, he has worked at pegmatite projects producing Lithium for 10 years and evaluated multiple lithium pegmatite projects. He is a member of the Australasian Institute of Mining and Metallurgy (AUSIMM), 109676. He meets the experience criteria as competent person for Ore Reserves is style of mineralization as set out by the AUSIMM's Joint Ore Reserve Committee (JORC). He is a Qualified Person as defined by S-K 1300 regulations. Mr. Billington is an employee of Covalent a Joint Venture between SQM and Wesfarmers Ltd.

- Mr. Kerry Griffin is a qualified Geologist and has over 27 years of extensive hands-on experience in mine geology, mine development and management, designing and managing large scale exploration and resource drilling programs, resource modelling and estimation, the management and training of geological/technical teams in Australia, Africa, South/Central America, Central and Southeast Asia including more than 22 years in senior or management positions. His experience in lithium pegmatites includes exploration, resource development and mining in Australia, Southern Africa, and South America and as such, Mr. Griffin meets the experience criteria as a competent person for Ore Resources in this style of mineralization as set out by the AUSIMM's Joint Ore Reserve Committee (JORC). He is a Qualified Person as defined by S-K 1300 regulations. He is a current member of the Australian Institute of Geoscientists (3521) and the Society of Economic Geology. Kerry is currently employed by Mining Plus Ltd.

2.4 Previous Reports on Project

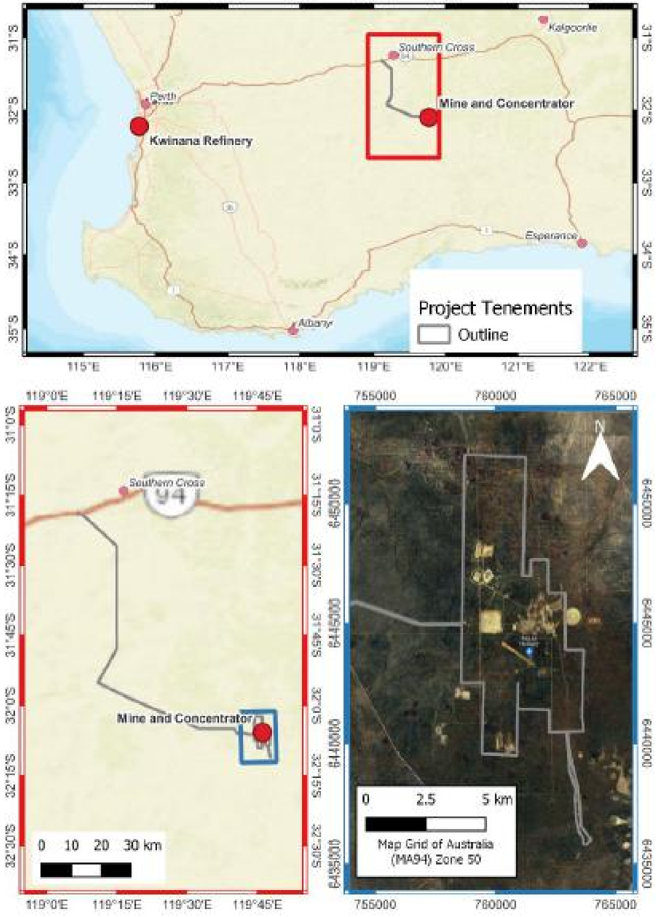
This TRS is not an update of a previously filed TRS. Previous works were reported by Kidman Resources under JORC Code 2012.

3 PROPERTY DESCRIPTION AND LOCATION

3.1 Location

The Project is an integrated lithium project in Western Australia consisting of (i) an open pit mine and lithium concentrator operation (MCO), at Mount Holland, 120 km SSE of the settlement of Southern Cross, and (ii) a lithium hydroxide (LiOH) refinery located in the industrial area in the Town of Kwinana, 26.5 km from the port of Fremantle, from where the LiOH will be shipped (Figure 3-1). The coordinates for the mine and concentrator are 32° 06'07" South Latitude and 119°46'06" East Longitude. The coordinates for the refinery are 32°13'06" South Latitude and 115°46'25" East Latitude.

Figure 3-1. Map showing location of Mt. Holland site and refinery in Kwinana



3.2 Area of the Property

The Project Tenements (as defined below) are shown in Figure 3-1. The tenements include Exploration Licenses, Mining Leases, General Purpose Leases and Miscellaneous Licenses, covering an approximate area of 4,606 hectares[2] and the development envelop where the pit, concentrator and facilities covers an area of 1,984 hectares. The Project has required the Joint Venture to enter into access agreements with underlying or overlapping tenement holders for some of the tenements. Those agreements have been completed.

In addition to the tenements in or near Mt. Holland, the Project has entered a long-term lease for 40 hectares in an industrial site in the Kwinana Industrial area.

3.3 Mineral Titles, Claims, Rights, Leases and Options

The project development envelope for the MCO is spread across three core mining leases (M77/1065, M77/1066 & M77/1080), as well as exploration licenses, general purpose leases and miscellaneous licenses (Project Tenements).

Table 3-1. List of Project Tenements below lists all of the relevant mining titles for the Project as at the date of this document, including details of their tenure (Project Tenements). The Project Tenements are either 100% beneficially owned by the joint venturers (50% SQM and 50% Wesfarmers through their wholly owned subsidiaries), or the joint venturers have a right to access them for the purpose of the Project (see Table 3-1. List of Project Tenements below for further details). A summary map showing the main tenements, as at the date of this report, is set out in Figure 3-1.

The Project Tenements are registered with mining registrars located in the State of Western Australia. They have been surveyed and constituted under the *Mining Act 1978* (WA) (Mining Act). The Mining Act imposes certain conditions on the grant of mining tenements including the requirement to meet specific reporting and expenditure commitments. Covalent, on behalf of the joint venturers, continues to review and renew the Project Tenements and ensures compliance with these conditions, including relevant regulatory requirements and fees for maintenance of these tenements.

SQM Australia acquired 50% interest over the main project tenements from Kidman Resources Limited (KDR) and its subsidiaries by way of a sale agreement, where SQM agreed to pay:

- $US30 million to KDR in exchange for a 50% interest in the main project tenements; and
- $US80 million to fund initial costs of development for the Project between KDR and SQM.

The direct payment to KDR and the contribution to the Project were split into an initial payment and a deferred payment, which were subject to certain preceding conditions. All payments were completed in December 2018. The parties also agreed to establish a joint venture to mine and process spodumene ore into spodumene concentrate or lithium hydroxide. The Joint Venture was established by the unincorporated joint venture agreement dated 21 December 2017 between SQM Australia (a wholly owned subsidiary of SQM) and MH Gold Pty Ltd (a then wholly owned subsidiary of KDR).

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[2] The area calculated here is the total area coverage of different superimposed tenements.

Table 3-1. List of Project Tenements

Tenement*	Start Date	End Date	Holder 1	Holder 2	Status	Legal Area	Calculated Area (Ha)
M 77/1080[1]	19/05/2004	12/12/2025	Montague Resources Australia PTY LTD (50%)	SQM Australia PTY LTD (50%)	Live	897.9 Ha	897.9
M 77/1065[3]	12/02/2004	12/12/2025	Montague Resources Australia PTY LTD (100%)		Live	958.6 Ha	958.6
M 77/1066[1]	12/02/2004	12/12/2025	Montague Resources Australia PTY LTD (50%)	SQM Australia PTY LTD (50%)	Live	999.6 Ha	999.6
E 77/1400[1]	23/01/2007	26/05/2022	MH Gold PTY LTD (50%)	SQM Australia PTY LTD (50%)	Live	3 BL.	561.6
E 77/2099[1]	20/12/2012	1/05/2024	MH Gold PTY LTD (50%)	SQM Australia PTY LTD (50%)	Live	6 BL.	707.2
E 77/2167[3]	8/11/2013	17/06/2024	MH Gold PTY LTD (100%)		Live	12 BL.	3019.2
G 77/129[1]	24/05/2017	3/10/2038	MH Gold PTY LTD (50%)	SQM Australia PTY LTD (50%)	Live	182.6 Ha	182.6
G 77/130[1]	24/05/2017	3/10/2038	MH Gold PTY LTD (50%)	SQM Australia PTY LTD (50%)	Live	27.8 Ha	27.8
G 77/132[3]	29/06/2018	28/01/2040	Montague Resources Australia PTY LTD (100%)		Live	90.8 Ha	90.8
G 77/133[3]	1/08/2018	28/01/2040	Montague Resources Australia PTY LTD (100%)		Live	11.2 Ha	11.2
G 77/134[2]	22/09/2018	17/04/2040	MH Gold PTY LTD (100%)		Live	30.0 Ha	30.0
G 77/136[2]	18/12/2018	17/07/2040	MH Gold PTY LTD (100%)		Live	11.2 Ha	11.2
G 77/137[2]	24/06/2020	18/02/2042	MH Gold PTY LTD (100%)		Live	210.8 Ha	210.8
L 77/199[3]	26/07/2005	12/10/2027	MH Gold PTY LTD (100%)		Live	4.4 Ha	4.4
L 77/205[1]	8/11/2006	4/04/2034	MH Gold PTY LTD (50%)	SQM Australia PTY LTD (50%)	Live	30.0 Ha	30.0
L 77/207[2]	8/11/2006	4/04/2034	MH Gold PTY LTD (100%)		Live	67.0 Ha	67.0
L 77/208[1]	8/11/2006	4/04/2034	MH Gold PTY LTD (50%)	SQM Australia PTY LTD (50%)	Live	20.0 Ha	20.0
L 77/295[3]	22/06/2018	21/10/2039	MH Gold PTY LTD (100%)		Live	131 Ha	131
L 77/296[3]	8/08/2018	9/12/2039	MH Gold PTY LTD (100%)		Live	10 HA	10
L 77/298[3]	7/09/2018	14/01/2040	MH Gold PTY LTD (100%)		Live	10 Ha	10
L 77/301[3]	4/06/2019	21/01/2042	MH Gold PTY LTD (100%)		Live	46.7 Ha	46.7
L 77/320[1]	23/04/2020	31/12/2999	MH Gold PTY LTD (50%)	SQM Australia PTY LTD (50%)	Pending	5 Ha	5
L 77/322[1]	13/07/2020	21/01/2042	MH Gold PTY LTD (50%)	SQM Australia PTY LTD (50%)	Live	5.1 Ha	5.1
L 77/323[1]	15/07/2020	8/04/2042	MH Gold PTY LTD (50%)	SQM Australia PTY LTD (50%)	Live	1.0 Ha	1.0
L 77/313[1]	7/11/2019	26/10/2041	MH Gold PTY LTD (50%)	SQM Australia PTY LTD (50%)	Live	357.1 Ha	357.1

Source: Searches of the Mineral Titles Online system administered by the Western Australian Department of Mines, Industry Regulation and Safety (DMIRS) conducted on January 21st, 2022.

1. Joint Venture tenement (SQM Australia 50% legal and beneficial owner)

2. Joint Venture tenement (SQM Australia 50% beneficial owner).

3. Joint Venture has a contractual right of access to the tenement for the purpose of the Project under the terms of an access agreement between Wesfarmers subsidiaries, SQM Australia and Covalent.

* Where M: Mining Lease, E: Exploration License, G: general purpose lease, and L: miscellaneous license.

3.4 Encumbrances

The QP is not aware of any material encumbrances that would impact the current resource or reserve disclosure as presented herein.

3.5 Risks to access, title or right to perform work

With relation to mining titles, the QP is not aware of any significant risks that may affect access, title, or the right or ability to perform work in relation to the Mt. Holland Lithium Project. However, the QP recognizes that further environmental approvals are required to mine beyond the 10 years to the full Life of Mine of the Ore Reserves. It is considered at the time of this report that the Project will be able to obtain the required permits beyond the first 10 years of operation and comply with any requisites needed for such purpose without materially affecting the Project assessment.

3.6 Royalties

Under the Mining Act and associated regulations, a mining royalty is payable to the State of Western Australia. A royalty of five per cent over the lithium concentrate sales or, when not sold but used as feedstock in the production of lithium hydroxide or lithium carbonate, the value of that feedstock applies.

A private royalty exists in favor of a third party in respect of tenements E77/1400 and E77/2099. Such third party is entitled to receive a 1.5% gross revenue royalty over any lithium production from these tenements. The third party is also entitled to receive AU$15.00 for every contained tonne of Li_2O classified in an Ore Reserve that is reported under the Australian Code for Reporting of Explorations Results, Mineral Resources and Ore Reserves (the ”JORC Code”) in respect of these tenements. SQM will be responsible for 50% of any amounts that may become payable under this royalty. The Project’s current mineral resource and reserves are not located in the tenements subject to these terms.

3.7 Kwinana lease

In September 2021, Covalent entered into a long-term lease with DevelopmentWA[3] over 40.5 hectare site at Lot 15, Mason Road in Kwinana (being Lot 15 on Diagram 74883 contained within Certificate of Title Volume 1827 Folio 500) for the purposes of the construction and operation of a lithium hydroxide refinery for the Project.

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[3] Western Australia State Government’s central development agency

4 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

4.1 Topography, Elevation and Vegetation

4.1.1 Topography, elevation, and landforms

The Project is located towards the southeastern limit of the Southern Cross Zone, a landscape and soil zone defined by the Department of Agriculture and Food of the Government of Western Australia. This zone is characterized by undulating plains and uplands. Deeply weathered regolith, colluvium and alluvium overlie greenstone and granitic rocks of the Yilgarn Craton, giving rise to red and yellow loamy and sandy earths, calcareous loamy earths, alkaline sands, yellow sands and salt lake soils.

The topography of the project development envelope is subdued with no strong landform features. Topographic elevations descend from 463 m AHD[4] in the northwest to 390 m AHD in the southeast. The average elevation across the envelope is approximately 435 m AHD. Natural gradients across the envelope are very gentle, typically less than 2°. The steepest natural gradients (5 - 6°) are associated with a subtle ridgeline located to the northeast of the accommodation village. Steeper gradients are associated with the historic mining operation, where slope angles range from 15 - 20° on WRLs, 20 - 35° on the tailings storage facilities (TSFs) or over 80° on the walls of abandoned pits. The heights of existing WRLs do not exceed 35 m above surrounding ground levels.

4.1.2 Vegetational setting

The mine is located within the Great Western Woodlands (GWW), which is nominated as a natural place under the National Heritage List. The GWW is situated in the semi-arid interior of southwest Western Australia and is one of the largest remaining, and most intact, temperate woodlands left on Earth. The GWW is an area of great biological diversity that extends over 16 million ha and supports approximately 3,000 species of flowering plants, about a fifth of all known flora in Australia (Covalent, 2020). The project considers different management plans to protect the flora and fauna identified within the project envelope.

4.2 Accessibility and Transportation to the Property

The Project is accessed by land using the Parker Range Road and Marvel Loch-Forrestania Road, which is currently an all-season gravel road. A section of The Parker Range Road connected to the Great Eastern Highway is a paved road with connectivity to Southern Cross, Kalgoorlie and Perth.

Also, the Project has access by air using an aerodrome and associated infrastructure in the southern part of the mine. The aerodrome has an east-west orientation following Civil Aviation Safety Authority (CASA) standards that will be certified by CASA.

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[4] Australian Height Datum (AHD) corresponds to the mean of a set of tidal height measurements which were recorded over the period 1966-1968 at 30 stations distributed around the entire coastline of Australia.

4.3 Climate and Length of Operating Season

The regional climate is one of extremes, where droughts and major floods can occur within a few years of each other. The Bureau of Meteorology (BoM) Lake Carmody meteorological station (No. 10670) is located approximately 51 km southwest of the Project and provides 77 complete years of data.

The climate is semi-arid with a mean annual rainfall varying from 300 mm to approximately 350 mm, with mean and median annual rainfalls of 332 and 329 mm respectively. The rainfall that occurs during the early winter months of June and July tends to be more reliable and generally of a greater total amount than the less dependable, but more intense, summer rainfalls from January to March. Remnant tropical cyclones and associated depressions can occasionally bring heavy rains to the region; however, they are erratic and infrequent. Minimum and maximum annual rainfall totals of 156.2 and 558.3 mm respectively have been recorded at the Lake Carmody station.

On average, there are approximately 66 rain days each year, although this may be as low as 15 days and as high as 130 days. The longest period without rain was 138 days, between 1 November 1920 and 19 March 1921. Temperatures recorded at the BoM Hyden synoptic station, situated approximately 88 km west-southwest of the Project indicate the following:

- Mean daily maximum temperatures range from 33.7°C in January to 16.4°C in July.
- Mean daily minimum temperatures range from 15.9°C in February to 4.6°C in July.
- Highest and lowest daily temperatures of 48.6°C and -5.6°C have been recorded in February (2007) and July (1982) respectively.
- Typically, there will be in the order of 10 days each year with daily maximum temperatures in excess of 40°C, approximately 8.5 of which will occur in December, January, and February.
- On average 31 days each year can be expected when minimum temperatures will be 2°C or less and light ground frosts are possible. Two thirds of such days will occur in the months of June, July and August (Southern Hemisphere Winter).

In the absence of a local evaporation record, the average of pan evaporation data for the Merredin and Salmon Gums Research Stations has been applied to the Project. This provides a mean annual pan evaporation of some 1,867 mm (Kidman, 2017).

4.4 Infrastructure Availability and Sources

4.4.1 Water

Fresh water is supplied from the state-owned Gold Fields Water Pipeline. A 136 km self-owned and operated water pipeline has been constructed to connect the Gold Fields Water Pipeline tie-in in Moorine Rock to the Mt. Holland mine site.

4.4.2 Electricity

The power is planned to be sourced from the state grid by connecting to the existing Western Power transmission that runs along the east side of the deposit.

4.4.3 Personnel

The mine and concentrator are located south of the Southern Cross communities. The Project is expected to primarily source its labour on a fly-in/fly-out basis from Perth, which will allow personnel to be recruited from a wide talent pool. Covalent will also seek to employ people from the local communities in accordance with operational requirements.

The Kwinana refinery is located south of Perth where skilled labour is available in the region.

4.4.4 Supplies

The mine site is being supplied via road access through the Marvel Loch-Forrestania Road. The Project budget includes scope to upgrade and seal the road between the Great Eastern Highway and the Mt. Holland site.

The Refinery is located in the Kwinana Industrial area, with good access through local roads. Sulfuric acid, water, gas and sodium hydroxide are planned to be supplied via pipeline, while other supplies are mainly expected to be supplied by road. Spodumene concentrate will be supplied through a rail-road combination or by a solely road option.

5 HISTORY

The Forrestania Greenstone Belt (FGB) and its northern extension, the Southern Cross Greenstone Belt, have long been the focus of gold and nickel exploration. The gold and nickel potential of the area was first recognised in 1980 by Harmark Pty Ltd, which led to an extensive exploration campaign. In 1985 Aztec Exploration Ltd conducted soil sampling over the Bounty area, which highlighted numerous discrete zones, with results ranging from 100 to 1,000 parts per billion (ppb) gold within a broad anomalous trend. Follow-up rotary air blast (RAB) and follow-up reverse circulation (RC) drilling intersected the main body of gold mineralisation. Mining of the Bounty deposit started in 1988, with over 640,000 t at 5.55 grams per tonne (g/t) gold for 114,000 ounces of gold mined from the Bounty, West and North Bounty pits. Underground mining commenced at Bounty and Bounty North, resulting in a total exceeding one million ounces of gold mined (Covalent, 2020).

Several satellite pits were also mined to provide supplementary oxide feed to the Bounty Mill, and these include the Blue Vein, Earl Grey, Darjeeling, Jasmine, Razorback, Bushpig, Tasman, Diemens, and Blue Haze deposits. Except for the Blue Vein deposit, these deposits have been largely unexplored since the cessation of gold production in 2002.

The rare-element pegmatite potential of the FGB was first recognized in the mid 1970's when a small, complex lepidolite-type pegmatite was discovered during nickel exploration. This pegmatite produced small quantities of tantalum and gem quality elbaite (rubellite) and beryl (morganite). Narrow spodumene-bearing pegmatites have been proven several kilometers to the north.

No systematic exploration for rare-element pegmatites had been undertaken in the district since the discovery of the rubellite and tantalum-bearing gem pegmatite in the early 1970s. Following the acquisition of the Project from the administrators of Convergent Minerals, Kidman Resources undertook a high-level review of the region which led to the discovery of the Bounty and Earl Grey pegmatites.

Exploration by Kidman Resources beginning in 2016 defined numerous occurrences of rare element pegmatites across the FGB. By far the most significant of these corresponds to the Mt. Holland (Earl Grey) Deposit. Albite-spodumene type pegmatites have been encountered at Bounty and Blue Vein. Albite-type pegmatites have been proven at Prince of Wales. Complex spodumene and lepidolite type pegmatites have been determined at Blue Vein, Mt Hope and South Holland (Kidman Resources, 2018).

6 GEOLOGICAL SETTING, MINERALIZATION AND DEPOSIT

6.1 Regional, Local, Property Geology and Significant Mineralized Zones

6.1.1 Regional Geology

The Forrestania Greenstone Belt is located within the Southern Cross Domain of the Youanmi Terrane, one of several major crustal blocks that form the Archaean Yilgarn Craton of south-western Australia. The FGB and its northern extension, the Southern Cross Greenstone Belt (SCGB), form a narrow 5–30 kilometers wide curvilinear belt that trends north–south over 250 kilometers. The greenstone broadly comprises a lower mafic-ultramafic volcanic succession and an upper sedimentary succession intruded and bounded by granitoid plutons. The lack of outcrop and the complex structural history of the FGB makes a detailed geological map and stratigraphic framework difficult to establish, with most authors simply dividing the succession into individual north–south trending “ultramafic belts” for stratigraphic and exploration purposes (Kidman Resources, 2018).

No formal names are currently recognised by Geoscience Australia or the Geological Survey of Western Australia for any stratigraphic units within the greenstone belt (DMIRS, 2018). The basement geological map is included in Figure 6-1. The grade of metamorphism increases from upper greenschist-lower amphibolite facies between Bounty and Mt Hope up to granulite facies in the north and northeast of the belt (Figure 6-2).

The greenstones are intruded and bounded by voluminous granitoid plutons of syn and post-orogenic affinity. The rare-element pegmatites of the belt are believed to be genetically related to a suite of post-orogenic low-Ca granitoids, and cluster in two known fields, Mt. Holland and South Ironcap. A series of east-west trending dolerite dikes belonging to the Widgiemooltha dike swarm cross-cut the belt.

6.1.2 Local Geology

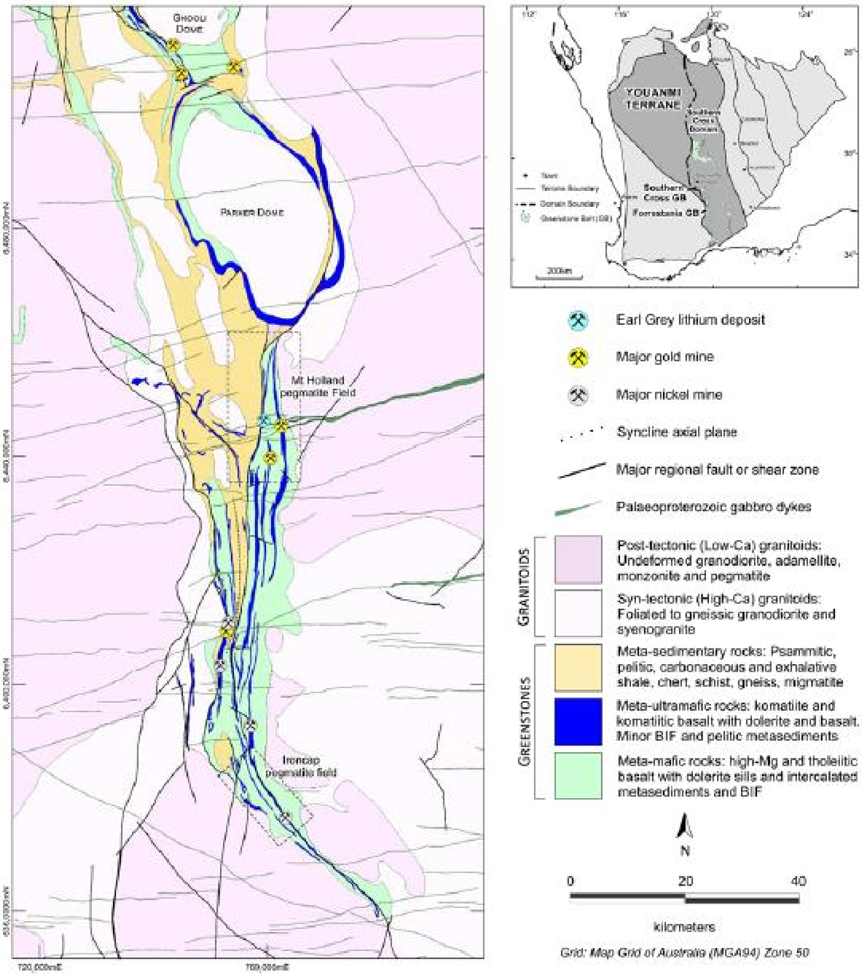
6.1.2.1 Bedrock Geology

The Earl Grey pegmatite is hosted within the north-south trending amphibolite facies volcano sedimentary stratigraphy of the mid-eastern ultramafic belt (Figure 6-3). The stratigraphic succession broadly progresses up-dip towards the west, although potential repetition along major north-south trending shears makes the original sequence difficult to ascertain.

The base of the sequence is dominated by high-Mg basalt with intercalated horizons of andesite, mafic sediments, Banded Iron Formation (BIF), komatiitic basalt and tholeiitic sills. A package of komatiites with intercalated BIF sits atop the high-Mg basalt, with this contact appearing at least partly structural. At the far west of the deposit, pelitic and carbonaceous schists of the upper sedimentary succession occur in faulted contact with the komatiites,

Two major Proterozoic dolerite dikes intersect the greenstone sequence in the vicinity of Earl Grey, including the 400 m wide Binneringie dike, which marks the southern extent of the deposit.

Figure 6-1. Simplified geology of the FGB, highlighting known pegmatite fields

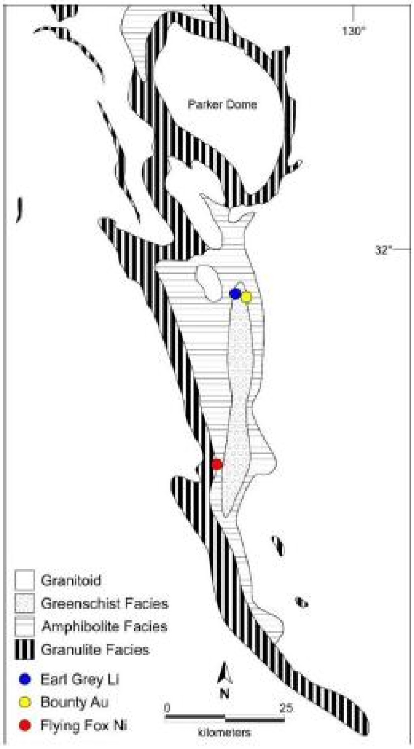


Source: Covalent (2020) based on DMIRS 1:500.000 interpreted bedrock geology map (2018)

6.1.2.2 Surface geology

The residual weathering zone around the Earl Grey pegmatite extends 30 to 40m below surface, with few instances of outcrop or subcrop in the area. Shallow depressions of limited extent contain minor alluvial and colluvial sediments; however, no significant channels have been identified in the immediate area. The area is predominantly covered by a veneer of laterite, up to 5 m in thickness, which is underlain by a 10 to 15 m deep alluvial zone of pallid grey to mottled clay material. The regolith becomes increasingly iron-rich toward the base of the weathering profile, with ferric induration common.

Figure 6-2 Map of interpreted peak metamorphic conditions across the FGB



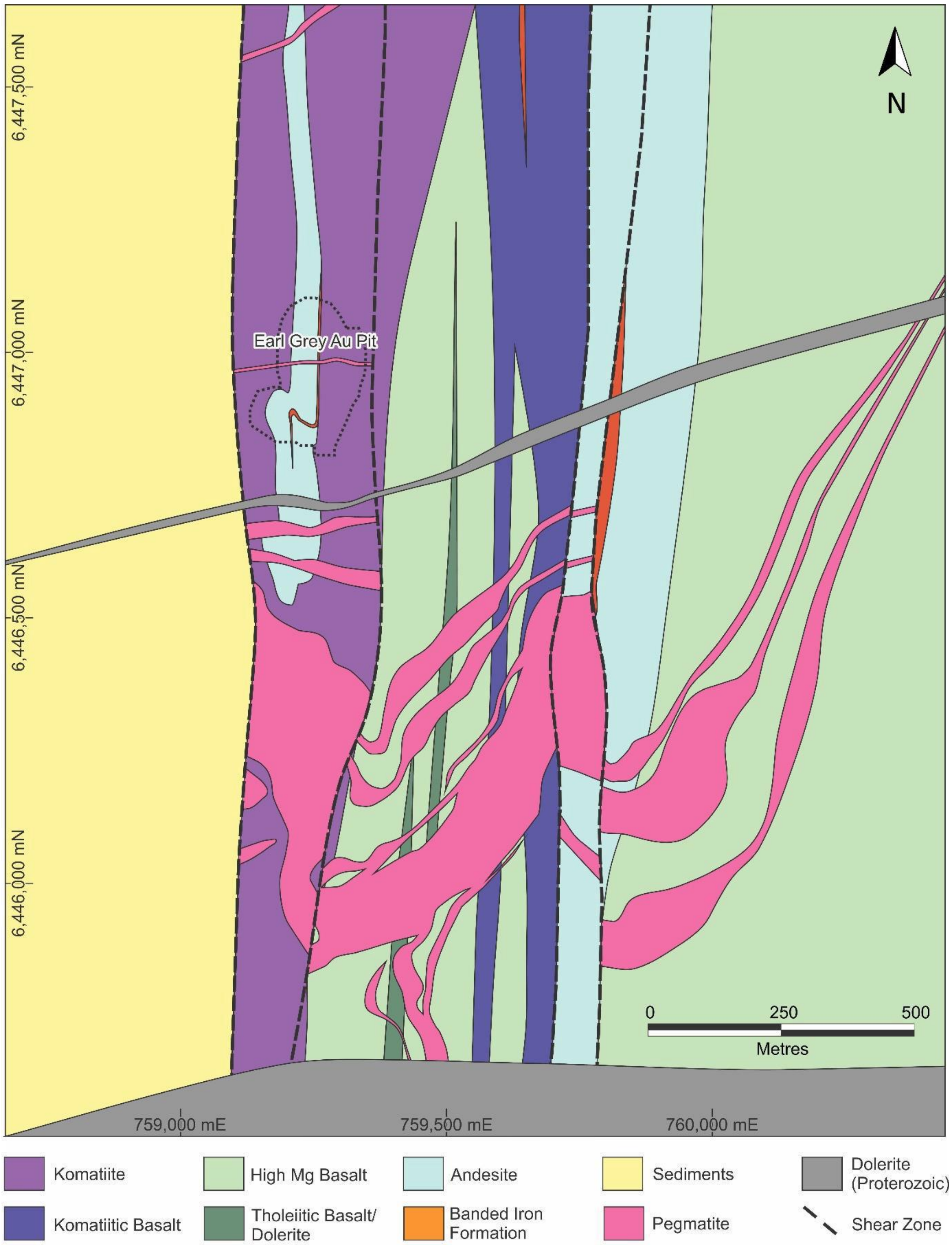
Source: Modified from Ahmat (1986).

6.1.3 Earl Grey pegmatite

The Earl Grey pegmatite group consists of a main tabular pegmatite body flanked by numerous narrower hanging wall and footwall apophyses. The pegmatite has a strike length of at least 1 km, and a dip extent of over 2 km and a thickness of up to 100 m. The pegmatites become progressively narrower and more branched to the south and the east of the main pegmatite until even the main body divides into several narrower dikes. Narrow blocks of enclosed wall rock rafts are present within some areas of the pegmatites.

The pegmatites intrude with an approximate strike of 210° to 220° and dip of 5° to 15° to the northwest. At their western margin, the pegmatites appear to be affected by gentle folding. The dip of the pegmatites is variable, with the pegmatite steepening from sub-horizontal in the south to 10° to 15° to the northwest north of the Earl Grey gold pit. Several footwall pegmatite branches dip to the southwest at around 20°, potentially intruding the same set of structures as the Bounty pegmatites.

Figure 6-3. Simplified local geology of the Earl Grey pegmatite at 350 m RL.



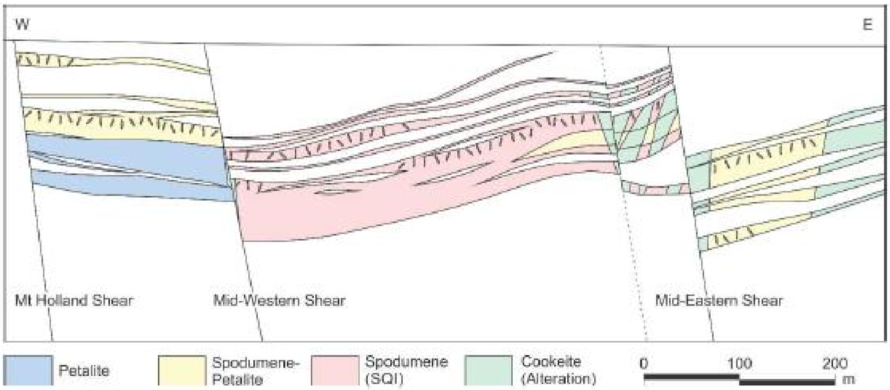
The pegmatite group is truncated to the south by the east-west trending Binneringie dolerite dike. Similarly, a 20 m thick dolerite dike crosscuts the pegmatite south of the Earl Grey gold pit. The full down-dip depth extent of the pegmatites is not currently understood, with deep drillholes suggesting the main pegmatite pinches out and another pegmatite of similar thickness develops in the hanging wall. The eastern extents of the pegmatites have not been well defined at this stage, with the pegmatites narrowing to sub-meter thickness at around 1.5 km east of the Mt. Holland Shear (Covalent, 2020).

6.2 Deposit Types and Mineralization

The Earl Grey pegmatite group consists of a simple albite-quartz-microcline-spodumene petalite dominated assemblage with minor biotite, muscovite, and tourmaline (Covalent, 2020). The lithium aluminosilicates spodumene and petalite are by far the most abundant lithium-bearing minerals in the Earl Grey pegmatite; however, a wide array of trace lithium phases has also been documented in distinct domains. These are mostly late-stage alteration related phases, and except for cookeite, are a rare occurrence. Textures range from extremely coarse pegmatite through to finer grained seriate granitic to aplitic and late-stage replacement textures. The Earl Grey pegmatite group does not display the strong concentric mineralogical zonation commonly associated with complex rare element pegmatites.

The spodumene, petalite, and alteration assemblages are restricted to distinct zones within the pegmatite and are strongly correlated with individual fault blocks and their bounding structures, Figure 6-4.

Figure 6-4. Schematic cross section of the Earl Grey deposit displaying lithium mineral domains.



7 EXPLORATION

7.1 Nature and Extent of Exploration

Extensive exploration supports the resource and reserve estimation, and it is comprised of surface mapping and extensive subsurface drilling carried out on the property in consideration that the pegmatite is not outcropping in the area. Exploration has predominantly been carried out by Kidman Resources since 2016, for the discovery and resource definition. Since 2020, Covalent has done additional diamond and RC drilling for metallurgical sampling and improvement definition of the Orebody geometry in the proposed starter pit area.

7.2 Historical Exploration

Historic exploration at the Earl Gray deposit is primarily drilling based. Many historic surveyed diamond and RC exploration drillholes along the Twinings gold trend contained narrow pegmatite intercepts which have been of use in delineating the geometry of the northernmost hanging wall pegmatite dikes in the mid-western block. Most have not been assayed for elements other than gold and as such, the logged pegmatite boundaries have been utilized to generate the pegmatite volumes. The historic reverse air blast (RAB) and air core (AC) drillholes have not been used for resource estimation (Kidman Resources, 2018; Mining Plus, 2021).

7.3 Exploration Since 2016

7.3.1 Drilling

Orebody definition was informed through a series of drilling campaigns. Initial discovery drilling was completed prior to 2016 and followed up with resource definition drilling to support the maiden resource in 2016 and an updated resource statement in 2018. During these campaigns twin holes were also drilled using diamond drill equipment to provide samples for metallurgical testing.

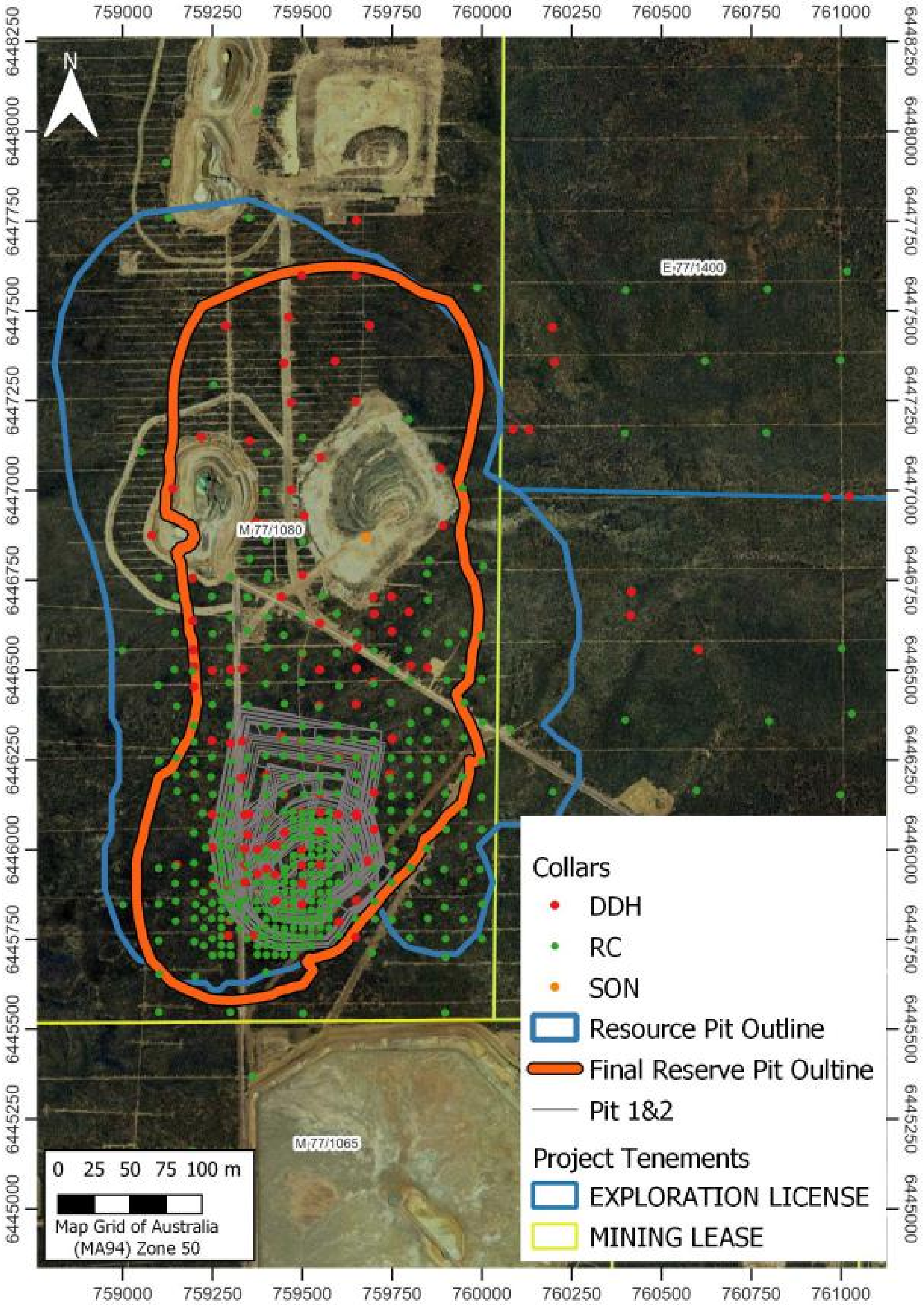
Covalent’s 2020 drilling program included additional diamond drilling for metallurgical sampling as well as a campaign by Strike Drilling Pty Ltd of Perth, with the objective of improving definition of the Orebody geometry in the proposed starter pit area. Table 7-1 includes a summary of drill hole information at completion of the 2020 drilling campaign. The location of the drill collars is shown Figure 7-1.

Table 7-1. Drillhole summary

Drillhole Type	Number of Drillholes	Number of Drilled Meters
RC	476	75,458.3
DD	125	26,631.2
SON	1	15.0
Total	602	102,104.5

Source: Mining Plus (2021) resource estimation

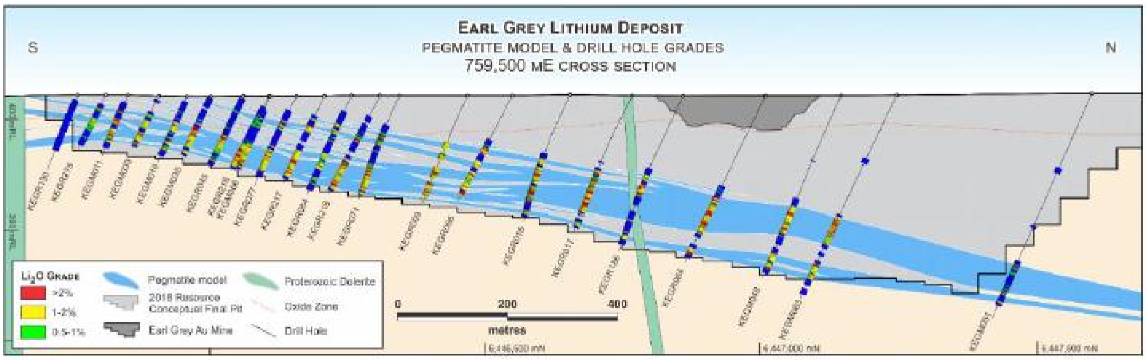
Figure 7-1. Location of drill collars shown with proposed starter pit and final pit outline



The majority of drillholes present at Earl Grey have been drilled using reverse circulation (RC) standard drilling techniques. The diamond drilling comprises NQ, NQ2, HQ and PQ sized drillholes drilled for geological, metallurgical, and geotechnical purposes. Recoveries for RC pre-collar and RC drill holes ranges between 70-90% in this geological / geomorphological setting. Recoveries for the DD drill core are in the order of 95-100%. Recoveries are notably less where shear zones or other structural disruptions have been intersected.

The orientation of the drill holes in relation to the pegmatites sampled, as interpreted by Covalent, are shown on sections in the Figure 7-2. Geological modelling indicates most drill holes intersected the pegmatite at relatively acute angles (less than 90º), and therefore the intersect length is not considered a representations of the pegmatite true thickness and the real thickness is determinate based on the geologic modelling.

Figure 7-2 759,500mE Cross Section of Earl Grey pegmatite with drill intercepts within 2018 MRE Conceptual Pit



Source: Kidman Resources (2018).

The resource has been drilled at either a 25 x 25 m orthogonal grid, a 50 x 50 m orthogonal grid or a 50 x 50 m dice-five pattern, with minor areas of drilling at 100 x 100 m and greater in the along-strike and down-dip extension areas, Figure 7-1.

Resource drilling was initially carried out on wide spacing to determine the extent of the mineralization. This was followed up by a drilling program on a 50 m by 50 m grid to support the resource estimate. Through the Project development in 2020, the proposed starter pit location was identified (as indicated on the map in Figure 7-1) and the 2020 grade control drilling program was designed to provide in-fill drilling in this area at a higher density. This information will inform mine design during the initial start-up years.

7.3.2 Drillhole Surveys

The drillholes location points were surveyed by handheld GPS initially. Re-survey of the drill hole collar co-ordinates was undertaken by KDR and Covalent for all drill holes reported by a subcontractor using survey industry standard differential GPS technique. Holes were surveyed using traditional downhole gyroscopic survey at intervals ranging between 10 to 30 m.

7.3.3 Logging

All drill holes were geologically logged and recorded within a database by KDR initially and then by Covalent. All the core and rock chips intervals from the reported drill holes have been logged and compiled into a database.

Quantitative and qualitative geological information captured by KDR, and Covalent Geologists was imported and consolidated into a database, for interpretation, analysis, and verification purposes.

All drill hole data includes:

- Geological logging over geological and alteration basis, dependent on observed changes for various parameters (e.g., lithology, mineralogy, weathering, structural occurrence, etc.), based on procedures developed by KDR following industry standards.
- Drill core intervals were also logged on a geotechnical basis and structural orientation measurements recorded.
- Drill core was routinely photographed on core tray basis.

In the QP's opinion the geological data was collected in sufficient detail to aid in Mineral Resource Estimation and Reserve definition.

7.4 Hydrogeology

7.4.1 Regional Hydrogeological Setting

The Project is within the Westonia Groundwater Area of the Southern Cross Province. The principal groundwater sources in the Southern Cross Province comprise:

- Regional catchment-controlled flow systems in fresh and weathered fractured rock.
- Tertiary paleochannel sands.
- Calcrete units that commonly overlie paleochannel deposits.
- Shallow alluvium.

Paleochannel sands, calcrete and shallow alluvial deposits constitute locally important aquifers in the Southern Cross region, although the chemical quality of the groundwater is variable, with salinity tending to increase downstream in the system. The highest quality (lowest salinity) groundwater is found in the meteoric recharge zones, in proximity to the groundwater catchment divides. Tertiary paleochannel fill to the east of the Project comprises gypsiferous silts and sands.

The deep weathering profile of the ultramafic and basaltic sequences characteristic of the Southern Cross region, result in a thick siliceous caprock. Modest supplies of groundwater can be obtained from this weathered zone. Fractured basement aquifers are characterized by secondary porosity and permeability, resulting in complex fracturing, enhanced by chemical dissolution. The storage capacity and hydraulic conductivity of these aquifers is dependent on density of interconnected jointing and fractures (secondary porosity). In the vicinity of the Project, fracturing below the caprock is prevalent, with the development of siliceous magnesite veins. The groundwater supplies are typically saline to hypersaline (Kidman, 2017)

7.4.2 Earl Grey Hydrogeological Setting

Hydrogeological investigation drilling was undertaken by Groundwater Resource Management (2017) and KDR (2017). The investigation was focused on the proposed footprint of an open pit to exploit the Earl Grey Ore Body. 14 RC boreholes we drilled to the base of the Earl Grey Deposit. Test work included airlift yield and recovery testing, permeability estimation as well as groundwater sampling and hydrochemical laboratory analysis. The primary aims of the initial investigation were to: (i) evaluate site groundwater conditions, (ii) estimate the likely range of dewatering rates required for mining the Earl Grey Ore Body, and (iii) assess the likely hydrochemical quality of the abstracted groundwater. The investigation concluded that:

- The water table is relatively deep, ranging from 58 to 70m below original ground level.
- Low permeability conditions are generally present across the proposed pit footprint.
- Airlift yields were very low, ranging from 0.2 to 4.0 l/s, with two holes found to be dry.
- The northern region of the proposed pit presents higher pumping yields than the southern region.
- Permeability estimates ranged between 0.006 and 0.020 m/d.

With respect to the hydrochemical quality of pumped groundwater, the following conclusions were reached:

- Very slightly acidic to circum-neutral waters, with pH values in the range 6.1 to 6.8.
- The waters are saline to hypersaline, presenting total dissolved solids (TDS) concentrations ranging from brackish to brines, between 17,000 mg/l (parts per million, ppm) and 120,000 mg/l. For comparison, the average salinity of ocean water is around 35,000 mg/l.
- Sodium and chloride as the dominant ions. Bicarbonate, calcium, and magnesium are also present in significant concentrations.
- The water is chemically very hard.

7.4.3 Bounty Mine Water Supply Hydrogeological Setting

The Bounty water supply supplemented the borefield and operated between 1988 and 2001. Numerous studies were undertaken over this period and the hydrogeology is well understood. Dewatering was achieved by a combination of pumping from the Bounty underground mine and abstraction bores near the underground portal. Inflows to the mine void were found to be structurally controlled by fractures, shear zones and a cross cutting pegmatite vein. At the end of mining in 2001, the abstraction rate for the Bounty mine was approximately 2,400 m^3/d, equivalent to 440 US gallons per minute (Groundwater Resource Management, 2014). The Bounty water supply is hypersaline, varying between 75,000 and 140,000 mg/l TDS and has a circum-neutral pH of between 6.2 and 7.6 (GRM 2014).

7.4.4 Southern Borefield Hydrogeological Setting

An existing borefield is located approximately 8 km southeast of the accommodation village and was operated between 1988 and 2002. The borefield is situated in the Mt Hope caprock aquifer, located on the eastern flank of the Forrestania-Southern Cross Greenstone belt. The geology in this area is characterized by a north-northwest striking, steeply dipping Archaean succession of altered mafic and ultramafic volcanic flows with associated metasediments.

The ultramafic lava flows have been subject to structural deformation, and in places are extensively weathered, resulting in the development of a fractured, silicified, vuggy caprock aquifer of limited vertical and lateral extent. Current knowledge of the aquifer indicates that it is relatively narrow but extensively developed along its strike. The aquifer has a known strike length of 4,500 m and is 20 to 40 m thick. It is underlain by slightly weathered ultramafic or basaltic lavas. Fractures and shear zones in strata adjacent to the ultramafic caprock may increase the extent of this aquifer and the volume of available groundwater resource.

The caprock aquifer is highly anisotropic, with permeability being controlled by the spatial density of interconnected fractures, and the degree of weathering and alteration of the rock. Test pumping data suggests that aquifer conditions vary locally from unconfined with a delayed yield type response to semi-confined with leakage effects. During operations, the borefield pumped at up to 3,000 m^3/d, equivalent to 550 US gallons per minute. Recoverable storage volumes for the aquifer have been estimated to be around 20,000,000 m^3, equivalent to 5.28 billion US gallons. The static water level in the borefield is typically between 7 and 18 m below ground level and the water quality is hypersaline, with TDS values ranging between 73,000 mg/l and 87,000 mg/l.

In the QP opinion, the completed hydrogeologic studies, collected data, and subsequent analysis is appropriate for the overall low hydraulic conductivity of the local hydrogeologic system.

7.5 Geotechnical Data, Testing and Analysis

Different geotechnical studies, geotechnical characterization tasks and pit slope stability evaluation, surface analysis, old pits and drilling information have been carried out. Task and studies developed include:

- Rock Quality studies> Rock Quality Designation (RQD) and fracture counts per meter of core were measured.
- Laboratory rock strength testing on representative samples of borehole core. Testing was performed by WASM Geomechanics Laboratory.
- Discontinuity orientation data collection in old pits.
- Mining Rock Mass Classification (MRMR)
- Block Stability studies
- Limit equilibrium stability analysis
- Slope Designs.

The collected data was used for pit design. In the opinion of the QP, the data collected is sufficient for an initial mining. Quantitative slope stability monitoring will be required throughout all stages of mining and local adjustments to design parameters may be necessary to satisfy stability requirements.

8 SAMPLE PREPARATION, ANALYSIS AND SECURITY

8.1 Sampling Techniques

The sampling of the bearing pegmatites is based in the drillhole sampling. All metallurgical / geotechnical / Mineral Resource definition drill holes target spodumene-bearing pegmatite within and adjacent to the Earl Grey Lithium Mineral Resource announced 19th March 2018

All drill holes have had sample intervals selected from them by KDR and Covalent personnel; on average over 1m intervals, based on return interval and geological logging

- RC samples were homogenized by cone splitting prior to sampling and assayed at 1m intervals
- Selected samples from cored holes were taken from the core trays by lengthwise quarter (or half) core cutting method as per industry standard practice
- Samples were selected on a basis of pegmatite intersection in which notable spodumene/petalite occurs, or other notable geological features and hence are not an entirely unbiased sample. Sampling is relevant to the type of deposit being studied and follows best industry practice

Samples were forwarded to a certified laboratory for analysis where they were weighed, crushed, reweighed, pulverized, and split to produce a ~200g pulp subsample to use in the assay process

- Earl Grey drilling included 41,522 total samples from the drill holes, which were assayed by inductively coupled plasma mass spectrometry (ICP-MS) or optical emission spectroscopy (ICP-OES)
- 1,551 field duplicate samples were in evidence within the reported sampled intervals.
- 1,908 check/standard samples were in evidence within the reported sampled intervals.
- 1,494 Samples were analyzed by XRD for mineralogy determination.

8.2 Sub-sampling techniques and sample preparation

Select sample intervals were sub-sampled on a near to 1 metre basis within geological boundaries. Interval samples of less than 1 metre are restricted by geological, alteration or other notable feature boundaries.

Samples were selected on a basis of core return interval of pegmatite occurrence; hence may not be an entirely unbiased sample this is common practice for such type of drilling and deposit.

8.2.1 Core Sampling Preparation

Core samples were marked up prior to logging and sampling as per standard industry practice. The core samples selected were cut lengthwise by diamond blade saw to give two half core lengths and halved again for quarter core samples. This is normal industry practice. One half, or one quarter, of the selected core sample was collected and bagged, marked up and forwarded to a laboratory for analysis. The remainder of the sample length split samples have been retained for reference at the core storage facility.

8.2.2 Reverse Circulation Sample Preparation

Reverse Circulation holes for sampling were cone and quarter split directly from the cyclone, utilising dust suppression techniques, with ¼ of the spilt being bagged as the sample for analysis. It is standard industry practice to either retain a ¼ split for future studies and or to retain a chip tray of the spoils for future viewing.

8.2.3 Sample Preparation and laboratories

Covalent utilizes (and previously, KDR) the independent analytical services of Australian Laboratory Services Pty Ltd (ALS) (https://www.alsglobal.com), a NATA (National Association of Testing Authorities) and ISO 9001:2008 accredited laboratory. ALS laboratory is commercial and independent of KDR or Covalent. As umpire laboratory Covalent and KDR utilized Nagrom Analytical Services (http://www.nagrom.com.au/).

The sample preparation procedure used includes the following:

- Sort all samples and note any discrepancies to the submittal form
- Record a received weight (WEI-21) for each sample,
- Crush samples to 6mm nominal (CRU-21),
- Record a crushed samples weight,
- Split any samples >3.2Kg using a riffle splitter (SPL-21),
- Generate internal laboratory duplicates for nominated samples, assigning a ‘D’ suffix to the sample number,
- Pulverize samples in LM5 pulveriser until grind size passes 90% passing 75µm (PUL-23),
- Check pulverize size on 1:20 wet screen (PUL-QC),
- Take ~ 100g work master pulp for 0.2g sample for sodium pentoxide fusion with ICP-OES or ICP_MS finish.

The analytes listed in Table 8-1 are determined by the laboratory assays. Additionally, for selected samples, Au is appended to the standard list of 25 analytes.

Table 8-1. List of analytes routinely assayed in Mt. Holland geochemical samples

Al_2O_3	As	Be	CaO	Co
Cr_2O_3	Cs	Cu	Fe_2O_3	K_2O
Li_2O	MgO	MnO	Nb	Ni
Pb	Rb	S	SiO_2	Sn
Ta	Th	TiO_2	U	Zn

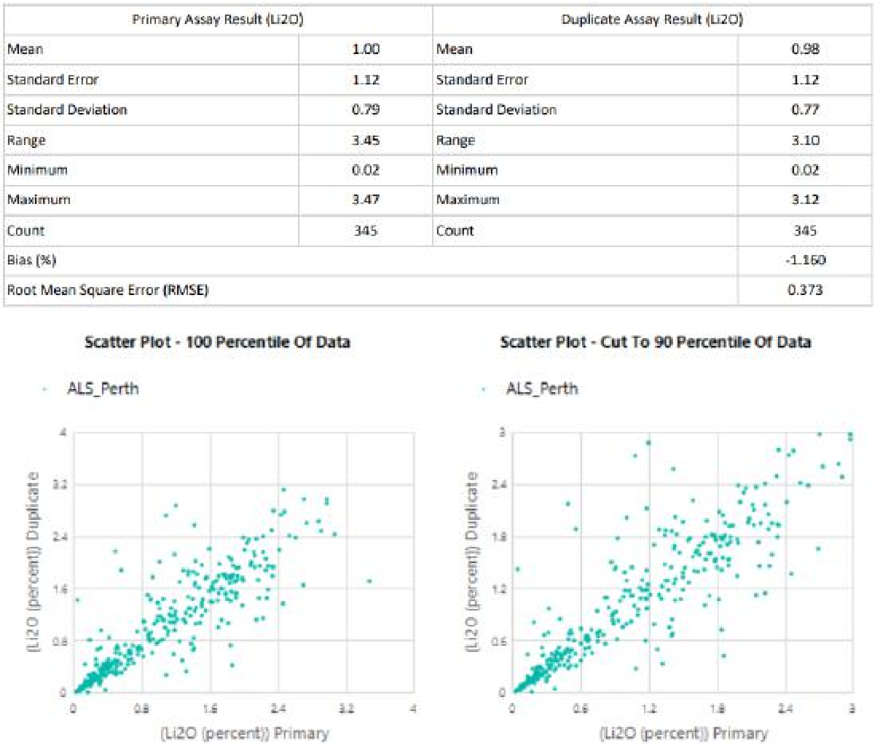
8.3 Quality of assay data and laboratory tests

For all samples reported the elemental concentrations have been determined as described in the previous section. The total samples used for the resource estimation and the QAQC program used is listed below:

- 41,522 Earl Grey samples were assayed by inductively coupled plasma mass spectrometry (ICP) or mass spectrometry (MS)
- 1,551 field duplicate samples from the Earl Grey Lithium deposit
- 1908 check / standard samples were submitted for the reported sampled intervals.
- QAQC is also reliant upon high standard laboratory practice and supply of laboratory internal QAQC data.

An example of the Batch sent to the lab for the drilling campaign executed between August 2020 and January 2021 is shown in Figure 8-1, Figure 8-2 and Figure 8-3. The QAQC samples analysed by KDR and Covalent, in addition to laboratory QAQC checks, have indicated the assaying shows acceptable levels of accuracy and precision for a resource estimation and a reserve definition.

Figure 8-1 Field duplicates assays for Lithium



Primary Assay Result (Li2O)		Duplicate Assay Result (Li2O)	
Mean	1.00	Mean	0.98
Standard Error	1.12	Standard Error	1.12
Standard Deviation	0.79	Standard Deviation	0.77
Range	3.45	Range	3.10
Minimum	0.02	Minimum	0.02
Maximum	3.47	Maximum	3.12
Count	345	Count	345
Bias (%)			-1.160
Root Mean Square Error (RMSE)			0.373

Figure 8-2 Blank Material reference Lithium

Field Standard - Blk2020

Element: Li2O (percent)

Database: master

No. of Samples	No. of Batches	Avg Samples per Batch	Nominated Value	Avg Assay Result	Std Dev	Min Assay Result	Max Assay Result	Orig Samp Variance	Range
141	29	1.00	0	0.01	0.007	0.00	0.05	0.00	0.04

Figure 8-3 Control Chart for Lithium Reference Material.

Field Standard - GTA-06

Element: Li2O (percent)

Database: master

No. of Samples	No. of Batches	Avg Samples per Batch	Nominated Value	Avg Assay Result	Std Dev	Min Assay Result	Max Assay Result	Orig Samp Variance	Range
38	18	1.00	0	1.72	0.035	1.66	1.80	0.00	0.14

8.4 Opinion of Adequacy

In the QP's opinion, sample preparation, sample safety, and the analytical procedures used, agree with industry standards and there are no significant issues. The majority resource and reserve are supported by modern drilling with recent QAQC, and analyses as described above.

Detailed procedures are in place to ensure the correct and repeatable execution of field sampling and laboratory analysis protocols, as detailed in the resource estimate reports.

9 DATA VERIFICATION

9.1 Data Verification Procedures

Verification by the QP covered field exploration, drilling, descriptions of drill core and cuttings, laboratory results for chemical analyses, quality control results, review of surface and downhole surveys, and review of the data entry and data storage systems. Twin holes have been used with no significant variation between assay grades. The difference falls within error margin of the sampling technique. It is considered that KDR and Covalent have a standard capable of ensuring good control and quality of the data obtained during drilling and assaying.

Based on the review of the quality control data in the period, it is considered that the sampling procedures, as well as those of preparation and analysis for Li and other elements were adequate for the spodumene rich rock samples, and that the resulting analytical data is 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 metallurgical data presented in this TRS are of appropriate quality and meet industry standards for data adequacy for mineral resource and reserve estimation.

9.1.1 Data Management

Primary historical data and any re-logging / new sampling data have been compiled into the Covalent database. This database has undergone a process of validation, evaluation, and consolidation by KDR and Covalent. This is standard practice and is expected to continue as the project progresses.

The geological logging and sampling information is loaded and stored into a SQL database by Colwyn Lloyd of GeoBase. Import validation protocols are in place. Database validation checks are run routinely on the database.

No adjustments or calibrations to the original assay data have been made, all original data is maintained within the database. All reported intercept intervals are normalized to the sample interval – weighted average method.

The QP, plus the Covalent and Kidman Resources team has reviewed a large number of extracts from the drill hole logs and drill hole data, these have been cross referenced to requested laboratory certificates as part of the technical expert audit process, no major discrepancies or inconsistencies have been noted.

9.1.2 Technical Procedures

The QP reviewed the data collection procedures, associated to drilling and sampling. Kidman Resources and Covalent 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 at the same time guaranteeing the safety of its workers.

9.1.3 Quality Control Procedures

The QP reviewed the data collection and quality control procedures carried by Kidman Resources and Covalent. The procedures are considered adequate. It is evident that they used adequate insertion rates for different controls.

9.2 Limitations

All details and data on QA/QC methodology disclosed in this report are second-hand and provided by Covalent and KDR but were reviewed in detail by the QP. It is important to note that QP conducted an independent QAQC review as part of the Due Diligence when SQM purchased 50% of the project using an umpire lab in 2017 with no material differences. No material changes have been done in procedures since 2017.

9.3 Opinion of Adequacy

In the QP's opinion, the data verifications done up to date agree with industry standards and there are no significant issues. The data available is adequate for estimation of geologic resources and reserves present in the mining property.

10 MINERAL PROCESSING AND METALLURGICAL TESTING

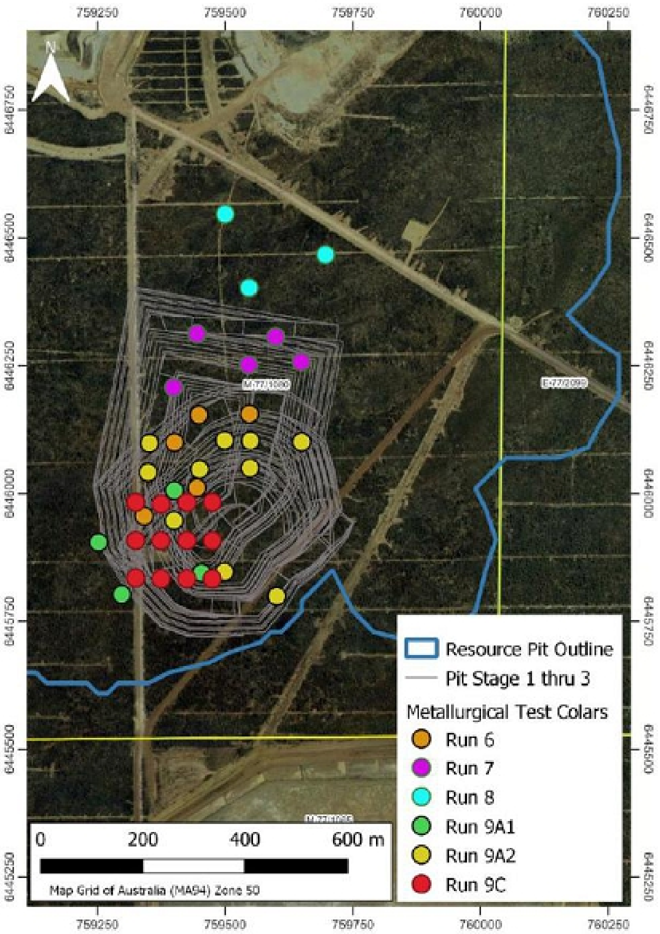
Testwork campaigns to support the concentrator flowsheet and engineering design were completed at accredited laboratories under the supervision of Covalent (Table 10-1). Testwork execution follows best practice guidelines, including review of current practices, tracking of information and verification of test methodologies. The results disclosed in this paragraph are based on UIDFS (2020).

10.1 Concentrator Testwork program

10.1.1 Sample selection and testworks

Samples for metallurgical testwork were sourced via drilling campaigns using both reverse circulation (RC) and diamond drill holes. Most of the metallurgical samples collected were in the area of the proposed starting pit for the mine. A map showing the location of samples collected for the pilot scale runs is included in Figure 10-1.

Figure 10-1. Distribution of diamond drill core samples used for metallurgical testing



For the concentrator testwork program, the drillhole samples were transported to Nagrom, a mineral processing facility in Perth. Bulk composites were generated by combining the drill core ore samples identified for each pilot run. All composites were prepared by combining downhole samples, providing an average ore grade for testing UIDFS (2020). Table 10-1 shows the different pilot runs carried out for the project and the source of samples.

Table 10-1 Concentrator test campaigns

Runs	Date	Sample Type	Intent	Li2O
1 to 4	2018	RC Chips	Test conceptual flowsheet and produce spodumene concentrate samples for testing downstream unit operations	-
5	September 2018	Diamond Drillhole Core sample	Confirm flotation flowsheet presented in the PFS	1.47
6	April 2019	Diamond Drillhole Core sample	Bulk flowsheet test to test collector and improve selectivity	1.53
7	May 2019	Diamond Drillhole Core sample	Bulk flowsheet test to test collector and improve selectivity	1.41
8	September 2019	Diamond Drillhole Core sample	Bulk flowsheet test	1.46
9C	August 2020	RC Chips	Testwork for flotation (no DMS) used to calibrate the pilot scale flotation circuit prior to test 9A.	1.55
9A	September 2020	Diamond Drillhole Core sample	Confirm the value optimization flowsheet and previous testwork using ore from year one to three.	1.52
9B	September 2020	Diamond Drillhole Core sample	Samples held in reserve at mine site.	

Source: Based on UIDFS (2020)

The samples were aggregated in bulk downhole composites. The existing metallurgical samples does not capture the complete orebody, but from geologic data and drillhole reviews the pegmatite mineralogy across the deposit is similar. In the QP opinion, the metallurgical samples are representative of the first 10 years of mining and, based on the mineralogical data and geological descriptions, the metallurgical test results are indicative of the expected recoveries for the remaining SQI pegmatite identified in the deposit. The concentrator design, and the ability to blend ore from the ROM pad and the low-grade ore stockpile, is expected to allow minimization of fluctuation in feed grade, and the associated variation in lithium mass flow through the process circuit.

A summary of the testwork conducted to support the concentrator flowsheet design over the life of the Project is provided in Table 10-2. The testwork programs covered the critical design requirements for the concentrator process criteria and basis of design.

Table 10-2. Concentrator testwork summary

Objective	Provider	Description
Ore Characterization	Nagrom, ALS, among others	Mineralogy determination via XRD. Liberation assessment, Materials handling characteristics including flowability, moisture content, draw down angle, angle of repose and particle sizing
Crushing	Nagrom and reputable vendors	Preparation of bulk composites for testing. Pilot runs. HPGR operating and design parameters
Ore Classification	Nagrom	Reflux Classifier
DMS	Nagrom	Dense Media Separation Testworks at different densities
Flotation	SGS and Nagrom	Flotation testwork included batch, locked cycle flotation tests and continuous pilot plant testing and included evaluation of feed size, collector type and addition rates, the impact of conditioning and the impact of water quality.
Thickening	Reputable vendors	Dynamic thickening tests were completed on pilot plant tailings to decide thickener design parameters and engineering details
TSF	SRK	Testwork completed on coarse DMS rejects and fine blended tails to assist in design of dry stacked TSF and wet TSF.
Rheology	Specialized Third Party	Testwork completed to assist in pumping design
Spodumene concentrate characterization	Nagrom and reputable vendors	Chemical analyses, XRD, mica picking. Materials handling, including angle of repose, transportable moisture limit, moisture content

Source: Based on UIDFS (2020)

10.1.2 Testwork outcomes

The testwork confirms that it is possible to produce spodumene concentrate to technical specifications. The results of the pilot scale runs are summarized in Table 10-3.

Table 10-3. Li_2O grade and Li_2O deportment results from testwork

	Run 6A	Run 7A	Run 8AB	Run9A	Average
Recovery (%)	78	75	76.5	81.0	77.6
Concentrate Li_2O Grade (%)	5.7	5.9	5.2	5.6	5.6

Source: Based on UIDFS (2020)

The following conclusions can be drawn from the testwork:

- The testwork has confirmed that the target product quality for spodumene concentrate of 5.5 per cent Li_2O can be achieved.
- Pilot run recoveries exceeded the nominal 75 per cent target recovery with an average Li_2O recovery of 77.6 per cent reported.

The expected outputs from the concentrator are shown in Table 10-4 and are justified from the testworks executed.

Table 10-4 Concentrator outputs terms of reference

Parameter	Unit	Value
Concentrate target Li_2O Grade	% Li_2O	>5.5
Concentrate target Fe_2O_3 Grade	%Fe_2O_3	<1.39
Concentrate target mica content	% Mica	<4
Concentrate target moisture content	% w/w	<12

Source: Based on UIDFS (2020)

10.2 Refinery Testworks program

The refinery testwork program has been developed to deliver a refinery process flowsheet. The samples used for the refinery testworks are the outputs from the Concentrator testworks.

10.2.1 Testworks

Testworks done for the refinery process design area summarized in Table 10-6 in the next page.

10.2.2 Testworks Outcomes

Product specification elements considered the most challenging to control in the refinery including, Minor magnetic particles (MMP), Carbon dioxide, Silica, Sodium, Sulphate and the Particle size distribution.

From the testworks results (Table 10-5), the lithium deportment analysis predicts an overall refinery recovery of 85.9 per cent, with the potential range between 82.0 and 91.5 per cent. For the valuation a recovery of 85.0 per cent has been selected.

Table 10-5. Li_2O grade and Li_2O deportment results from testwork

	Predicted from testworks	Risk weighted minimum	Risk weighted maximum
Lithium losses (%)	14.1	8.5	18.0
Recovery (%)	85.9	91.5	82.0

Source: Based on UIDFS (2020)

Table 10-6 Testwork summary supporting the refinery unit operations

Objective	Provider	Description
Spodumene handling	Nagrom, ALS, among others	Mineralogy determination via XRD. Chemical analysis of test products. Preparation of bulk composites to provide an appropriate feed for testing, Materials handling characteristics including flowability, moisture content, draw down angle, angle of repose and particle sizing
Kiln, Cooling and Roasting	Nagrom, SGS, and other reputable vendors.	Conversion from alpha to beta-spodumene. Calcination parameters effect on conversion (temperature and time). Processing of materials for downstream testing. Roasting parameters effect on conversion (temperature, time, grind size acid excess). Process of material for downstream testing
Ball Mill	SGS and vendors	Bond ball work indices. Abrasion index
Leaching	Nagrom, SGS , SQM and vendors	Leaching parameter effect on elemental recovery for lithium and impurities (pH, residence time, lithium tenor). Alternative reagent suites effects. Oxidization testwork. Direct leaching testing. Pilot testing
Impurity Removal	Nagrom and various reputable vendors.	Filtration testing, wash efficiency through lithium recovery. Bench scale filtration testing for efficacy and efficiency. (Filtration rates, solid moisture content, suspended solids in filtrate). Wash efficiency of lithium and trace elements. Equilibrium characterization for impurities, residence time and kinetics study. Reagent suite optimization. Filter aid composition effect in impurity profile of filtrate.
DBS	QUBE, SQM and other consultants	Bulk handling properties including flowability, moisture content, draw down angle, angle of repose, particle size.
Glauber Salt / Crystallization	Nagrom, Veolia, among others	Equilibrium curve characterization. Initial SSA samples production for characterization. Pilot testing. Chemical equilibrium definition. Wash efficiency testing. Energy requirement testing. Impurity testing. Confirmation of recycle flows and bleed rates
LiOH	SQM and reputable vendors.	Pilot testing. Chemical equilibrium definition. Recirculation streams estimation. Wash efficiency testing. Energy requirements testing. Drying testing for equipment design. Evaluation on CO_2 and MMP in final product.
Bagging, storage and handling of LiOH	Reputable vendores	Impact of compaction on agglomeration. Measurement of agglomeration based on cohesive strength. Dehydration isotherms for LiOH. Simulation of dynamics of moisture migration during storage and transport to define parameters that minimize product caking.

Source: Modified on UIDFS (2020)

10.3 QP’s Opinion

In the QP’s opinion, the physical, chemical, and metallurgical tests carried out to date by Covalent have been adequate to establish a suitable process to produce spodumene concentrate and lithium hydroxide.

In the QP’s opinion, the samples used to generate the metallurgical data have been representative and support estimates of future performance. The data derived from the testing activities described above are suitable for the purposes of estimating mineral resources and reserves.

11 MINERAL RESOURCE ESTIMATE

11.1 Geological Interpretation

Surface diamond and reverse circulation (RC) drillholes have been logged for lithology, structure, alteration, and mineralisation data by Kidman Resources and Covalent geologist since 2016. Pegmatite lithology wireframes were produced as a vein system in Leapfrog using geochemical criteria; $SiO_2 > 70\%$ and $Fe_2O_3 < 3\%$. These were validated against lithological logging data, and structural data from diamond core. The pegmatite mineralogy wireframes were produced in Leapfrog from both XRD analyses, and visual mineralogical logs in diamond core. Weathering surfaces have been generated in Leapfrog from geological logging data.

Due to the consistent nature of the pegmatite identified in the area, no alternative interpretations have been considered. The Li_2O % mineralisation interpretation is contained wholly within the pegmatite geological unit.

The pegmatites are found to be variable in strike and dip extent over the length of the deposit, and of variable thickness. They are intersected and offset by two major shear zones. Li_2O % mineralisation within the fresh pegmatite is zoned, and primarily controlled by the dominant mineralogy; spodumene and petalite dominated assemblages are enriched compared to altered (cookeite) and Li-absent assemblages. Li_2O % mineralisation is depleted in weathered pegmatite.

The result of the modelling is that Earl Grey pegmatites strike northeast-southwest over a length of 1,300 m, and dip northwest at around 10˚ over 2,100 m. Several hanging wall pegmatites outcrop at surface. The main pegmatite displays geological continuity to 300 m depth from surface at the northern end of the deposit, while the hanging wall and footwall pegmatites are of shorter range and less continuous. The main pegmatite body varies in thickness from 15m to 90 m over the length of the deposit.

11.2 Estimation Technique

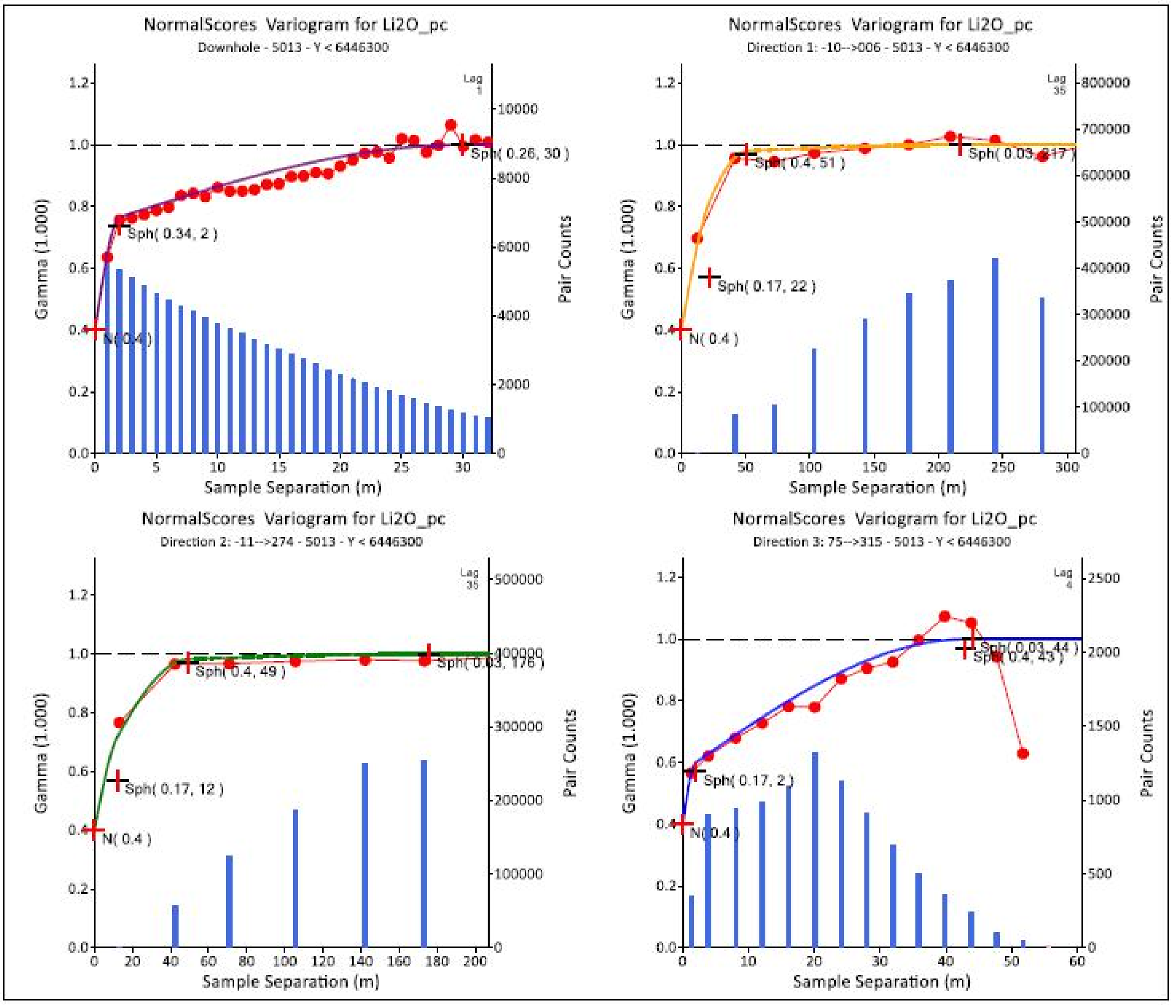
Compositing has been undertaken separately on each variable within domain boundaries at 1m with a variable length of up to 1.5m. Top cut were applied in domains with outlier values.

The influence of extreme assays has been reduced by top-cutting where required. The top-cut thresholds have been determined using a combination of histograms, log probability and mean variance plots. Top cuts have been reviewed and applied to the composites on a domain-by-domain basis. No top-cuts have been applied to Li_2O% or Fe_2O_3% within the fresh pegmatite domains. Top-cuts were applied only in Fresh pegmatite for Ta ppm, CaO% and MgO%.

Grade estimation of Li_2O%, Fe_2O_3%, Ta ppm, Na ppm, MgO%, K_2O%, SiO_2%, Al_2O_3%, Rb ppm, CaO% has been completed using Ordinary Kriging (OK) and, where appropriate, Inverse Distance squared (ID2) into 70 fresh pegmatite domains. Fe_2O_3% and S ppm have been estimated into 14 waste domains using OK (Ordinary Kriging).

Variography has been completed in Supervisor v 8.13 software on a mineralogical domain basis where enough data is present. Domains with too few samples have grouped or borrowed variography. For example, Variograms of the domain 5013 (Fresh SQI at Main Body pegmatite) is presented in Figure 11-1.

Figure 11-1 SQI Main domain 5013 Li_2O% variography



The Mineral Resource estimate has been validated using visual validation tools, mean grade comparisons between the block model and composite grade means and swath plots comparing the composite grades and block model grades by Northing, Easting and RL. · No assumptions have been made regarding recovery of any by-products.

The drillhole data spacing is typically 25 by 25 out to 50 m by 50 m with areas of extensional drilling at 100 m by 100 m in the down-dip and strike extents.

The block model parent block size is 20 m (X) by 20 m (Y) by 2.5 m (Z), however an area containing the 25 m by 25 m drilling has a parent block size of 10 m (X) by 10 m (Y) by 2.5 m (Z). A sub-block size of 5 m (X) by 5 m (Y) by 0.625 m (Z) has been used to define the mineralization edges, with the estimation undertaken at the parent block scale.

- Pass 1 estimations have been undertaken using a minimum of 6 and a maximum of 14 samples into a search ellipse diameter defined as one quarter of the variogram range in the major and semi-major directions. The minor direction has been set to 20m diameter. A sample per drillhole limit of 4 samples/drillhole has been applied in all domains on all passes.

- Pass 2 estimations have been undertaken using a minimum of 4 and a maximum of 14 samples into a search ellipse defined as twice the first pass.

- Pass 3 estimations have been undertaken using a minimum of 2 and a maximum of 14 samples into a search ellipse defined as twice the second pass.

- Pass 4 estimations have been undertaken using a minimum of 1 and a maximum of 14 samples into a search ellipse defined as twice the third pass.

The search ellipses and variography rotations applied during the estimation of all domain blocks have been determined using the midline surface of each pegmatite within the dynamic anisotropy function in Datamine.

No selective mining units are assumed in this estimate. No correlation between variables has been assumed.

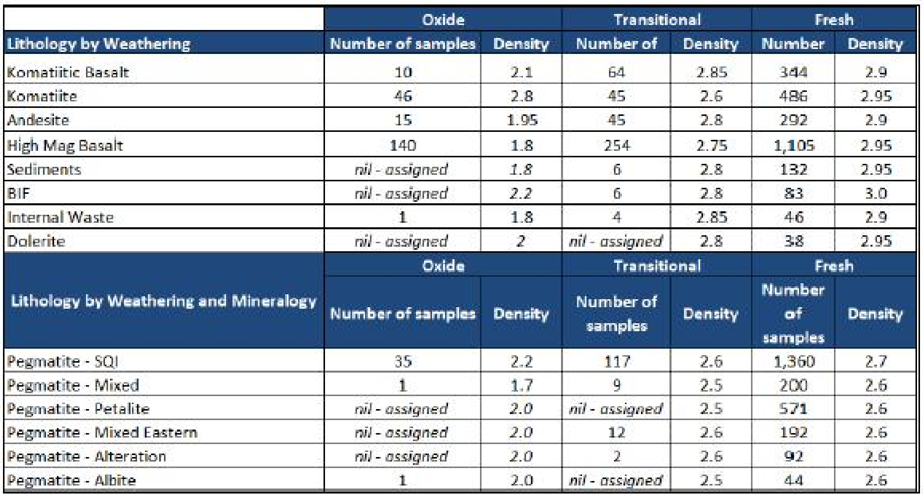
The pegmatite, mineralogy and weathering wireframes generated within Leapfrog have been used to define the domain codes by concatenating the three codes into one. The drillholes have been flagged with the domain code and composited using the domain code to segregate the data. Hard boundaries have been used at all domain boundaries (Mining Plus Pty Ltd, 2021).

11.3 Density

Bulk density values have been calculated from 5,798 measurements collected on-site using the water immersion method (Table 11-1). Data has been separated into lithological/weathering datasets in the waste and mineralogical/weathering datasets in the pegmatites; and mean density values derived. Densities have been assigned several material types and to the waste dump fill material due to a lack of density data.

The selection of bulk density samples is determined by the logging geologist and is undertaken in a manner to determine the density of all material types. The diamond drill core is competent and does not display evidence of voids. Density has been assigned to the waste dump fill material. The densities applied are considered appropriate for this material.

Table 11-1 Density Measurements



	Oxide		Transitional		Fresh	
Lithology by Weathering	**Number of samples**	**Density**	**Number of**	**Density**	**Number**	**Density**
Komatiitic Basalt	10	2.1	64	2.85	344	2.9
Komatiite	46	2.8	45	2.6	486	2.95
Andesite	15	1.95	45	2.8	292	2.9
High Mag Basalt	140	1.8	254	2.75	1,105	2.95
Sediments	*nil - assigned*	*1.8*	6	2.8	132	2.95
BIF	*nil - assigned*	*2.2*	6	2.8	83	3.0
Internal Waste	1	1.8	4	2.85	46	2.9
Dolerite	*nil - assigned*	*2*	*nil - assigned*	2.8	38	2.95
	Oxide		**Transitional**		**Fresh**	
Lithology by Weathering and Mineralogy	**Number of samples**	**Density**	**Number of samples**	**Density**	**Number of samples**	**Density**
Pegmatite - SQI	35	2.2	117	2.6	1,360	2.7
Pegmatite - Mixed	1	1.7	9	2.5	200	2.6
Pegmatite - Petalite	*nil - assigned*	*2.0*	*nil - assigned*	2.5	571	2.6
Pegmatite - Mixed Eastern	*nil - assigned*	*2.0*	12	2.6	192	2.6
Pegmatite - Alteration	*nil - assigned*	*2.0*	2	2.6	92	2.6
Pegmatite - Albite	1	2.0	*nil - assigned*	2.5	44	2.6

11.4 Model Validation

Final grade estimates have been validated by statistical analysis and visual comparison to the input drillhole composite data

11.4.1 Global Comparisons

A domain-by-domain comparison between the composites and the output block model grades for passes 1-3 for each variable has been completed. To accurately decluster the input data a nearest neighbour (NN) estimation using block-height composite data has been completed. Table 11-2 contains the largest ten domains by number of informing composites, representing approximately 75% of estimated tonnes, for Li_2O%, Fe_2O_3% and Ta ppm. Generally, where there are sufficient data, block grades are within error (+/- 10%) of the input composite grade.

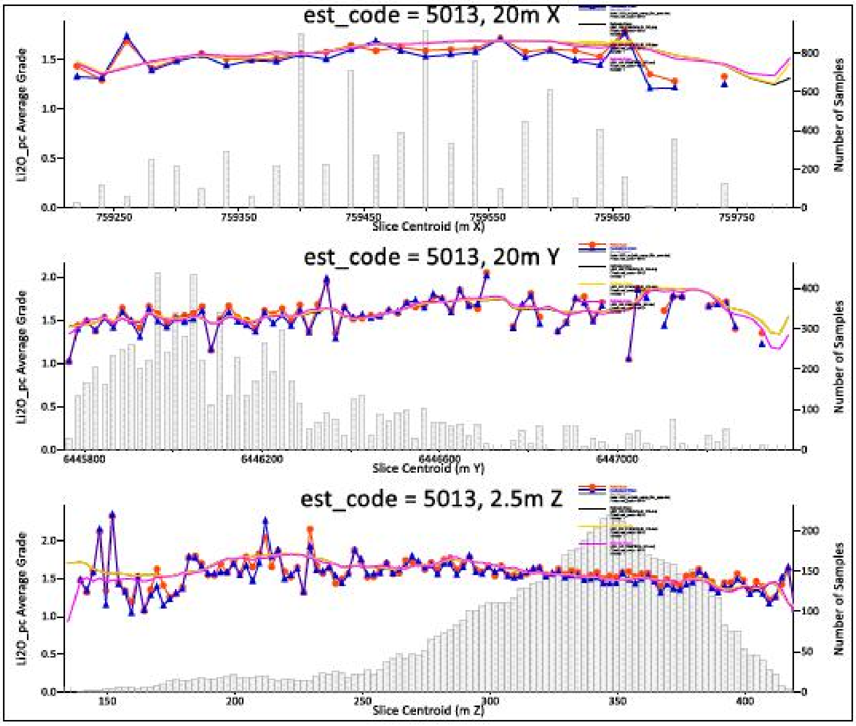
11.4.2 Swath Plots

Representative sectional validation graphs ('swath plots') have been created to compare the estimated grades (black line – Ordinary Kriging, yellow line – ID^2, pink line – nearest neighbour) to the mean of the clustered (red line) and declustered (blue line) input grades within model slices (bins) on Easting, Northing and Reduced Level (RL) for the largest domain in each area. The graphs also show the number of input composites on the right axis, thereby giving an indication of the data support within each bin. The largest domain by tonnage and number of composites, domain 5013, validates within 1% globally and swath plots in Figure 11-2, indicate that the estimated block grades are close to the input composite grades, particularly in areas of high data density.

Table 11-2 Global Comparison of Li2O and Fe2O3.

		Grade Validation Li_2O%					Grade Validation Fe_2O_3%				
Domain	Estimated Tonnage	Estimated Grade	No. of Comps	Comp Grade	NN est.	% Diff Est Grade vs NN est.	Estimated Grade	No. of Comps	Comp Grade	NN est.	% Diff Est Grade vs NN est.
5013	62,359,664	1.63	8,125	1.56	1.62	1%	1.07	8,124	1.13	1.07	0%
2033	52,819,609	1.55	2,185	1.58	1.53	1%	0.96	2,185	0.94	0.96	0%
5053	3,316,584	0.64	911	0.61	0.64	0%	1.11	911	1.1	1.08	3%
6213	1,503,563	1.44	907	1.48	1.46	-1%	1.16	906	1.16	1.16	0%
6313	2,105,325	1.35	819	1.39	1.33	2%	1.33	807	1.33	1.31	2%
6413	16,048,420	1.37	744	1.45	1.4	-2%	1.13	744	1.14	1.11	1%
2023	5,369,650	1.74	630	1.75	1.72	1%	1	630	1.02	1	0%
3333	4,064,206	1.5	595	1.48	1.5	0%	1.21	595	1.21	1.18	3%
4413	3,299,948	1.51	509	1.42	1.52	-1%	1.37	509	1.39	1.37	0%
4513	4,453,186	1.56	431	1.49	1.56	0%	1.38	430	1.45	1.39	-1%

Figure 11-2 Swath plots of Domain 5013



11.5 Uncertainty

Table 11-1 shows the main sources of uncertainty and a discussion of their impact and possible control measures.

Table 11-3 Sources of Uncertainty

Uncertainty Source	Discussion
Drilling techniques, drill sample and recovery	Majority of drilling is based on Reverse Circulation holes. When are compared assays obtained from RC holes and DDH holes, Lithium Grades are similar, but it is noted a higher iron content in RC samples. This bias is considered a potential upside for the project.
Logging	Geologic logs in the database have sufficient information to enable interpretations of pegmatites continuity and orientation. Loggin procedures are clear and have been used systematically since 2016. Reverse circulation chips are logged every one meter. The QP's opinion is that this detail is sufficient for a long-term planning.
Sampling techniques and QAQC procedures	The sampling techniques are documented, and procedures are followed by the personal. QAQC reports confirms that protocols are followed, and laboratories provides acceptable levels of precision and accuracy.
Location of data points	Collar and downhole surveys are reliable. This allows to model pegmatite intercepts with high degree of spatial accuracy.
Data spacing and distribution	Pegmatite geometry is well understood based on extensive drilling at sufficient spacing to provide multiple points of observation.
Geologic Modelling	The top 10 geologic units in volume are well understood and with sufficient data to support the wireframe building. Minor pegmatite bodies, related to hanging wall dykes have more uncertainty in comparison to larger units and is related to thickness and the contact location pegmatite and waste. However, recent Grade Control Drilling programs confirm the continuity of the units, and this risk could be handled at long term.
Estimation	The validation exercises considers that the estimation is robust for a long-term planning.
Mineralogy	Mineralogy studies are focus in the starter pit area. Drillhole logging and XRD analysis suggest that are clearly identified mineralogic zones that should be used for long-term planning.

The geological interpretation and estimation are considered robust due to the nature of the geology and mineralization. The QP's opinion is that the different uncertainty sources are assessed in the resource classification described below and it is adequate to use the resource model for a long-term planning.

11.6 Resource Classification Criteria

The classification of Mineral Resources for the Earl Grey Deposit has been completed in accordance with the "Australasian Code for Reporting of Mineral Resources and Ore Reserves" issued by the JORC of the AusIMM, AIG and MCA and updated in December 2012, (JORC., 2012)) and the SEC regulations S-K 1300. The major classifications and terminologies have been adhered to. All directions and recommendations have been followed, in keeping with the spirit of the code. The categories of Mineral Resource as outlined by the code are as follows:

- Measured – Tonnage, densities, shape, physical characteristics, grade, and mineral content can be estimated with a high level of confidence.

- Indicated – Tonnage, densities, shape, physical characteristics, grade, and mineral content can be estimated with a reasonable level of confidence.

- Inferred – Tonnage, grade, and mineral content can be estimated with a reduced level of confidence.

The methodology is based on the following aspects:

1) Information density: There are areas with high information density in the deposit (mesh <50 m), where category should reflect this effect.

2) Uncertainty in the geological model: The geological model of pegmatite and mineral zones has a component related to the criteria used by the geologist when modeling. This criterion is exposed when the different simulation scenarios of the geological bodies are quantified. One measure of ensuring geological modeling in the category is to include conditions over the average values of geology simulations.

3) Operational uncertainty: In zones of high information density and massive pegmatite there is a high probability that the pegmatite body exists. But the grades have different behaviors inside due to local geological differences. This is reflected in the simulations of Li_2O percentage grades; however, the performance of resource predictions will be evaluated at the temporal level of months or quarters. Therefore, uncertainty is considered in terms of temporary volumes for the resource's categorization effects.

The resource classification has been applied to the MRE based on the input data confidence, data spacing and geological continuity. As an initial step, a confidence category has been assigned on a block-by-block basis based on the following criteria:

- The mineralization at Earl Grey estimated in the first or second pass, with a slope of regression above 0.75 or an average distance to three drillholes of less than 40 m have been assigned a high level of confidence.

- The mineralization at Earl Grey that has been estimated in the second or third pass, have been assigned a reasonable level of confidence.

Blocks have been displayed by confidence category, which has then been used as a guide to digitize strings and that smooth out the block-by-block categories into contiguous, practical shapes. The Measured Mineral Resource has been informed by the blocks with a high level of confidence. The Indicated Mineral Resource has been informed by the blocks with a reasonable level of confidence, while the Inferred Mineral Resource has been informed by the blocks with a reduced level of confidence. All blocks within the Measured and Indicated Mineral Resource that have received an assigned Li_2O grade have been reclassified as inferred resource. The classification reflects the view of the Competent Person

11.7 Reasonable prospect for eventual economic extraction

A whittle pit optimization has been run to generate a pit shell wireframe for reporting purposes. The mining assumptions/parameters used are listed in Table 11-4. To estimate the economic extraction, it was selected as end product the spodumene concentrate at 6%, which is a standard in the lithium industry.

Table 11-4 Mineral Resource factors for eventual economic extraction

Factor	Unit of Measurement	Value
Mining Dilution	(%)	5
Mining Recovery	(%)	95
Mining cost per bcm of Rock	(AU$/bcm)	18.60
Process Cost per tonne	(AU$/t)	65.27
Concentrator Recovery	(%)	75
Li_2O Price Concentrate	US$/t SC 6.0 FOB	800
	AU$/%$Li_2O$	177.78
Foreign exchange US$:AU$	(:1)	0.75
Royalty	(%)	5
Selling Cost	AU$/t conc	NA

The dilution and mining recovery utilized in the open pit optimizations are 5% and 95%, respectively. The optimizations utilized a final processing recovery of 75% for all material.

11.8 Cut-off Grade

Based on a price of US$800[5] FOB per tonne of Spodumene concentrate at 6%, a cut-off grade of 0.5% Li_2O has been used to define the Resource Pit.

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[5] The project was evaluated with a price of US$800 per tonne of spodumene, equivalent to the sale price of US$11,000 per tonne of lithium hydroxide.

11.9 Mineral Resource Statement

Mineral resource for the Project, representing in-situ lithium bearing pegmatites are reported below in accordance with SEC Regulation S-K 1300 standards and are therefore suitable for public release. The current Mineral Resource for the Earl Grey Deposit, contained within the pit shell has been reported at a cut-off of 0.5 Li_2O% and is detailed in Table 11-5 and Table 11-6.

11.9.1 Resource Inclusive of Mineral Reserves

Table 11-5 shows the resource estimation inclusive of mineral reserve.

Table 11-5. October 2021 Mineral Resource Estimate Inclusive of Mineral Reserves for the Earl Grey Deposit

Classification	Cut-off Grade (%Li_2O)	Kilotonnes (kt)	SQM Attributable tonnes	Li_2O%	Fe_2O_3%	Ta ppm
Measured	0.5	71,000	35,500	1.57	1.17	56
Indicated	0.5	107,000	53,500	1.51	1.02	45
Measured + Indicated	**0.5**	**178,000**	**89,000**	**1.54**	**1.08**	**50**
Inferred	0.5	8,000	4,000	1.44	1.30	47
Total	**0.5**	**186,000**	**93,000**	**1.53**	**1.09**	**49**

- The SQM attributable portion of mineral resources and reserves is 50%.
- Mineral resources are **reported inclusive of mineral reserves**. Mineral resources are not mineral reserves and do not have demonstrated economic viability.
- Resources have been reported as in situ (hard rock within optimized pit shell).
- Resources have been categorized subject to the opinion of a QP based on the amount/robustness of informing data for the estimate and consistency of geological/grade distribution.
- Resources which are contained within the mineral resource pit design may be excluded from reserves due to an Inferred classification. They are disclosed separately from the resources contained within the Resource Pit.
- There is reasonable expectation that some Inferred resources within the mineral reserve pit design may be converted to higher confidence materials with additional drilling and exploration effort.
- Mineral resources are reported considering a nominal set of assumptions for reporting purposes:
- Pit optimization and economics for derivation of CoG include mine gate pricing of US$800/t of 6% Li_2O concentrate, AU$19/bcm mining cost (LoM average cost-variable by depth), AU$65/t processing cost. Mining dilution set at 5% and recovery at 95%. Royalty fees 5%. The recovery considered for the concentrator is 75%.
- Costs estimated in Australian Dollars were converted to US Dollars based on an exchange rate of 0.75US$:1.00AU$.
- These economics define a cut-off grade of 0.50% Li_2O.
- The slope angles vary from 40 degrees for oxide material to 45 degrees for fresh material.
- Resources were reported above this 0.5% Li_2O cut-off grade and are constrained by an optimized break-even pit shell.
- No infrastructure movement capital costs have been added to the optimization.

- Mineral resources tonnage and contained metal have been rounded to reflect the accuracy of the estimate, and numbers may not add due to rounding.
- Kerry Griffin is the QP responsible for the mineral resource estimate with an effective date: October 6, 2021.

11.9.2 Resource Exclusive of Mineral Reserve

Table 11-6 shows the resource estimation inclusive of mineral reserve.

Table 11-6. October 2021 Mineral Resource Estimate Exclusive of Mineral Reserves for the Earl Grey Deposit

Classification	Cut-off Grade (%Li_2O)	Kilotonnes (kt)	SQM Attributable tonnes	Li_2O%	Fe_2O_3%	Ta ppm
Measured	0.5	27,000	13,500	1.58	1.05	55
Indicated	0.5	61,000	30,500	1.45	1.04	43
Measured + Indicated	**0.5**	**88,000**	**44,000**	**1.49**	**1.04**	**47**
Inferred	0.5	7,000	3,500	1.38	1.35	47
Total	**0.5**	**95,000**	**47,500**	**1.48**	**1.06**	**47**

- The SQM attributable portion of mineral resources and reserves is 50%.
- Mineral resources are **reported is exclusive of mineral reserves**. Mineral resources are not mineral reserves and do not have demonstrated economic viability.
- Resources have been reported as in situ (hard rock within optimized pit shell).
- Resources have been categorized subject to the opinion of a QP based on the amount/robustness of informing data for the estimate and consistency of geological/grade distribution.
- Resources which are contained within the mineral resource pit design may be excluded from reserves due to an Inferred classification. They are disclosed separately from the resources contained within the Resource Pit.
- There is reasonable expectation that some Inferred resources within the mineral reserve pit design may be converted to higher confidence materials with additional drilling and exploration effort.
- Mineral resources are reported considering a nominal set of assumptions for reporting purposes:
- Pit optimization and economics for derivation of CoG include mine gate pricing of US$800/t of 6% Li_2O concentrate, AU$19/bcm mining cost (LoM average cost-variable by depth), US$65/t processing cost. Mining dilution set at 5% and recovery at 95%. Royalty fees 5%. The optimisation considered for the concentrator is 75%. Costs estimated in Australian Dollars were converted to US Dollars based on an exchange rate of 0.75US$:1.00AU$.
- These economics define a cut-off grade of 0.50% Li_2O.
- The slope angles vary from 40 degrees for oxide material to 45 degrees for fresh material.

- Resources were reported above this 0.5% Li_2O cut-off grade and are constrained by an optimized break-even pit shell.
- No infrastructure movement capital costs have been added to the optimization.
- Mineral resources tonnage and contained metal have been rounded to reflect the accuracy of the estimate, and numbers may not add due to rounding.
- Kerry Griffin is the QP responsible for the mineral resource estimate with an effective date: October 6, 2021.

11.10 Relevant factors that may affect the mineral resource estimate

The Mt. Holland project is subject to factors that may affect this resource estimate:

- Changes in metals pricing can affect the cutoff grade and thus the quantity of estimated resource.
- Changes in assumed operating costs affect the cutoff grade and thus the quantity of estimated resource.
- Changes to the tonnage and grade estimates may vary because of more drilling, new assays, and tonnage factor information.
- Changes in recovery assumptions may change the quantity of the estimated resource

11.11 Responsible Person Opinion

To the QP’s knowledge, at the time of estimation there are no known environmental, permitting, legal, title, taxation, socio-economic, marketing, political or other relevant issues that could materially impact on the eventual extraction of the mineral resource.

The QP recommends that the following work be undertaken:

1) Generate a pegmatite model in Leapfrog Geo using indicators and the intrusion modelling tool followed, and

2) Create Li2O% indicator grade shells within the modelled pegmatite, to test if this methodology will generate both high and low-grade Li_2O% domain wireframes.

The QP considers that where data density is sufficient, the pegmatite mineralization may be modelled as a broad anastomosing body rather than a set of discreet veins. Modelling in this manner may significantly decrease the complexity of the estimation. The use of indicator grade shells within the pegmatite may better represent local high and low-grade zonation. These two factors may be useful in future grade control modelling. The QP recommends this work be undertaken as part of future grade control updates in parallel to the MRE method and results compared.

12 MINERAL RESERVE ESTIMATE

12.1 Basis for Estimate

The Mineral Reserve estimate includes the portion of the Measured and Indicated Resource that can be mined economically. Economic criteria and mining constraints (based on the selected mining methods) are applied to the Resource blocks to define mineable blocks. Mineral Reserves are determined after applying dilution and recovery factors to these mineable blocks.

The Mineral Reserve presented has been calculated from the mine plan created from the October 2021 Resource update. Geological domains wireframing are defined by mineralization style and based on 0.5% Li_2O. The basis of cut-off grade is the application of modifying factors to Spodumene Quartz Intergrowth (SQI) mineralization. The cut-off grade of 0.5% Li_2O is based on the parameters used within the pit optimisation. Inferred Resource within the Life of Mine pit has been treated as waste for the purpose of the Ore Reserves.

This resource block model was regularised to include ore loss and dilution and then coded with mining costs, processing costs, geotechnical zones, and the definition of ore for use in optimisation, pit design and production scheduling. The Pit Optimisation was based on the Lerchs-Grossman algorithms implemented on Whittle.

The mining method is open pit, drill and blast truck and excavator. The mining of ore is required to be selective, reflecting the shallow dipping nature of the deposit. The mining fleet is required to be mobile and hence planned to be diesel hydraulic. The supporting infrastructure of workshops and diesel storage and hydrocarbon storage and control have been allocated in the study.

Mining is planned to commence from the south and progress north in strips of nominal 100m width. The mining fleet is planned around 100-200 tonne excavators and 100-150 tonne haul trucks. The ramps are nominally 30m wide and 10% gradient, which suit the planned fleet types.

Mining is planned to allow back filling of the pit over the Life of the Mine. Mining Dilution has been calculated through the utilization of a regularized model, with 5m x 5m x 2.5m block sizes. Additionally, mining recovery of 98% of the diluted Spodumene Quartz Intergrowth mineralization has been used. Mining recovery of other pegmatite has been recovered as mineralized waste and will be used as erosion protection on the waste landforms. Dispersive wastes will be encapsulated within the waste landforms. Asbestiform wastes will encapsulate the dispersive waste and will in turn be encapsulated within the waste landforms by the mineralized waste.

The mining method used for the project is conventional open pit, drill blast, truck and excavator and selective ore mining. Geotechnical specifications are provided by expert consultant (Peter O'Bryan and Associates), with reference to site visit, core logging, rock property testing and assessment. Pit wall parameters and inter-ramp wall angles reflect the weathering states. Pit wall designs include widening berms for geotechnical considerations every 80m vertically in fresh rock. The pit wall designs assume the pit walls are largely depressurised.

The metallurgical recovery is planned to use crushers, classifying, reflux classifiers and dense media separation, then milling, desliming, magnetic separator and flotation to produce a mineral concentrate to match current testwork. Concentrate will be treated through calcination, acid roast, purification, Glauber salt and two-stage lithium crystallization to produce battery grade lithium hydroxide.

Metallurgical processes are designed for nominal 2Mtpa ore feed. Process recovery to concentrate is estimated at 75% for Li_2O for predominantly Spodumene Mineralisation and 0% for other mineralization types. Refinery process recovery is estimated at 85%. Tantalum recovery is estimated at 0%. For Concentrate sales the expectation from test work is the production of fine-grained concentrate above 5.5% Li_2O.

12.2 Mineral Reserves and Basis for Estimate

The mine planning considers the Concentrator feeding the Refinery. The Concentrator feeding the Refinery presents 83.9 Mt of direct feed ore at a grade of 1.57% Li_2O and 1.24% Fe_2O_3. There was 7.3 Mt of mineralisation flagged as potentially amenable to sorting processes (classed as waste) and an additional 419.9 Mt of waste. A total of 427.1 Mt of waste material is contained within the Ultimate Pit which provides a 50-year life of mine. Ore Reserves are classified from Mineral Resources, Measured to Proven, Indicated to Probable with the application of appropriate modifying factors. However, the Measured Resource that falls outside the first 10 years has been considered as Probable.

A summary of the tonnes and grade within the Ultimate Pit is presented in Table 12-1. A sorting scenario did provide access to additional 7.3 Mt of 'ore' and its subsequent cashflow. However, the quality of the input parameters was deemed to be at scoping level and as such not suitable to support an Ore Reserve at the current level of development. The material flagged as potentially viable for sorting was stockpiled separately.

Table 12-1 Ultimate Pit tonnes and grade

Material Type	Quantity (Mt)	Li_2O (%)	Fe_2O_3 (%)
Ore	83.9	1.57	1.24
Waste	427.1	n/a	n/a
Total Material	511.0	n/a	n/a

The proportion of Measured and Indicated mineralisation within the Ultimate Pit is presented in Table 12-2. There is also approximately 1 Mt of Inferred mineralisation (reported as waste) in the production schedule, that presents late in the mine life.

However, current approvals continue to indicate a portion of the Measured material is mined beyond the UIDFS 10-year mine approval boundary. The material classified as Measured within the 10-year pit boundary is considered "Proven", whilst the Measured outside the UIDFS 10-year boundary will be considered as "Probable" in line with the 2018 Ore Reserves, see Table 12-3. No objects to future approvals are expected.

Table 12-2 Feed by mineralisation classification

Mineral Resource category	Quantity (Mt)	Li_2O (%)	Fe_2O_3 (%)
Measured	40.0	1.54	1.39
Indicated	43.9	1.59	1.10
Total	83.9	1.57	1.24

Mineral reserve for the Project, representing in-situ lithium bearing pegmatites are reported below in accordance with SEC Regulation S-K 1300 standards and are therefore suitable for public release. The reserves are reported above a cut-off grade of 0.5% Li_2O based on an assumed Lithium Hydroxide Selling price of US$11,000/t FOB and a total operating cost of US$4,979 for LiOH production was considered for the reserve evaluation. Such price assumption was used for the purpose of evaluating the robustness and economic viability of the Project and does not represent a view of, and may differ from those used by, any of the joint venturers for their own valuation or commercial strategies in relation to the Project. No by-product extraction is considered in the reserve estimation.

Table 12-3 Ore Reserve category

Ore Reserve Category	Quantity (Mt)	SQM Attributable (Mt)	Li_2O (%)	Fe_2O_3 (%)
Proven	21.5	10.8	1.48	1.36
Probable	62.4	31.2	1.60	1.19
Total	83.9	42.0	1.57	1.24

- The SQM attributable portion of mineral resources and reserves is 50%.
- Mineral reserves are reported exclusive of mineral resources.
- Indicated in situ resources have been converted to Probable reserves.
- Measured have been converted to Probable mineral reserves. Measured outside the UIDFS 10-year boundary will be considered as “Probable” in line with the 2018 Ore Reserves
- Mineral reserves are reported considering a nominal set of assumptions for reporting purposes:
- Mining Dilution has been calculated through the utilization of a regularized model, with 5m x 5m x 2.5m block sizes. Additionally, mining recovery of 98% of the diluted Spodumene Quartz Intergrowth mineralization has been used.
- Metallurgical processes are designed for nominal 2Mtpa ore feed. • Process recovery to concentrate is estimated at 75% for Li_2O for predominantly Spodumene Mineralisation and 0% for other mineralization types. Refinery process recovery is estimated at 85%. Tantalum recovery is estimated at 0%. A total operating cost of US$4,979 for LiOH production was considered for the reserve evaluation.
- Costs estimated in Australian Dollars were converted to US Dollars based on an exchange rate of 0.75US$:1.00AU$.
- The price, cost, and mass yield parameters, along with the internal constraints of the current operations, result in a mineral reserves CoG of 0.5% Li_2O based on an assumed selling Lithium Hydroxide price of US$11,000/t FOB. Such price assumption was used for the purpose of the reserve estimation and does not represent a view or consensus of forward-looking prices by any of the joint venturers.
- Waste tonnage within the reserve pit is 427.1 Mt.
- Mineral reserve tonnage and grade have been rounded to reflect the accuracy of the estimate, and numbers may not add due to rounding
- David Billington is responsible for the mineral reserves with an effective date: December 15, 2021

12.3 Relevant factors that may affect the mineral reserve

The Qualified Person has identified the following risk related to the modifying factors:

- Product sales prices: the price of Lithium Hydroxide is forecast based on predicted supply and demand changes for the lithium market overall. There is considerable uncertainty about how future supply and demand will change which will materially impact future Lithium Hydroxide prices. The reserve estimate is sensitive to the potential significant changes in revenue associated with changes in Lithium Hydroxide prices.

- Mining dilution and mining recoveries: The level of ore loss and dilution applied to the production schedule assumes a very selective mining method on the ore/waste contact. If the planned level of selectivity cannot be achieved there will be either higher ore loss and/or an increase in the Fe_2O_3 concentration due to dilution. This would potentially introduce more waste into the plant feed, which would decrease the feed grade, slow down the throughput and reduce the metallurgical recovery.

- Impact of currency exchange rates on production cost: costs are modeled in Australian dollars (AU$) and converted to US$ within the cash flow model.

- Processing plant and refinery yields: The forecast assumes that the concentrator and refinery will be fully operational and that the estimated yield assumptions are achieved. If one or more of the plants does not operate in the future, the cost structure of the operation will increase. If the targeted yield is not achieved, concentrate production will be lower. Both outcomes would adversely impact the mineral reserves.

12.4 Responsible Person Opinion

To the QP’s knowledge, at the time of estimation there are no known environmental, permitting, legal, title, taxation, socio-economic, marketing, political or other relevant issues that could materially impact on the eventual extraction of the mineral reserve (Covalent, 2021). The QP recognized that further approvals are required to mine beyond the 10 years to the full Life of Mine of the Ore Reserves. It is anticipated that all impacts of the Life of Mine project beyond the first 10 years can be readily managed and offset as required.

Modifying factors have been applied reflecting designed practice and costs and metallurgical test work both in terms of operating and capital cost and metallurgical recovery.

Designed mining and grade control practices will be implemented to reflect the nature of geological setting and the intended use of Li2O concentrate as feedstock for a refinery to produce Lithium Hydroxide for battery feedstock. Stockpiles have been included based on their tonnes and grades, physical properties, and mineralogical composition. Grade control drill has been completed for the first stage of mining.

The Ore Reserves Estimate is in line with previous Ore Reserves for the Project (2018), except for the material that would benefit from pre-treatment with optical sorting that was previously included, this material has removed from the Ore Reserve till confidence in the metallurgical yield and cost estimates has improved.

Based on the data review, the attendant work done to verify the data integrity and the different works supervised by the QP, David Billington believes this is a fair and accurate representation of the reserves in the Mt. Holland project.

13 MINING METHODS

13.1 Mining Methodology

Mining of the Earl Grey Deposit at Mount Holland will utilize conventional open pit mining methods in consideration of the pegmatite body geometry and economic factors. The operation will be serviced by contractor-owned and operated drill & blast, as well as load & haul equipment. Mining equipment will include excavators, haul trucks, drilling rigs and ancillary equipment including dozers, water trucks, service trucks and graders.

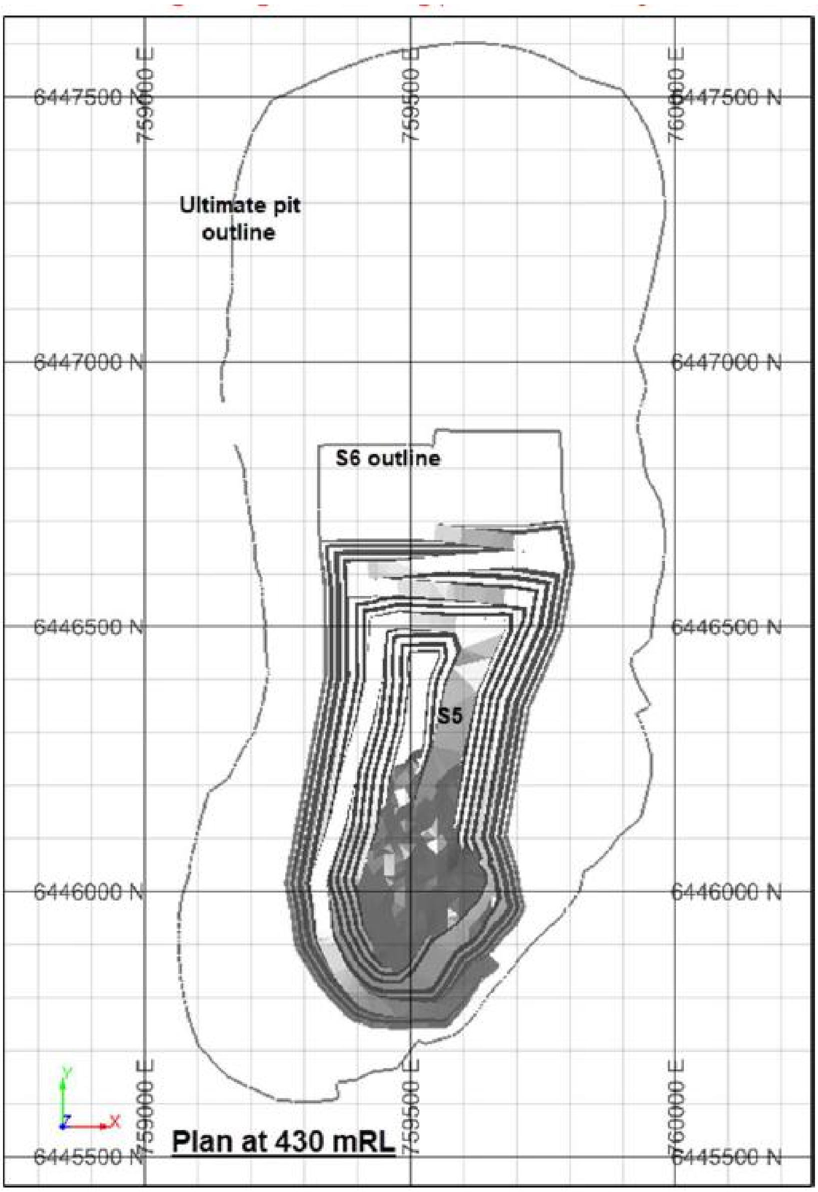
Material movement initiated in February of 2022 by removal and stockpiling of topsoil, followed by pre-stripping of waste to provide access to the first ore.

The deposit geometry presents relatively large bulk areas of both ore and waste; however, the ore/waste contact is to be mined as cleanly as possible to prevent ore loss and dilution of the ore with the high Fe_2O_3 waste. It is anticipated that precision drill and blast techniques will be employed on these ore/waste contacts, with dozers cutting to visual ore/waste contacts. Based on ore grade, excavated material will be hauled from the pit to specific locations, as follows:

- Ore which meets or surpasses the Li_2O cutoff grade (high-grade ore) will be hauled to the ROM pad.
- Ore below the Li_2O grade blending specifications, will be moved to the low-grade ore stockpile.
- Mixed material, derived from the ore/waste contact zone will be stored at the sorting stockpile for processing at the end of the operational life of the mining operation.
- Storage of high-grade ore on the ROM pad and low-grade ore on the low-grade ore stockpile will permit its inspection and testing, as appropriate, prior to its introduction into the concentrator feed line, where high- and low-grade ores will blend to achieve the ore grade required by the concentrator at any given time.
- Waste rock will be disposed of at the various waste rock landforms (WRLs, waste rock dumps) considered in the mine plan.
- Other material, such as lithium-bearing petalite, other mixed lithium minerals and gold-bearing material will be separated and stockpiled separately.

The mining proposal, submitted to the regulator for approval, outlines the land management schedule for the first 10 years of operation. Further approvals are required to mine beyond the 10 years to the full LoM of the Ore Reserves. It is anticipated that all impacts of the LoM project beyond the first 10 years can be readily managed and offset as required.

Figure 13-1. Indicative stage design and mining profile for first 10 years and final pit outline



13.2 Geotechnical, Hydrogeological and Relevant Parameters

The geotechnical pit wall parameters applied to the ultimate and staged pit designs align with those provided by Peter O'Bryan and Associates. Overall slope angles varied between 38° in the surface oxides to 50° as per Table 13-1. It is assumed that the pit walls will be depressurized during operation.

Table 13-1: OSA applied in Whittle

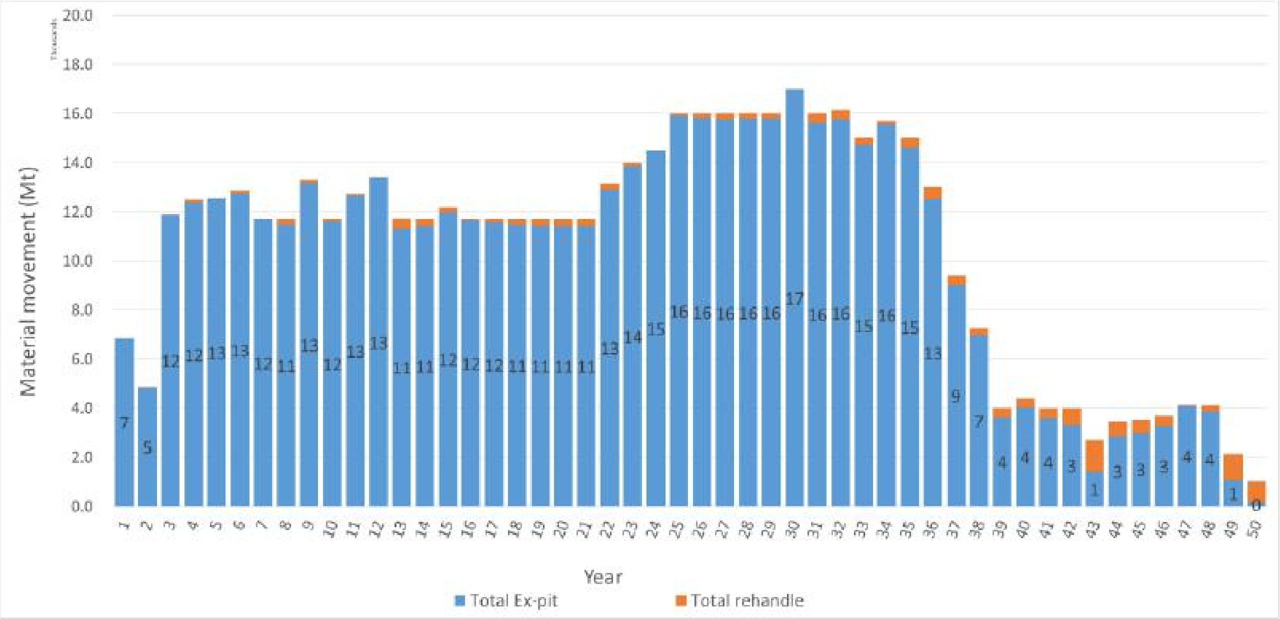
GZONE	Above mRL	OSA (°)
0	default	35
1	450	38
2	415	41
3	380	50
4	320	50
5	240	50
6	140	50

The identification of asbestiform minerals in waste samples has resulted in the development of systems and processes that will be implemented to ensure that the presence of this material does not have an adverse impact on the health of personnel.

13.3 Production Rates, Mine Life, Unit Dimensions and Dilution.

The mine will feed 2 Mtpa of ore to the concentrator, with an expected Life of Mine (LoM) of 50 years. The annual total material mined over the LoM production schedule is depicted in Figure 13-2. After an initial 2-year ramp-up period, a nominal production rate of 12 Mtpa of ore and waste ex-pit is maintained up to Year 21. From Year 21 to Year 35 the nominal production rate increases to 16 Mtpa, before dropping materially from Year 36 onwards. It is acknowledged that there are some periods where total mine movement does not fit the targeted profile, however this is not a material impact to providing overarching guidance for the detailed scheduling iterations.

Figure 13-2 LoM production schedule summary



The process plant ramp-up profile is presented in Table 13-2. It is noted that only 3 months of process plant feed is defined in the last quarter of Year 1.

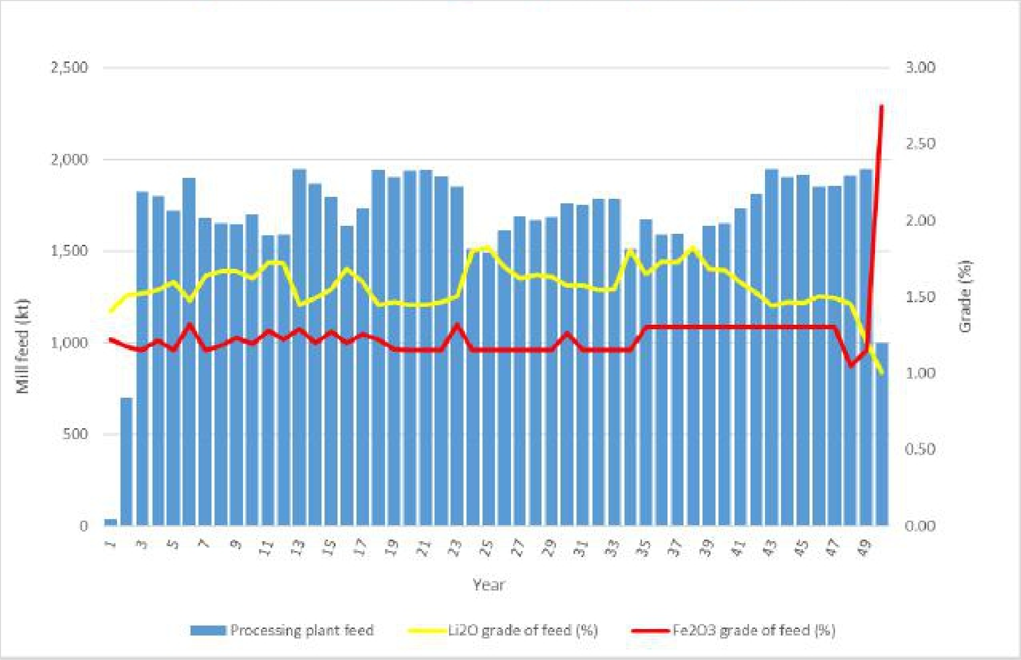
Table 13-2 Process plant annual ramp-up

Period	Target ore	Target metal
	t	Li_2O in refinery feed (t)
Year 1	40,000	460
Year 2	700,000	8,048
Year 3 onwards	1,945,000	21,060

The quantity of Li_2O in concentrate produced on an annual basis aligns with the maximum Refinery capacity set over the LoM (21,060 t of Li_2O). For most years the refinery metal capacity is the primary constraint. The annual plant feed capacity of the Concentrator is 2.0 Mtpa. All ore direct feed material within the Ultimate Pit design is processed in the LoM production schedule.

The annual grade profile of process plant feed for Li_2O and Fe_2O_3 is provided in Figure 13-3. The Fe_2O_3 grade is the primary constraint, with a smooth profile below 1.32% Fe_2O_3 being a key objective for the project. It can be observed that a large spike in Fe_2O_3 occurs during the final year of mine life. This spike may be mitigated during the detailed scheduling phase by configuring the schedule to continuously blend-out this material during the second half of the mine life.

Figure 13-3 Annualised grade profile of process plant feed



A dilution of 5% and an ore loss of 3% was applied to the sub-celled model. An additional 2% ore loss was applied to the regularised model to reflect operational losses over and above that incurred by the regularisation process. Recovery for the concentrator was set block by block based on Mica Content, Deslime losses and iron content, based on laboratory testworks. The refinery recovery of lithium into LiOH.H2O, lithium hydroxide, is nominally 85% from the testwork completed.

The LoM schedule produces 427.1 Mt of ex-pit waste, including mineralized waste. With the allowance of five per cent contingency, the waste landforms are required to store 165.0 million bank cubic meters[6] (Mbcm), equivalent to 206.2 million loose cubic meters (Mlcm) of waste material. During the same period, it also holds 50.8 Mt of plant and refinery DBS and other waste. The assumption is made that this material will fill the voids due to its fine nature.

13.3.1 Mine waste rock storage

Waste rock mined within the pit shell will be hauled to various waste landform destinations, including:

- The TSF: Waste material will be used to form the initial facility walls and to construct increases in TSF wall height. If appropriate methods can be found to limit exposure to fibrous minerals, waste will also be used as final capping at the end of LoM.
- The ROM pad: Waste rock will be used to construct the ROM pad and skyway.
- The abandoned Bounty Pit: Waste rock will be placed in the pit of the historic Bounty mine
- SWRL: The major waste rock landform at the start of the operation is the Southern Waste Rock Landform. It will overlie the historical TSF, constructed during gold mining operations at the site from the late 1990s until 2002.
- In-pit dumping of waste rock in the Mt. Holland Pit; This will occur when the Mt. Holland pit reaches its maximum southern extent and all economic lithium ore has been recovered from the southern extreme of the Earl Grey Ore Body. This is planned to occur from year 11 of LoM. The mining plan has been designed such that the in-pit dumping of waste rock in the south of the pit will not impact overall recovery of lithium from the Earl Grey deposit or result in reduced efficiencies or increased costs.
- Future WRL: Covalent is working on defining the location of the WRL infrastructure from year 11 onwards. Covalent has identified tentative locations that will be confirmed as engineering and permits progress.

In addition to mine waste, concentrator and refinery rejects will be incorporated into the WRL for disposal. It is assumed that due to the fine nature of the material it will fill the voids of the 25 per cent swell in the loose waste.

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[6] Bank Cubic Meter (BCM) refers to a cubic meter of rock in place in the banks (benches) of an open pit, before it is blasted and dug out.

13.4 Mining Fleet Requirements

The contract strategy for the mine was developed to enable an experienced mining contractor to undertake all open pit mining activities at the site for the term of the contract and under the technical direction of Covalent’s Mine Management Team.

The scope of work includes:

- Mobilization to site.
- Establishment of local infrastructure for maintenance and operations.
- Provision and maintenance of mining and support fleet.
- Design, complete and manage drill and blast activities.
- Excavate, load, haul and dump waste.
- Selectively excavate, load, haul and dump ore.
- Complete the ROM ore handling and crusher feed requirements.
- General day to day mining activities as directed by Covalent.

The expectation is that the contractor will mobilize, operate and maintain all the appropriate equipment required for the movement of ore and waste as per the design schedule. Covalent has not directed the contractor in its choice of equipment and its size. The mine design will limit the haul road width and equipment selection will have to consider this design.

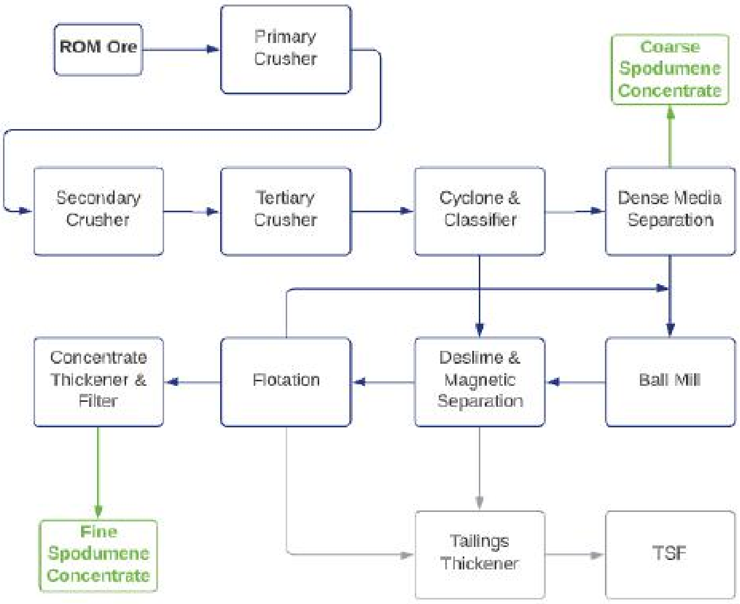
The volume of material moved annually in the mine schedule, the requirement for minimizing dilution by optimal drilling and fragmentation and the focus on efficient mining with flexibility indicate that 100 tonne and 200 tonne excavators coupled with 100 tonne or 140 tonne capacity trucks will be the likely equipment chosen. Any excavator/truck combination outside of these sizes will likely not be considered in shortlisting the tenderers.

14 PROCESSING AND RECOVERY METHODS

14.1 Concentrator flowsheet.

The proposed concentrator flowsheet uses unit operations that are typical and standard for spodumene concentrators. Specific adaptations have been made for Mt. Holland ore characteristics based on testwork that was executed at either bench or pilot scale. The project is designed to consistently deliver spodumene concentrate at 5.5 per cent Li2O (dry weight basis) with a nominal output capacity of approximately 383 ktpa dry. Tailings are classified into two types based on physical properties, with the fine fraction diverted to a TSF and the coarse fraction reporting to the WRL. It is expected that, if DBS is not able to be allocated in the market, it will return to the mine and will be combined with the coarse fraction for disposal in the WRL. A simplified flowsheet is shown in the Figure 14-1.

Figure 14-1. Flow diagram of concentrator flowsheet

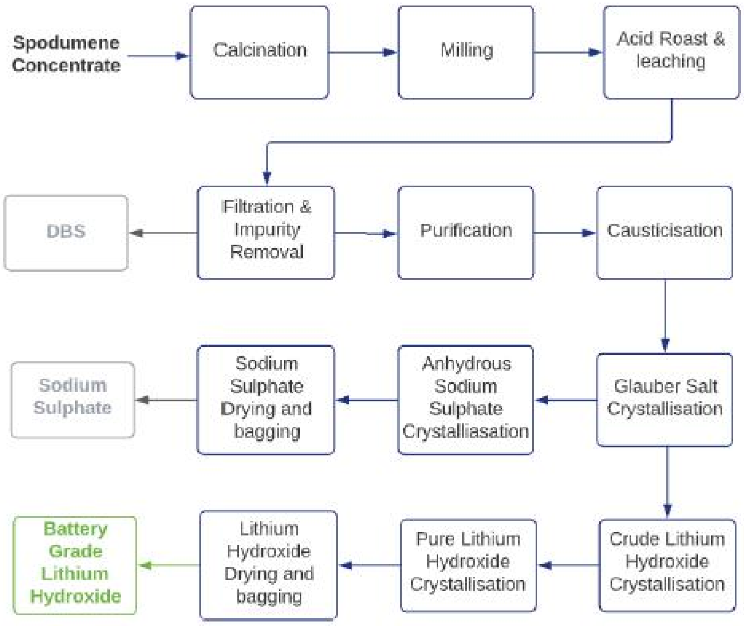


Source: Simplified from UIDFS (2020)

14.2 Refinery flowsheet

The refinery has a nominal production capacity of 50.3 ktpa (dry) LiOH product. Spodumene concentrate will be transported to the refinery, where the 5.5 per cent Li2O (dry weight) concentrate will be processed using pyrometallurgical and hydrometallurgical processes. Following processing, the LiOH will be bagged and stored, and then transported via truck for export from Fremantle Port. A simplified process flowsheet is shown in Figure 14-2.

Figure 14-2. Lithium refinery process flowchart (spodumene to LiOH)



Source: Simplified from UIDFS (2020)

14.3 Energy, Water, Material and Personnel Requirements

14.3.1 Energy

The processing of spodumene ore into lithium concentrate requires a high degree of energy-intensive on-site beneficiation. Energy input to the concentration process will primarily be as electricity and is estimated an annual amount of 105,000MWh that will come from a grid connection to the state electricity network.

The conversion process of spodumene concentrate into lithium hydroxide requires gas and electricity. The annual amounts are approximately 1.4million GJ of gas consumption and approximately 200,000 MWh of power consumption.

14.3.2 Water

To support the engineering design of the Project, a seasonal operational water balance was developed assuming a crusher throughput rate of 2 mtpa (dry. The total peak pipeline demand is estimated to be 3,428 m^3/d during the dry season, but as low as 1,947 m^3/d during the wet season. This water will be sourced from a pipeline to site.

The Mt. Holland operational water balance is dependent on the assumptions made with respect to the recovery and recirculation of process water, especially in respect of water reclamation from the TSF. Assumptions are based on test results conducted for product streams, as well as inputs from SMEs.

14.3.3 Personnel

The Project estimated headcount during operations is expected to be approximately 270 across all sites.

15 PROJECT INFRASTRUCTURE

The Project comprises:

- An open pit mine development centered on the Earl Grey hard rock lithium deposit at Mt. Holland, approximately 100 kilometers south of Southern Cross in Western Australia and 500 kilometers east of Perth.

- A spodumene concentrator facility located at the Mt. Holland site with a nominal production capacity of 383 ktpa of spodumene concentrate at a grade of 5.5 per cent Li_2O.

- A refinery located in the Kwinana industrial precinct approximately 45 kilometers south of Perth, with the capacity to produce 50.3 ktpa of battery-grade lithium hydroxide product (LiOH) for export globally.

- The non-process infrastructure (NPI) required to support the Mt. Holland and Kwinana sites (including roads, buildings, accommodation and the provision of logistics and utilities).

15.1 Mine site & Concentrator

The mine site and concentrator include the following facilities.

- Mine Site and access roads: All roads will be maintained to a standard that minimizes the wear on the heavy road vehicles using it and to keep dust to a minimum.

- ROM

- Explosive Magazine.

- Concentrator: Comprises crushing facilities, ball mill, Dense Media Separation, flotation circuits, which are standard for Spodumene concentrator facilities. Two stage crushing is followed by a high-pressure grinding roll machine (HPGR), reflux classifier to remove mica, two stages of dense media separation (DMS) from the first stage going to tails and underflow from the second stage to final concentrate and overflow going to flotation.

- Tailings Storage Facilities: Mt. Holland concentrator is designed to export fine tailings in slurry form of approximately 55% solids, to a wet tailings storage facility (TSF). When constructed the TSF will provide approximately 8.89 Mm^3 of storage volume that will allow storage capacity of approximately 13.3 Mt to satisfy the required 10 years storage life. The circular TSF design will be constructed by placing compacted clayey materials with relatively lower permeability against mine waste at the upstream side to form the containment embankment for tailings deposition. Mine waste is then progressively placed over the life of the pit(s) adjacent to the Integrated Waste Landform to allow for downstream construction.

- WRL: The key objectives of the WRL design are that the facility is safe, stable and environmentally acceptable for mine closure. The 10yr WRL is designed above a historic TSF, such that the waste transport distance from the pit face is minimized. Furthermore, the WRL will be constructed using fresh waste, oxide material and other dispersive waste, de-lithiated Beta Spodumene (DBS), dense medium separation rejects, pegmatite mineralised waste, laterite, and all other waste types produced from the mine.

- Water pipeline: A 136 km pipeline from the great Eastern Highway tie-into the Mt. Holland mine site has been constructed to feed the water required for the project.

- Aerodrome: The aerodrome is a Code 2C CASA certified runway

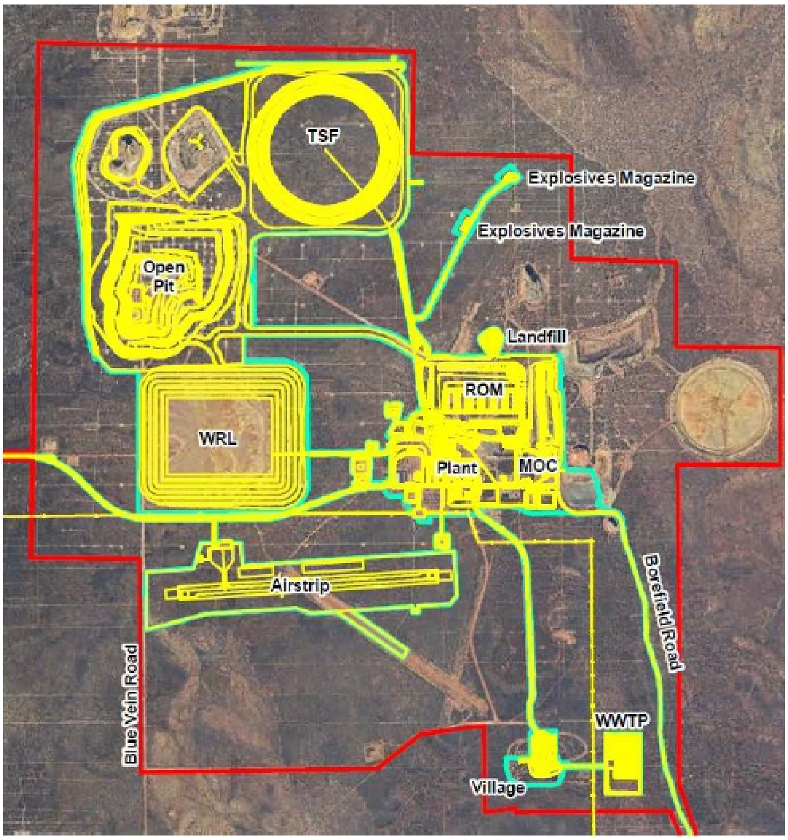
- Accommodation Village: The accommodation village is located on the historical Bounty camp site and is comprised of: Accommodation capacity for 550 personnel consisting of 250 permanent rooms and 300 rooms during construction of the Project; Common user facilities including kitchen facilities, dining hall, wet mess, administration offices, gymnasium, medical, recreational facilities, ice room and storage; Wastewater and sewage treatment will be carried out within a central facility located in the village area.

- Powerlines and power sources: The project is planned to connect to the state grid network, sourced from 33kV grid connection to the South-West Interconnected System at Bounty Substation. A diesel power back up will be available for critical infrastructure.

- Building infrastructure: Civil infrastructure on the concentrator site includes site roads, buildings and other built infrastructure. The buildings and structures that have been considered include the Administration Office, Training Facility, Ablution, Emergency Services Building, Workshop & Workshop Office, Warehouse & Warehouse Office, Laboratory, Core yard, Reagents Storage Shed, Gatehouse, Primary Crushing Operators Hut and the Central Control Room (CCR).

- Communications infrastructure: The Mt. Holland site will have a primary data center and communications link with secondary backups for business continuity. The site will also have digital radios which includes location tracking in restricted areas (such as flora and fauna exclusion zones).

Figure 15-1. Mine Site and Concentrator Infrastructure for first 10 years



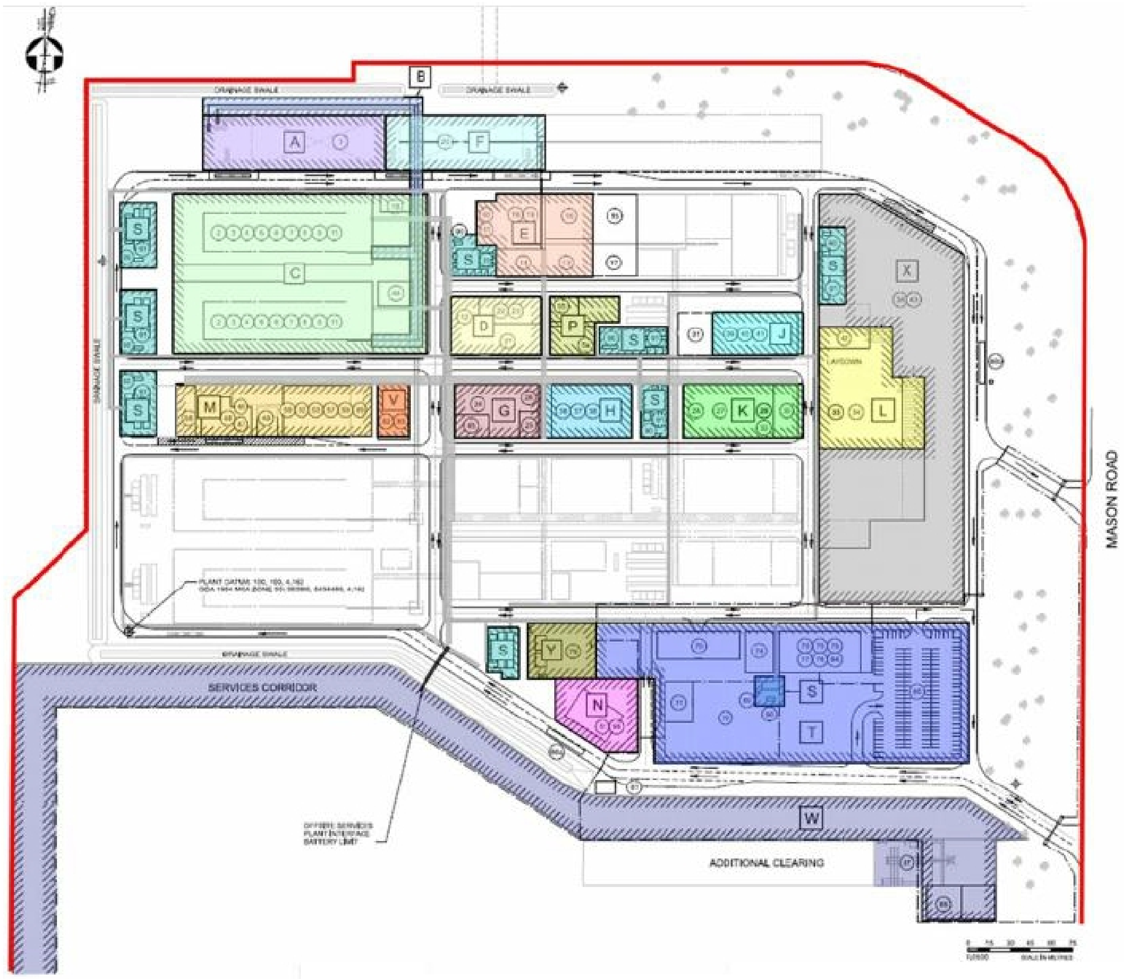
Source: Covalent

15.2 Refinery

The refinery layout is shown in Figure 15-2. The refinery infrastructure includes establishment of an electrical substation, water and water treatment services, a services corridor and containment infrastructure as well as civil infrastructure including buildings and roads.

- Power connection. The power connection at the refinery assumes a 132 kV connection to Western Power's southwest interconnected network. The dual feed connection is 500 m southeast from Mason Road substation and 1000 m northeast of the Leath Road substation relative to the development site.
- Gas connection: Natural gas is required for calcination, acid roasting, boiler, sodium sulphate drying and/or site operations. The refinery gas connection assumes a connection to local industrial gas supply network.
- Building infrastructure: The NPI infrastructure at the refinery consists of administration buildings, offices, workshops, laboratory, control rooms and crib rooms for operational and support services.
- Communications infrastructure. The Kwinana site will have similar communication infrastructure to Mt. Holland with primary data centres and communications link with secondary backups for business continuity.

Figure 15-2. Refinery layout at Kwinana



A, B, C: Pyromet Area, **D, E, G, H, J, K**: Hydromet Area, **F, L**: Final Products Area, **M, N, P, R, S, Y**: Utilities, **T, U, V, W, X**: Non-process infrastructures and other supporting infrastructures.

Source: Modified from UIDFS (2020)

16 MARKET STUDIES

16.1 Introduction

WSP was engaged by SQM to perform a Market study to support the resource and reserve estimates for the Salar de Atacama SQM Operations and it was used also for the Mt. Holland Project. The market study and summary detail contained herein present a forward-looking price forecast for applicable lithium products. This includes forward-looking assumptions around supply and demand. The QP notes that as with any forward-looking assumptions, the eventual future outcome may deviate significantly from the forward-looking assumptions.

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

SQM is a leading producer of lithium carbonate, which is used in a variety of applications, including electrochemical materials for batteries used in electric vehicles, portable computers, tablets, cellular telephones and electronic apparatus, frits for the ceramic and enamel industries, heat-resistant glass (ceramic glass), air conditioning chemicals, continuous casting powder for steel extrusion, pharmaceuticals, and lithium derivatives. It is also a leading supplier of lithium hydroxide, which is primarily used as an input for the lubricating greases industry and for cathodes for high energy capacity batteries.

In 2020, the SQM´s revenues from lithium sales amounted to US$383.4 million, representing 21.1% of the total revenues. The lithium chemicals' sales volumes accounted for approximately 19% of the global sales volumes.

16.2.1 Lithium Market

The lithium market can be divided into:

- lithium minerals for direct use (in which market SQM does not currently participate directly)
- basic lithium chemicals, which include lithium carbonate and lithium hydroxide (as well as lithium chloride, from which lithium carbonate may be made), and
- inorganic and organic lithium derivatives, which include numerous compounds produced from basic lithium chemicals (in which market SQM does not participate directly).

Lithium carbonate and lithium hydroxide are principally used to produce the cathodes for rechargeable batteries, taking advantage of lithium's extreme electrochemical potential and low density. Batteries are the leading application for lithium, accounting for approximately 75% of total lithium demand, including batteries for electric vehicles, which accounted for approximately 54% of total lithium demand. There are many other applications both for basic lithium chemicals and lithium derivatives, such as lubricating greases (approximately 5% of total lithium demand), heat-resistant glass (ceramic glass) (approximately 5% of total lithium demand), chips for the ceramics and glaze industry (approximately 2% of total lithium demand), chemicals for air conditioning (approximately 1% of total lithium demand), and many others, including pharmaceutical synthesis and metal alloys. During 2020, lithium chemicals demand increased by approximately 6%, reaching approximately 330,000 metric tonnes. It expects applications related to energy storage to continue driving demand in the coming years.

16.2.2 SQM Lithium Products

The annual production capacity of the lithium carbonate plant at the Salar del Carmen is now 120,000 metric tonnes per year. SQM is in the process of increasing the production capacity to 180,000 metric tonnes per year. Technologies used, together with the high concentrations of lithium and the characteristics of the Salar de Atacama, such as high evaporation rate and concentration of other minerals, allow SQM to be one of the lowest cost producers worldwide.

The lithium hydroxide facility has a production capacity of 21,500 metric tonnes per year and SQM is in the process of increasing this production capacity to 30,000 metric tonnes per year.

In February 2021 SQM approved the investment for the 50% share of the development costs in the Project, from which SQM expects a total production capacity of approximately 50,000 metric tonnes (25,000 metrics tonnes are attributable to SQM).

16.2.3 Lithium Competition

Lithium is produced mainly from two sources: concentrated brines and minerals. During 2020, the main lithium brines producers were Chile, Argentina and China, while the main lithium mineral producers were Australia and China. With total sales of approximately 101,00 metric tonnes of lithium carbonate and hydroxide, SQM’s market share of lithium chemicals were approximately 19% in 2021.

One of the main competitors is Albemarle Corporation (“Albemarle”), which produces lithium carbonate and lithium chloride in Chile and the United States, along with lithium derivatives in the United States, Germany, Taiwan and China, with a market share of approximately 22%. Albemarle also owns 49% of Talison Lithium Pty Ltd. (“Talison”), an Australian company, that is the largest producer of concentrated lithium minerals in the world, based in Western Australia. The remaining 51% of Talison is owned by Tianqi Lithium Corp. (“Tianqi”), a Chinese company producing basic lithium chemicals in China from concentrated lithium minerals. Talison sells a part of its concentrated lithium mineral production to the direct use market, but most of its production, representing approximately 21% of total lithium chemical demand, is converted into basic lithium chemicals in China by Tianqi and Albemarle. Currently, Tianqi and Albemarle are expected to begin production at their new lithium hydroxide plants in China and Australia, which are expected to be operational during 2022. Tianqi is also a significant shareholder of SQM, holding approximately 23.15% of our shares as of March 1, 2022. .

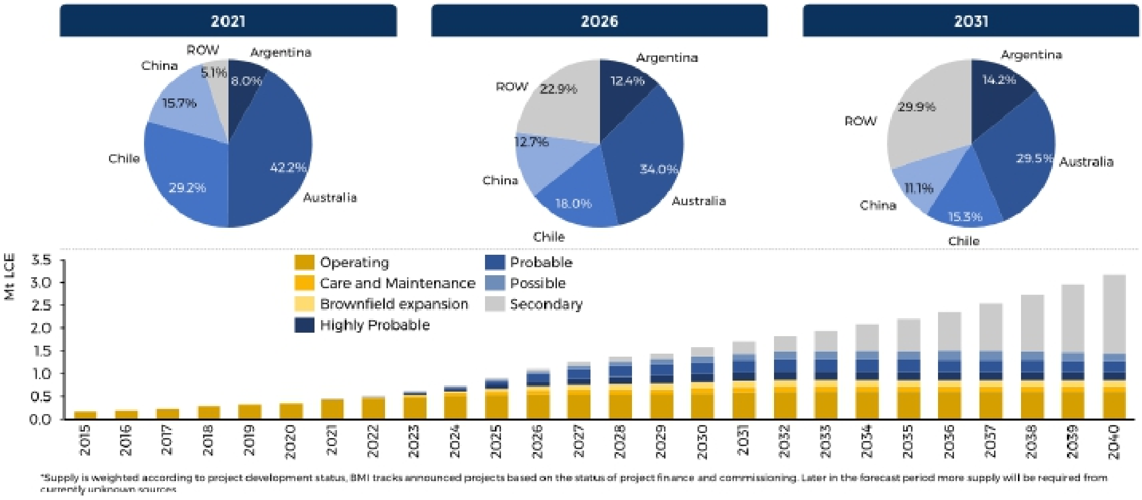
Another important competitor is Livent Corporation (“Livent”), with an estimated market share of approximately 6%. Livent has production facilities in Argentina through Minera del Altiplano S.A., where it produces lithium chloride and lithium carbonate. In addition, Livent produces lithium derivatives in the United States, the United Kingdom and China. Orocobre Ltd., based in Argentina, produces lithium carbonate, with a market share of approximately 3%.

Australia is an important source of concentrated lithium minerals. Since 2018, two producers have doubled their production of concentrated mineral, which is currently converted into lithium chemicals in China. One of these producers is a joint venture between Ganfeng Lithium Co. (“Ganfeng”) and Mineral Resources Ltd in the Mt. Marion project. Galaxy Resources Ltd. is another important producer with operations in Mt. Cattlin. Additionally, Pilbara Minerals has been operating since 2018 in the Pilgangoora deposit. In addition, there were at least ten other companies producing lithium in China from brines or minerals in 2020. It is expected that lithium production will continue to increase in the near future, in response to an increase in demand growth. A number of new projects to develop lithium deposits has been announced recently. Some of these projects are already in the advanced stages of development and others could materialize in the medium term.

16.3 Lithium Supply Forecast

According to Benchmark Mineral Intelligence “Q3 2021 Forecast”, 2021 mined supply has been revised up to 458.6 kt LCE. It is estimated that 136.3kt of lithium hydroxide and 283kt of lithium carbonate will be produced in 2021 (Figure 16-1 and Figure 16-2). This increase is unlikely to meet rising demand, placing both chemicals in a deficit position, reflecting the strong demand-pull for feedstocks currently being felt in China.

Figure 16-1 Lithium Feedstock, supply forecast



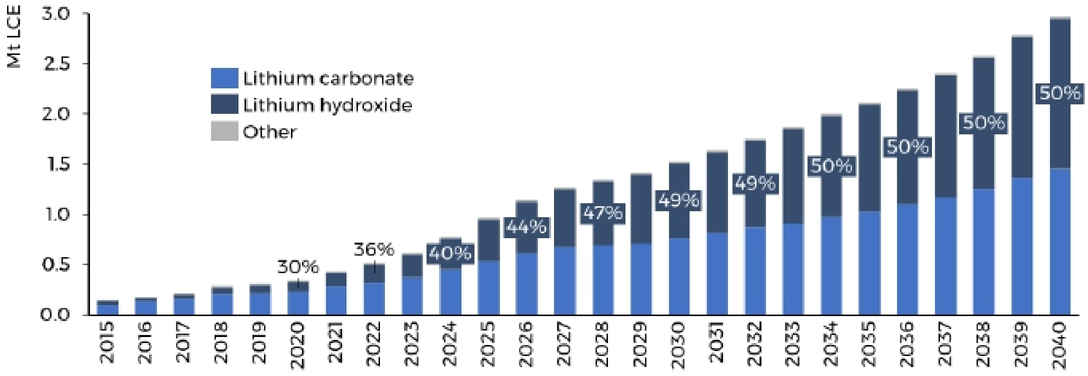
*Supply is weighted according to project development status, BMI tracks announced projects based on the status of project finance and commissioning. Later in the forecast period more supply will be required from currently unknown sources

Source: SQM-Benchmark Minerals Intelligence (2021)

In China is expected to produce around 153kt LCE of lithium carbonate, and 110kt LCE of lithium hydroxide in 2021. The majority of feedstock is imported. Most lithium chemical production in China is produced from Australian spodumene, in addition to a very small amount imported from Brazil. Supplementing this, and largely feeding directly into battery demand, is 41kt LCE of lithium carbonate imported from Chile and Argentina in the first half of 2021.

In Australia, there are four spodumene producers currently operating, with around 191kt LCE of spodumene concentrates expected to be produced in 2021.

Figure 16-2 Lithium Chemical Supply Breakdown



*Supply is weighted according to project development status. BMI tracks announced projects based on the status of project finance and commissioning. Later in the forecast period more supply will be required from currently unknown sources.

Source: SQM-Benchmark Minerals Intelligence (2021)

In Argentina, there are currently two lithium producers: Livent and Orocobre. These producers operate from the Salar del Hombre Muerto and Salar de Olaroz respectively. Expectations on output for 2021 remains unchanged this quarter, with both operating at or close to production capacity.

In Chile the main producers are: SQM and Albemarle. Albemarle is expected to produce around 42kt LCE of lithium carbonate in 2021. MSB (majority owned by Lithium power International) is targeting an initial capacity of 15kt LCE for its Maricunga project, not expected to enter the market until 2025.

16.4 Demand

According to Benchmark Mineral Intelligence "Q3 2021 Forecast", demand estimates for lithium in LFP (Lithium Ferro Phosphate) cathodes have increased in Q3 2021 to 66.4kt LCE in 2021. Medium and long-term demand has also been revised upwards as cell manufacturers continue to bring new LFP capacity into production.

Increased demand for LFP cathodes comes at the expense of NCM (Nickel, Cadmium and Manganese) cathodes. LFP cathode market share is expected to make up roughly 22% of cathode demand in 2030, while NCM has been downgraded to 60% of the market.

According to Benchmark Mineral Intelligence "Q3 2021 Forecast", Total base-case battery demand is expected to climb to 346 GWh in 2021, translating to an adjusted 339kt LCE lithium demand in 2021, up from 225kt LCE in 2020. Adjusted base case demand from battery end-use is expected to reach 473kt LCE in 2021. The upward revision comes as China's EV penetration rates continue to climb.

16.5 Balance

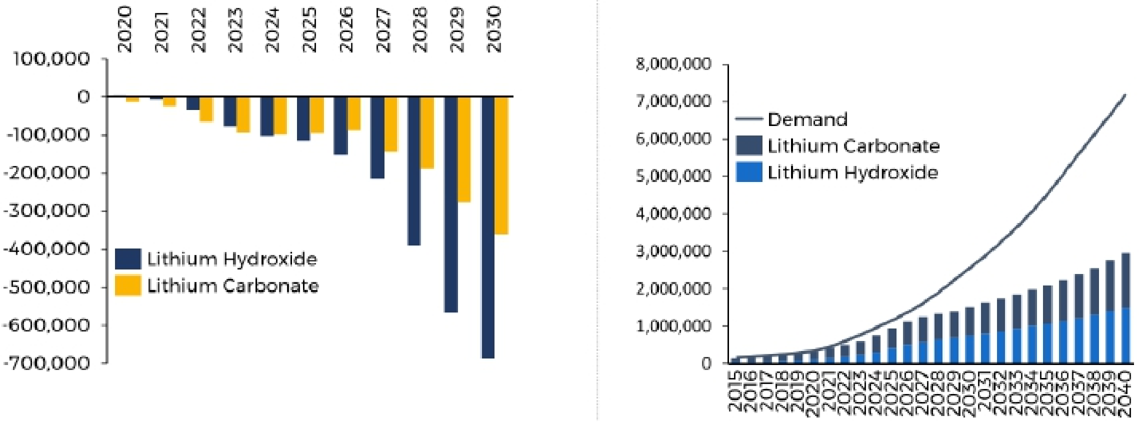
According to Benchmark Mineral Intelligence “Q3 2021 Forecast”, the balance for the Short-term market is:

- 2021 is expected to finish in a deficit position of around 14.8kt LCE tonnes. The deficit position is despite a stronger than expected response from Talison and SQM, with the latter being able to leverage pond capacity originally intended for the potash market.
- 2021 base-case demand has been revised up to 473kt LCE this quarter, with further upside potential.
- The deficit in lithium chemicals is greater than that of overall supply, owing primarily to conversion losses but also the lack of ability to ramp up to full capacity targets, particularly in China.
- A renewed focus on LFP battery production is expected keep pressure on carbonate supply in the short-term. This latest update shifts the deficit more heavily towards carbonate from 2021-2023.

Medium to long term market dynamics

- 2023 is expected to be in a significant deficit position despite the restart of various idled operations.
- Due to the ramp-up time and investment required to bring new projects online, there is little chance that the market will move into surplus before 2025.
- In the extremely unlikely event that all projects to enter production on or before 2025, the market has the potential to balance from that year until 2029. However, in this case, it would be likely that demand would enter an upside scenario, placing the market back into a deficit. Figure 16-3 shows the projected demand and lithium supply.
- It is likely that in the medium-long term that PEV penetration will be limited by material supply, rather than demand.

Figure 16-3 Lithium Chemicals Balance (Tonnes LCE)



Source: SQM-Benchmark Minerals Intelligence (2021)

16.6 Lithium Price

Figure 16-4 shows the historic lithium price evolution in the last five years, expressed in yuan.

Figure 16-4 Lithium historic Price evolution

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

The short- and long-term prices are based on the Benchmark Minerals Intelligence forecast (2021):

- Short 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: According to Benchmark Mineral Intelligence “Q3 2021 Forecast”, Prices are expected to increase but likely to be unsustainable at US$16,000-18,000/tonne. Even in the case where supply cannot meet demand, prices will likely stay high but fall back to a sustainably higher price which is able to incentivize new supply. While the chemicals industry in China seems to have little barrier to ramping up, supply bottlenecks at the mine-site level exist and will need to be solved. Long-term price incentives: it remains the view that long-term incentive price for lithium carbonate of US$ 12,110/tonne and for lithium hydroxide of 12,910 US$/tonne will be required to sustain new project development post-2030.

16.7 Contracts and Status

Under the Unincorporated Joint Venture Agreement each joint venture partner will receive the products produced by the Joint Venture in pro-rata to their interest in the Joint Venture, currently being 50% for SQM.

SQM has not entered into any binding agreements that directly assigns the production SQM will receive from the Project.

17 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

17.1 Baseline studies

Multiple environmental baseline studies were undertaken over the life of the Mt. Holland mine site and the Project between 2005 and 2021. The studies identified species of flora and fauna that required protection within the development envelope. As such, Exclusion zones and offsets were imposed under the Ministerial Statement 1118 (MS1118) and the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act.) As shown in Table 17-1 below, systems and procedures have been developed and implemented to support ongoing management of flora and fauna on site.

A detailed site survey of historical legacy areas within the development envelope was completed to establish and quantify historical disturbances and baseline contamination prior to the commencement of operations and to verify the extent of any future liability associated with utilizing the historical site.

17.1.1 Vegetation

The mine development envelope is situated within the designated area and buffer for the Ironcap Hills Vegetation Complexes (Mount Holland, Middle, North and South Ironcap Hills, Digger Rock and Hatter Hill) (banded ironstone), a Priority 3 Ecological Community (PEC). A quantitative statistical review of species and vegetation communities observed within the development envelope as compared to the Ironcap Hills vegetation complexes was completed by Mattiske Consulting (2018). The statistical analysis reveals a poor correlation between the identified vegetation communities, dominant vegetation types and representative species associated with Ironcap Hills Vegetation Complexes in addition to the lack of comparative landforms and geology associated with the Priority Ecological Community (PEC). Given this analysis, it was considered the Project was not expected to result in significant impacts to the Ironcap Hills PEC.

Populations of Banksia *sphaerocarpa var. dolichostyla* classified as a ‘threatened’ species under the Environmental Protection Act 1986 (EP Act) and the Commonwealth EPBC Act have been identified in and around the disturbance footprint within the development envelope. Dedicated flora exclusion zones were imposed under MS1118 and require Covalent to undertake ongoing monitoring and protection of the populations within these zones with any impact to plants caused by the operations considered a breach of approval conditions. Exclusion zones were also imposed on a Priority 1 species, *Microcorys elatoides* and *Acacia lachnocarpa*, Priority 2 species, *Orianathera exillis*, and Priority 3 species, Hakea pendens. Both Ironcap Banksia and Microcorys elatoides species require offsets under MS1118 and the Ironcap Banksia require offsets under the EPBC approval conditions.

Baseline flora and vegetation survey work has been conducted by Mattiske Consulting within the disturbance envelope and extending 1km beyond the EPA assessed development envelope boundary. The surveys identified a total of 26 conservation significant flora species which will be directly or indirectly impacted by the Project. The mitigation hierarchy of ‘avoidance, minimize, rehabilitation, offset’ has been applied to manage and minimize impacts to conservation significant flora. The infrastructure footprint has been designed to ensure the maximum avoidance possible of conservation significant flora. Impacts to conservation significant flora will be managed according to the Flora and Vegetation Environmental Management Plan. Intensive targeted flora surveys throughout the region were successful in identifying additional populations of each species resulting in a significant increase in total regional population numbers. This has ultimately reduced the proportional impact threshold to 10 per cent, the level confirmed by Department of Water and Environmental Regulation (DWER) to be an acceptable level of impact. In addition, approximately 25% of the disturbance envelope consists of previously cleared land.

Preservation of both the flora exclusion zones and individual populations of priority species outside of these exclusion zones will require ongoing intensive management throughout the construction and operations phases. Systems and procedures have been developed by Covalent to support ongoing management of flora on site.

17.1.1.1 Biodiversity

The site consists of flora, vegetation and communities ranging in condition from completely degraded in existing disturbed areas to excellent in remnant bushland areas with numerous conservation significant species within the Disturbance Envelope. Whilst the utilization of existing infrastructure and purposeful location of new infrastructure within existing disturbed areas has reduced the impact, it is recognized that the implementation of the proposal will result in the loss of 386 ha of vegetation including conservation significant species. However, this impact has been assessed by the EPA under Part IV of the EP Act and the MS1118 required the preparation and implementation of an EPA approved Flora and Vegetation Environmental Management Plan. Weeds and pathogens (notably dieback) present a risk to biodiversity and although the weed and pathogen presence in the Disturbance Envelope is low, appropriate active management through the implementation of the Flora and Vegetation Management Plan, Dieback Management Plan and hygiene procedures will be required to ensure that they do not pose a significant risk to regional biodiversity.

17.1.2 Fauna

Detailed baseline fauna surveys comprising of six field surveys were conducted by Western Wildlife in 2016 and 2017 (Western Wildlife, 2017). Three broad fauna habitats were identified, which are well presented regionally and are not unique to the Project development envelope. Although the fauna habitats identified are extensive in the region, they are regionally significant in being part of the Great Western Woodlands (GWW). Malleefowl and chuditch were also located within the development envelope during fauna surveys. Both species are classified as ‘vulnerable’ under the EPBC and EP act. MS1118 also imposed exclusion zones around 31 active and long unused mallee fowl mounds within the development envelope requiring Covalent to provide ongoing protection and monitoring of these mounds.

Land acquisition offsets were also required under conditions of the Commonwealth and State approvals and a suitable offset has been identified and is awaiting endorsement from DWER and Department of Agriculture, Water and the Environment (DAWE). Population surveys and trapping of chuditch and monitoring of malleefowl mounds are required prior to each clearing activity to remove the risk of injury to any individuals that may be present in the proposed clearing area. There are some restrictions to clearing activities during the breeding season so planning and scheduling of clearing activities needs to manage this.

17.1.2.1 Biodiversity

The existing disturbance across the site means that the area does not support a significant complement of native fauna. Further, new infrastructure such as the water pipeline has been purposefully located within existing disturbed areas to minimize direct impacts from clearing and habitat fragmentation. Subterranean fauna was also investigated as part of the baseline assessment, and it was concluded that the project is not considered to pose a significant threat and no specific subterranean fauna management is required.

For any sections of the water pipeline that must be constructed aboveground to avoid areas of granite outcrops, the pipeline will be located to allow fauna egress around the pipe. The requirement for aboveground sections is not expected to span over long distances as the preferred construction method is trenching. As stated in the approval of the Section 45C by the EPA, the addition of the water pipeline to the Project does not pose a significant detrimental effect on the environment.

The project is considered to have minimal impact on fauna biodiversity if managed and implemented in accordance with the Terrestrial Fauna Management Plan, which has been prepared in accordance with requirements of the MS1118, and subsequently approved by EPA.

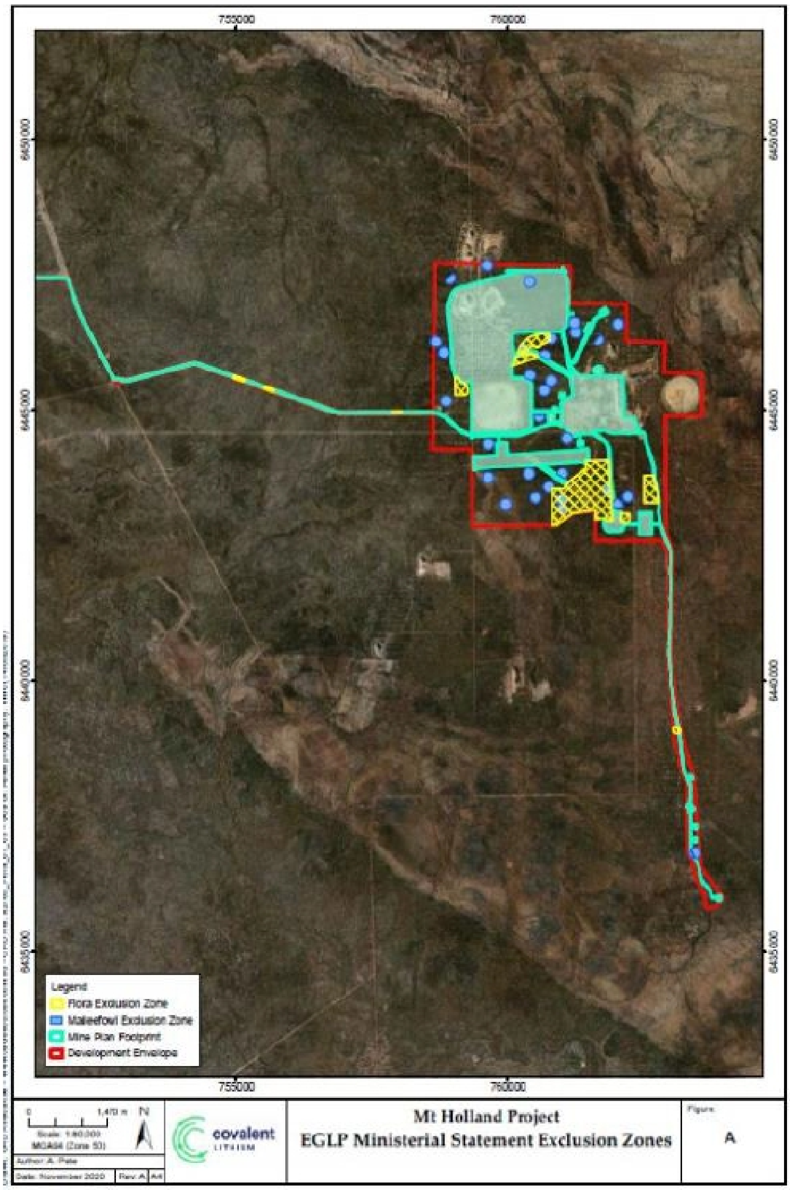
17.1.3 Contaminated sites

A detailed site survey of historical legacy areas within the development envelope was completed to establish and quantify baseline contamination prior to the commencement of operations and to verify the extent of any future liability associated with utilizing the historical site. Sampling was focused around the historical infrastructure areas on tenement M77/1066 using test pits with samples sourced from within the top one to four meters of the soil profile using an excavator.

Results indicated elevated levels of hydrocarbons were present in soil within the historic washdown bay, fueling area and workshops exceeding Ecological Screening Levels and/or Health Screening Levels for vapor intrusion for commercial/industrial land. Sampling also indicated elevated metals were present in surface soils across most of the historical infrastructure area.

Per- and poly fluoroalkyl substances (PFAS) were present in soils within the workshops but at concentrations below human health screen values. Sampling of the historical landfill found elevated coliform and nutrient levels whilst asbestiform containing materials were not identified in surface soil within the historic ROM pad Results of the survey were submitted to DWER as required under the Contaminated site regulations and the site has been classified as ‘Possibly contaminated – investigation required.’ Investigations have commenced (Stage 1 and Stage 2 DSI) and a Site Management Plan detailing remediation activities is being developed. The majority of these remediation activities will be undertaken at the end of life of the project when facilities are decommissioned.

Figure 17-1. Priority species exclusion zones



Source: Covalent

17.2 Permitting

The Project was formally referred to the Western Australian Environmental Protection Authority (EPA) under Section 38 of the Environmental Protection Act 1986 (EP Act) on 19 May 2017 by Kidman Resources. The EPA determined that a Public Environmental Review level of assessment was required.

Ministerial Statement 1118 (MS1118) was issued in November 2019 and the Project was also approved by the Department of Agriculture, Water and Environment (DAWE) under the provision of the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) in February 2020. The above approvals contained conditions that the Project must comply with in the development of the Project, the approval requirements and status are outlined in Table 17-1 below.

Table 17-1 Approvals required for the project and completion date.

Approval	Regulatory Body	Purpose	Status
Mt. Holland – Mine & Concentrator			
Commonwealth Approval (EPBC)	DAWE	Required to break ground	Approved
Variation to condition (Flora)	DAWE	Required to break ground	Approved
Ironcaps Banksia Conservation Plan	DAWE	Required to break ground	Approved
Fauna Offsets Management Plan (Stage 1)	DAWE	Required to break ground	Approved
Fauna Offset (Additional sites) Management Plan	DAWE	Required within 12 months of approved Plan. Not required to break ground	Expected in Q3 2022
Fauna Offset Management Plan	DAWE	LoM required to break ground	Pending
Ministerial Statement MS1118	DWER	Required to break ground	Approved
Ministerial Statement Part IV amendment (s46)	DWER	Required to remove layout restrictions	Approved
Ministerial Statement Part IV amendment (s45c) for Water Pipeline	DWER	Required to break ground for the Water Pipeline	Approved
Flora and Vegetation Management Plan	DWER	Required to break ground	Approved
Terrestrial Fauna Management Plan	DWER	Required to break ground	Approved
Ministerial Statement Part IV amendment (s38) – Stage 1	EPA WA	Required for wet TSF construction	Expected in Q2 2022
Ministerial Statement Part IV amendment (s38) – Stage 2 LoM	EPA WA	Not required until year 9 of mining operations	Pending
Threatened Fauna Land Acquisition Strategy	DWER	Required to break ground	Approved

Approval	Regulatory Body	Purpose	Status
Flora Offset Strategy – Translocation Proposal	DWER	Required prior to removal of banksia	Pending
Mining Proposal & Mine Closure Plan (Stage 1)	DMIRS	Required to break ground	Approved
Mining Proposal & Mine Closure (s46 & 45c Stage 1b)	DMIRS	Required to construct pipeline	Approved
Mining Proposal amendment (TSF Stage 2)	DMIRS	Required to construct TSF	Expected in Q2 2022
Mining Proposal amendment (LoM)	DMIRS	Required for LoM TSF and WRL	Pending
Works Approval Concentrator	DWER	Required to construct	Approved
Works Approval – TSF	DWER	Required to construct	Expected in Q2 2022
Works Approval – Permanent Village & WWTP	DWER	Required to construct	Approved
Works Approval – Landfill	DWER	Required to construct	Expected in Q2 2022
Works Approval – Waste Disposal of Refinery Waste	DWER	Required to dispose Refinery Waste at Mt. Holland	Expected in Q3 2022
Refinery			
Development Application	City of Kwinana	Required to break ground	Approved
Development Application Amendment	City of Kwinana	Required to include changes to footprint and design	Approved
EPA Part IV Referral	EPA WA	Required to break ground	Approved
Refinery Works Approval	DWER	Required to construct	Approved
NVCP - Refinery	DWER	Required for refinery carpark	Pending

Source: Based on Covalent

17.3 Waste Rock and Tailings

17.3.1 Mt. Holland

The development of the Mine Pit will be staged, requiring mining of varying types of waste rock to expose fresh ore. Covalent has undertaken significant analysis of waste rock types for the purpose of waste rock management, the waste rock types to be excavated from the Mine Pit include fresh waste rock (geochemically benign, erosion resistant), transitional waste rock (slightly moderately saline, low soluble toxicants, varying erosion resistance) and oxide waste rock (low soluble toxicants, saline, dispersive). The development of the Mine Pit will be staged requiring mining of the varying types of waste rock (from oxide waste rock at the surface to fresh waste rock at depth) to expose fresh ore. This approach will allow the construction of the Waste Rock Landforms to be staged to encapsulate the oxide and transitional waste rock within the fresh, competent waste rock as the Mine Pit development progresses. Dispersive oxide and transitional materials, in all waste rock landforms, will be encapsulated with fresh competent waste rock to minimise the potential for post-mining erosion or sedimentation. Laterite material may also be disposed to a Waste Rock Landform as a fresh waste rock, utilised as fresh waste rock for final rehabilitation of a Waste Rock Landform, and/or used as a construction material (e.g., road base, fill, rehabilitation armouring).

Tailings from the Project will be disposed to a standard wet Tailings Storage Facility (to replace Integrated Waste Landform based on dry tailings), consistent with DMIRS (2013) documentation. Geochemical characterisation of the tailings has confirmed to be environmentally benign (non-reactive, non-polluting), therefore a proposal to utilise a 'wet' Tailings Storage Facility was submitted to the EPA in August 2021.

All waste rock and wet tailings infrastructure will be managed in accordance with relevant guidelines published by DMIRS and regulated in according with the Mining Proposal as assessed and approved by DMIRS. Groundwater quality will be monitored through a groundwater monitoring programme utilising existing monitoring bores and a series of new monitoring bores to be installed around the TSF and WRL. This programme will confirm any leaching of waste materials from the WRL and seepage from the TSF.

When the waste rock landform and tailings storage facility are decommissioned, they will be rehabilitated using local provenance plant material and seed. Ongoing monitoring of both infrastructure facilities (for erosion and stability) and for plant germination will be required over a long term to confirm rehabilitation is sustainable and the areas can be handed back to the state with no ongoing liability or legacy.

17.3.2 Refinery

The location of the Proposal (Lot 15 Mason Road, Kwinana) was purposefully selected to be situated within an existing industrial area (KIA), and on a previously disturbed site, thereby minimising the potential disturbance and impacts to the existing environment. The Project has considered the mitigation hierarchy in the development, which resulted in the avoidance of any refinery waste disposal to landfill on the Swan Coastal Plain and have given the consideration to whether refinery process-derived waste products can be avoided or reduced by considering them as beneficial reuses of waste as secondary co-products.

Where Covalent is not able to allocate the inert refinery process-derived waste from the refinery for reuse, it is proposed to be returned to the mine operations for co-disposal within the approved Waste Rock Landform. Geochemical characterisation has confirmed the refinery waste to be environmentally benign (non-reactive, non-polluting) such that it does not present any new or additional environmental risk for the Mt. Holland site. For additional context, the volume of the refinery waste will represent approximately 5% of the total volume of materials for disposal to the Waste Rock Landform.

17.4 Social or Community Impacts

Stakeholder engagement with State departments and local government authorities commenced in late 2016 and an external stakeholder consultation strategy is being developed for ongoing social engagement and community investment.

The Project has entered into a native title agreement with the Marlinyu Ghoorlie group in September 2020 to grant tenements required for the project.

The Marlinyu Ghoorlie Native Title Claim (MG Claim) (Reference Federal Court number: WAD647/2017; NNTT number: WC2017/007) was made by Brian Champion (Snr) and others in late 2017. It covers an area of approximately 98,638 km2 to the east of Kalgoorlie, including the area where the Project is expected to be built. Figure 17-2 shows an outline of the Marlinyu Ghoorlie claim area with the approximate location of the project site. The claim is currently being assessed by the Native Title tribunal.

Figure 17-2. Map showing extent of Marlinyu Ghoorlie claim – WC2017/007

Ongoing stakeholder identification, communication, engagement, and consultation have and will continue through planning and approvals, construction, operational and closure phases.

The Project has also developed an Australian Industry Participation (AIP) plan, which has been approved by the AIP Authority. In accordance with the plan, the Project will continue to engage with local government and bodies to ensure that local labour and businesses are used wherever economically practicable in the construction and operation of the Project.

17.5 Mine Closure Planning and Rehabilitation

17.5.1 Mine Closure Planning

The objective of all rehabilitation and decommissioning is to ensure that premises are decommissioned and rehabilitated in an ecologically sustainable manner. The Mine Closure Plan (MCP) have been submitted to the Department of Mines, Industry Regulation and Safety of the Government of Western Australia (DMIRS) with the Mining Proposal and was subsequently approved as shown in Table 17-1. However, mine closure planning is a progressive process and MCP require ongoing review, development, and continuous improvement through the life of the mine. The level of information required needs to recognize the stage of mine development with detail increasing as the mine moves toward closure. Financial forecasts for the Project have included provisions for cost related to mine closure planning.

17.5.2 Rehabilitation

The objective of all rehabilitation is to provide a stable self-sustaining landform and will be performed in accordance with the regulations and guidelines. The Project intends to, where practicable, progressively rehabilitate disturbed land as areas become available.

All completed rehabilitated areas will require annual monitoring to ascertain the rehabilitation is tracking towards a successful sustainable outcome. Monitoring will include plant density, diversity, reproduction of juveniles, foliar cover, erosion, and stability of landform analysis. Sustainable rehabilitation over a long term is required to be demonstrated before responsibility for the land can be relinquished. Financial forecasts for the Project has included provisions for cost related to rehabilitation.

17.6 QP’s opinion on adequacy of current Environmental, Social and Governance plans

In terms of environmental studies, permits, plans, and relations with local groups, the Project submitted an Environmental Impact Assessment (EIA) complying with the established contents and criteria, and the legal requirements of current environmental regulations in Western Australia. The approvals for the Project have been received and the construction of the facilities are under way. The QP recognizes that further environmental approvals are required to mine beyond the 10 years to the full Life of Mine of the Ore Reserves. It is anticipated that all impacts over the Life of Mine of the Project, beyond the first 10 years, can be readily managed and offset as required. The outstanding approval to build the TSF is on track and at the moment of elaboration of this report is not considered to represent a significant risk for the Project.

In addition, the project committed to some ongoing monitoring measures (including groundwater sampling, soil analysis and vegetation health monitoring) to detect any effects on the environment them as a result of the project implementation. This will allow the project owner to implement controls and mitigations measures in the unlikely event that project related impacts were identified.

18 CAPITAL AND OPERATING COSTS

Capital and operating cost estimations in this report are a forward-looking exercise that rely upon assumptions and forecasts that are subject to change depending upon macroeconomic factors, unforeseen circumstances and new information becoming available. In all cases there are risks and unforeseen scenarios that may result in actual outcomes being different from those set out in the forward-looking statements and forecasts.

18.1 Capital Cost Estimates

The Project is comprised of two main sites: the mine and concentrator plant at the Mt. Holland mine site and the Refinery in the Kwinana strategic industrial area.

The total capital cost for the Project has been estimated at US$1,226 million in real terms. The portion attributable to SQM is 50% of the total capital cost. A summary of the total capital cost is provided in the Table 18-1 below.

Table 18-1. Capital cost by category

Capital cost category	**Amount (US$ million)**
Mine, concentrator and supporting infrastructure	37%
Refinery and non-processing infrastructure	45%
Corporate	5%
Contingency	13%
Total capital cost (including contingency)	1,226 (100)%
Escalation estimate (based on approx. 2.3 per cent per annum growth between the periods)	39
Total capital cost (including contingency and escalation)	1,265

The capital cost above is an updated estimate from the proposed amount presented to the joint venturers when making the investment decision in February 2021. The update from the amount presented to the joint venturers includes the mine plan that resulted from the reserves update performed during 2021 (Chapter 11 and Chapter 12 of this report). At the time of the investment decision, the joint venturers were presented a risk-adjusted P50 estimate that, due to high uncertainty, excluded a risk allowance for impacts from COVID-19. SQM approved an investment of approximately US$700 million to cover its share of the Project.

The capital cost estimate for the Project was compiled from various sources – each best placed to estimate the cost for a portion of the overall estimate. Table 18-2 shows the sources of the various estimates.

Table 18-2. Sources of the various capital cost estimates

Capital cost category	Estimate source
Mining	• Mining physicals (i.e. mine plan) estimated by Covalent. • Mining costs estimated by IQE – expert mining estimators.
Concentrator	• All concentrator Long Lead Items (LLI) costs based on firm prices, except the concentrator ball mill which is based on a budget price • Concentrator construction price (including installation of LLI) is based on an EPC price from a contractor.
Concentrator non-process infrastructure (NPI)	• The capital cost estimates for concentrator NPI are based on prices/rates sourced from specialist engineering consultants or construction contractors for each type of non-process infrastructure.
Refinery	• All refinery LLI costs are based on firm prices, subject to any final scope changes identified by as engineering definition increases. • Refinery construction price (including installation of LLIs) based on a detailed cost estimate prepared by Hatch's Regional Estimating Lead for Australia-Asia. • Technology packages based on vendor quotes of varying maturity ranging from budget pricing to firm pricing.
Refinery non-process infrastructure	• The capital cost estimates for refinery NPI are based on prices/rates sourced from specialist engineering consultants, construction contractors or service vendors for each type of non-process infrastructure.
Owner's costs	• Owner's costs have been estimated by Covalent from internal and external inputs. Where vendor / supplier guidance is available it has been used in the estimate. Owner's costs are distributed among the Refinery, Concentrator and Corporate costs.
Contingency	• Contingency has been calculated through a rigorous Quantitative Risk Assessment (QRA) process involving a risk assessment of the capital cost and determination of uncertainty ranges for key cost elements.
Escalation	• An escalation estimate has been prepared using a monthly forecast commitment profile for the Project capital cost over the project period With escalation rate based on a weighted average over relevant commodities.

Source: Compilation based on Covalent (2020, 2021)

For the purpose of the estimate, the exchange rate assumption was maintained from the UIDFS (2020) to be 0.70US$:1.00AU$.

18.2 Contingency

A detailed, probabilistic QRA of the Project capital cost estimate was completed prior to finalization of the 2020 UIDFS (2020). The QRA process included workshops with multidisciplinary teams to assess risk factors applicable to various components of the capital cost estimate and define appropriate uncertainty ranges for each component based on its risk profile.

18.3 Operating Cost Estimate

Project operating costs are shown on a LoM basis as from commencement of stable operation. Operating cost estimates are from inputs provided by Covalent, consultants, vendors, formal/informal tender processes, and other market information. Costs are categorized as follows: Mine and Concentrator, Refinery Corporate Royalty and Depreciation

The total operating cost is estimated at US$4,989/t of LiOH. The distribution of operating cost is shown in Table 18-3 and summarises the make-up of the total cost per tonne of LiOH for the Project. The methodology to calculate the total cost per tonne considers the average production operating costs over LoM.

Table 18-3. Distribution of operating costs

Total LoM unit cost	**share %**
Mine and Concentrator	50%
Refinery[7]	39%
Corporate	7%
Royalties	4%
Total	100%

The operating cost reported is an updated estimate from the proposed estimation prepared by Covalent in the UIDFS (2020). The sole update was the mine plan that resulted from the reserves update performed during 2021 (Chapter 11 and Chapter 12 of this report).

The operating cost estimate for the Project was compiled from various sources – each best placed to estimate the cost for a portion of the overall estimate. Table 18-4 shows the sources of the various estimates. For the purpose of the estimate, the exchange rate assumption was maintained from such study at 0.70US$:1.00AU$.

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[7] Refinery unit cost considers additional costs and credits arising from the sale of DBS or SSA. The total credit for DBS and SSA is equivalent to US$114 per tonne of LiOH.

Table 18-4. Sources of the various operating cost estimates

Operating cost category	Estimate source
Mining	• Mining physicals (i.e., mine plan) estimated by Covalent. • Mining costs estimated by IQE – expert mining estimators.
Concentrator	• Consumptions of reagents and utilities based on testwork conducted by Covalent and design information. • Prices based on vendor quotes of varying maturity ranging from budget pricing to firm pricing • Maintenance, general and administrative costs have been estimated by applying benchmark information and expected activity estimated by subject matter experts combined with vendor quotes where available. • Logistics costs based on tender responses and market information. • Labor based on detailed headcount review by subject matter experts and independent market data.
Refinery	• Consumptions of reagents and utilities based on testwork conducted by Covalent and design information. • Prices of key reagents based on Covalent forecast for indicator pricing and quotes received from vendors. • Other prices based on vendor quotes of varying maturity ranging from budget pricing to firm pricing. • Maintenance, general and administrative costs have been estimated by applying benchmark information and expected activity estimated by subject matter experts combined with vendor quotes where available. • Logistics costs based on tender responses and market information. • Labor based on detailed headcount review by subject matter experts and independent market data.
Corporate	• Based on detailed scoping of requirements to support the business by Covalent. Vendor pricing and budget quotes obtained where appropriate.
Royalty	• In accordance with the Mining Act and associated regulations, a royalty at five per cent has been applied to all the lithium concentrate sold or used as feedstock at the assumed market FOB price for spodumene concentrate .

Source: UIDFS and later updates (2020; 2021)

19 ECONOMIC ANALYSIS

The key financial metrics for the Project have been calculated using a purpose-built cash flow forecast model. The financial model forecasts expected cash flows over the Life of Mine and reflects the physical flow of lithium units based on the input process assumptions. The results are shown at a Project level and SQM's attributable portion is 50% of the amounts shown in this chapter.

The key assumptions are described in Section 19.1. The key outputs and sensitivities are presented in the following sections.

The economic analysis is inherently a forward-looking exercise based on assumptions and expectations in light of the available information, and are subject to risks, variables and uncertainties that may result in the actual results deviating from the expected outcomes.

19.1 Key assumptions

Most key assumptions are maintained from those used in the UIDFS (2020), including valuation date, discount rate, reagents prices, and exchange rate. Such assumptions were used for the purpose of evaluating the robustness and economic viability of the Project and do not represent a view of, and may differ from those used by, any of the joint venturers for their own valuation of the Project.

The key assumptions used in the financial model are outlined in Table 19-1.

Table 19-1. Key valuation assumptions

Key Valuation Assumptions		
Item	Unit	Value
Valuation date	Date	1 January 2021
Discount rate (real)	%	10
Tax rate	%	30.00
Foreign exchange US$:AU$	(:1)	0.70
Project Life	Years	51
Mine life	Years	50

The financial model assumes the valuation of the Project independently and does not take into consideration tax deductions from accumulated losses, if any, within SQM. Valuation is in real terms.

19.1.1 Production

The mine plan produces 83.7 million tonnes of ore as feed to the concentrator over LoM at varying grades. Spodumene concentrate is produced with an estimated average recovery of 77.2% per cent over the LoM to produce lithium oxide concentrate at a grade of 5.5 per cent. The concentrate is supplied to the refinery to produce a total of 2.37 million tonnes of LiOH (average of 50.3 ktpa) for the Project.

19.1.2 Revenue

The primary revenue source for the Project is LiOH, a small revenue contribution is generated from the sale of the co-products, SSA and DBS. In addition, during ramp-up of the Refinery the model assumes revenue is generated from the sale of excess spodumene concentrate.

The financial model conservatively assumed a LiOH price of US$11,000 per tonne of LiOH on a CIF basis and a spodumene concentrate price of US$550 per tonne of concentrate at 6% grade on a FOB basis.

The above prices are a conservative assumption used for the purpose of the valuation and do not represent a view or consensus of forward-looking prices or a commercial strategy for the Project by any of the joint venturers.

19.2 Valuation results

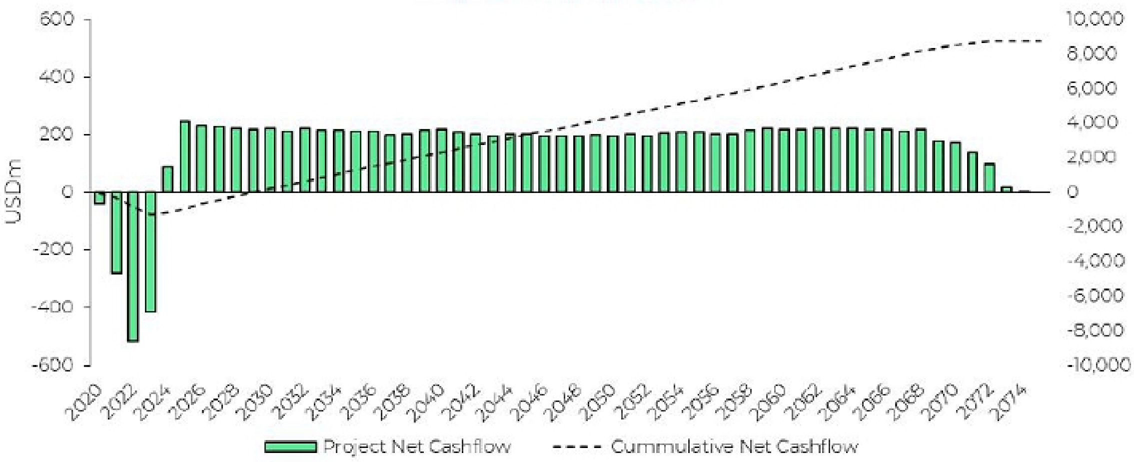
Based on the assumptions mentioned above, Table 19-2 shows the main financial outcomes for the Project. SQM's attributable portion of the net present value under such assumptions is US$288 million.

Table 19-2. Key financial outcomes

Key Project Metrics - LoM	Units	Mine Plan Optimization
NPV	US$ million	576
IRR	%	14.9
Payback	year	2029

Figure 19-1 shows the annual cashflow from the model over the life of the Project, where the attributable share for SQM is 50%.

Figure 19-1. Project annual cashflow



19.3 Sensitivity analysis

The objective of the sensitivity analysis is to provide visibility of 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 upside and downside to value. Table 19-3 and Figure 19-2 shows the sensitivity of the main issues that can impact the results of the project.

- **LiOH price:** This sensitivity assumes that the LiOH price decreases by US$1,500 per tonne of LiOH or increases by US$3,000 per tonne of LiOH.

- **CAPEX:** This sensitivity assumes that the total capital expenditure in the Project period increases or decreases by 10%.

- **OPEX:** This sensitivity assumes that the operating cost over the LoM increases or decreases by 10%.

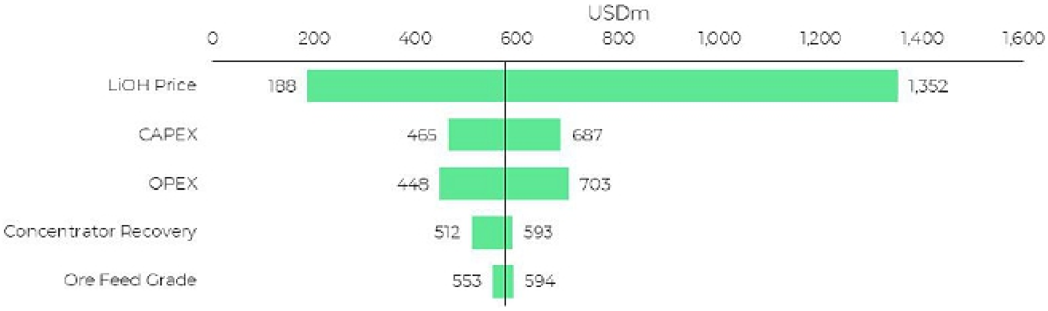
- **Concentrator Recovery:** This sensitivity varies the recovery across the different process stages of the concentrator (+3 per cent / -7 per cent). An increase in recovery decreases the ore feed required and lowers the cost per tonne of spodumene. A decrease in recovery has the opposite effect and the potential for spodumene concentrate refinery feedstock deficits, which leads to lost LiOH production. This would be an extremely unlikely case over the life of mine as either the recovery issues would be resolved, or the capacity of the concentrator increased to avoid the adverse impact of lost LiOH production.

- **Feed grade:** This sensitivity varies the estimated lithium ore grade mined through the life of the Project (+0.05 per cent / -0.05 per cent). Increasing the lithium grade lowers the required volume of ore feed to the concentrator, increasing recovery and therefore decreasing the unit cost of the spodumene concentrate to yield the same amount of LiOH. Decreasing the lithium grade has the opposite effect. The result is slightly skewed to the downside as in some periods there is insufficient capacity in the concentrator to feed the refinery, resulting in lost LiOH production during these periods.

Table 19-3. Sensitivity summary

Sensitivities		Sensitivity		
Scenarios	**Unit**	**Base**	**Downside**	**Upside**
LiOH price	US$/t	11,000	-1,500	+3,000
CAPEX	%	100	+10	-10
OPEX	%	100	+10	-10
Concentrator recovery	%	77.2	70.6	80.0
Ore feed grade	% Li_2O	1.57	-0.05	+0.05

Figure 19-2. Valuation sensitivity outcomes



20 ADJACENT PROPERTIES

On 21 December 2017 an agreement was entered into between Montague, Kidman Gold, MH Gold and SQM, granting to MH Gold and SQM Australia (the Joint Venturers) certain rights to access, explore, develop, and mine lithium and other minerals associated with pegmatites (excluding gold) (Lithium Rights Agreement, LRA) in licenses adjacent and around the Project.

Notwithstanding the above, it is worth noting that, except for M77/1065, the LRA does not include any of the Project Tenements immediately required for the Project.

No proprietary information associated with neighboring properties was used as part of this study. Other exploration areas exist on the Mt. Holland property area, and there is potential for disclosure of additional materials from these areas as they are developed. At the moment of elaboration of this report, no adjacent property requires any disclosure under the S-K 1300 regulations. The area is a historical mining district however the QPs are not aware of any other mineral exploration occurring on adjacent properties for Lithium or other commodities.

21 OTHER RELEVANT DATA AND INFORMATION

The QP is not aware of other relevant data and information that is not included elsewhere in this report. The QPs believe that all material information has been stated in the above sections of the TRS.

22 INTERPRETATION AND CONCLUSIONS

22.1 Results

22.1.1 Geology and Resources

Sufficient data have been obtained through various exploration and grade control drilling programs in the main property. Exploration techniques and QAQC procedures employed on the project are appropriate and sufficient to support the mineral resources according to the S-K 1300 regulations. Geology and mineralization are well understood across the deposit and are sufficient to support a resource estimation and a feasibility study. In the QP's opinion, the mineral resources stated in this report are appropriated for public disclosure and meet the definitions established in the SEC guidelines and industry standards.

22.1.2 Reserve and Mining Methods

The Ore Reserves Estimate is in line with previous Ore Reserves for the project (2018). The mine plan gives a Life of Mine of approximately 50 years at a production rate of around 2 Mt/year of ore, with a total material movement 511 Mt (including waste material). The Competent Person recognized that further approvals are required to mine beyond the 10 years to the full Life of Mine of the Ore Reserves. It is anticipated that all impacts of the Life of Mine project beyond the first 10 years can be readily managed and offset as required.

In the QP's opinion, the mineral reserve stated in this report are appropriated for public disclosure and meet the definitions established in the SEC guidelines and industry standards.

22.1.3 Mineral processing and Metallurgy

The metallurgical test carried out supports the forecasted yield for the concentrator and the refinery. The physical, chemical, and metallurgical tests carried out to date by Covalent have been adequate to establish a suitable process to produce spodumene concentrate and lithium hydroxide. In the QP's opinion, the metallurgical testing and process designed by Covalent are adequate to establish the modifying factors needed for a reserve definition.

22.1.4 Environmental, Social and Governance

In terms of environmental studies, permits, plans, and relations with local groups, the Project submitted an Environmental Impact Assessment (EIA) complying with the established contents and criteria, and the legal requirements of current environmental regulations in Western Australia. The approvals for the Project have been received and the construction of the facilities are under way. The outstanding approval to build the TSF is on track and at the moment of elaboration of this report is not considered to represent a significant risk for the Project.

In addition, the project committed to some ongoing monitoring measures (including groundwater sampling, soil analysis and vegetation health monitoring) to detect any effects on the environment them as a result of the project implementation. This will allow the project owner to implement controls and mitigations measures in the unlikely event that project related impacts were identified.

22.2 Significant Risks

- Resource: While the resource has been extensively drilled and tested and the nature of the mineralization consistent and apparently well understood, there is a risk that the contained metal in the resource has been misestimated, that the metallurgical performance is not fully representative of the whole rock mass and the reported values cannot be extracted.
- Product sales prices: the price of Lithium Hydroxide is a forecast based on predicted supply and demand changes for the lithium market overall. There is considerable uncertainty about how future supply and demand will change, which will materially impact future Lithium Hydroxide prices. The reserve estimate is sensitive to the potential significant changes in revenue associated with changes in Lithium Hydroxide prices.
- Mining dilution and mining recoveries: The level of ore loss and dilution applied to the production schedule assumes a very selective mining method on the ore/waste contact. If the planned level of selectivity cannot be achieved there will be either higher ore loss and/or an increase in the Fe_2O_3 concentration due to dilution. This would potentially introduce more waste into the plant feed, which would decrease the feed grade, slow down the throughput and reduce the metallurgical recovery.
- Impact of currency exchange rates on production cost: costs are modeled in AU$ and converted to US$ within the cash flow model.
- Operations risks: There are many potential operational risks ranging from the inability to hire, train and retain workers and professional necessary to conduct operations, to poor management. The lithium industry is in expansion, and this could lead to a personnel shortage. While similar operations are conducted in Western Australia, there is no reason to believe these risk factors cannot be eliminated.
- The impact of exceptional weather events or climate change that could negatively impact operations.
- The impact of exceptional pandemics events like COVID-19.
- The impact of possible war scenarios that could affect the market.
- Processing plant and refinery yields: The forecast assumes that the concentrator and refinery will be fully operational and that the estimated yield assumptions are achieved. If one or more of the plants does not operate in the future, the cost structure of the operation will increase. If the targeted yield is not achieved, concentrate production will be lower. Both outcomes would adversely impact the mineral reserves.

22.3 Conclusions

The Project, currently in construction, has been evaluated in a feasibility study, UIDFS (2020), and its mineral resources and reserves updated with further studies carried out during 2021. Those studies confirm that there are no material changes from the 2020 evaluation. The evaluated project corresponds to an open pit mine, a concentrator plant to produce Spodumene Concentrate, and a refinery to produce lithium hydroxide.

The Qualified Persons consider that the exploration data accumulated available is reliable and adequate for the purpose of the declared mineral resource and reserve estimates at a feasibility study level. The report was prepared in accordance with the resource and reserve 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").

23 RECOMMENDATIONS

No recommendations are given at this stage of the project.

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25 RELIANCE ON INFORMATION PROVIDED BY REGISTRANT

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

Table 25-1 Information provided by the Registrant (SQM) or Covalent.

Classification	Technical Report Summary Section	Reliance
Legal Opinion	Section 3 Property Description and Location	Information and documentation regarding mineral titles, surface land agreements, current permitting status, royalties and other agreements. The Qualified Person is not qualified to offer a legal perspective on SQM's surface and title rights but has summarized this document and had SQM personnel review and confirm statements contained therein.
General Information	Section 4 Accessibility, Climate, Local Resources, Infrastructure and Physiography	Information about the Project was provided by Covalent. Information consisted of consultant and Covalent reports, and correspondence.
General Information	Section 5 History	Historical data provided by Covalent and Kidman Resources, primarily previous Technical Reports.
Marketing Studies	Section 16	The chapter 16 was provided by the registrant.
Environmental Matters	Section 17	The QP was provided by SQM with environmental information (Baselines, Permitting, Social or Community impacts, Mince Closure) prepared by Covalent. An independent validation was not performed.
Macroeconomic Trends	Section 19.	Same exchange rates assumptions as the UIDFS (2020) were used for purpose of this section. These rates were broadly in-line with the exchange rates in that period.
Other	Chapter 18 and 19	The Registrant's ability and willingness to provide the required operating capital and funding for ongoing capital investment in the project.

The QPs consider it reasonable to rely upon the Registrant for the above information based on QPs' past and ongoing interactions with the subject matter experts in these areas employed or engaged by the Registrant. Further, the QP's have taken all appropriate steps, in their professional opinion, to ensure that the above information provided by the Registrant is accurate in all material aspects and have no reason to believe that any material facts have been withheld or misstated.

APPENDIX

A Glossary

AHD:	Australian Height Datum
AIG:	Australian Institute of Geoscientists
AusIMM:	Australasian Institute of Mining and Metallurgy
CFR:	Cost and Freight
CIF:	Cost, Freight and Insurance
CoG:	Cut-off Grade
Covalent:	Covalent Lithium Pty
DBS:	Delithiated Beta Spodumene
DAWE:	Department of Agriculture, Water and the Environment
DEWR:	Department of Water and Environmental Regulation
DMIRS:	Department of Mines, Industry Regulation and Safety of the Government of Western Australia
FFMP:	Fibrous minerals management plan
FGB:	Forrestania Greenstone Belt
FID:	Final Investment Decision
FOB:	Free on Board
GHG:	Greenhouse Gas
IDFS:	Integrated Definitive Feasibility Study
JORC:	Joint Ore Reserve Committee of the AusIMM, AIG and MCA
JV Partners:	SQM and WesCEF in conjunction
KDR:	Kidman Resources
Kidman Gold:	Kidman Gold Pty Ltd
Ktpa:	Kilotonnes per Annum
LIMS:	Low Intensity Magnetic Separator
LoM:	Life of Mine
LRA:	Lithium Rights Agreement
MC:	Mining Committee
MCA:	Minerals Council of Australia
MS1118:	Ministerial Statement 1118
MRE:	Mineral Resource Estimate
QP:	Qualified Person

RAB:	Rotary Air Blast
RC:	Reverse Circulation
ROM dump:	Run of Mine Ore Stockpile
SCGB:	Southern Cross Greenstone Belt
SGAM:	Spectral Gamma
SME:	Subject Matter Experts
SQI:	Spodumene Quartz Intergrowth
SSA:	Sodium Sulfate Anhydrous
TEM:	Transient Electromagnetic
TSF:	Tailings Storage Facility
UIDFS:	Updated Integrated Definitive Feasibility Study
VO:	Value Optimization
WHIMS:	Wet High Intensity Magnetic Separator
WRL:	Waste Rock Landform

Exhibit 96.3

TECHNICAL REPORT SUMMARY

FEASIBILITY STUDY

PAMPA ORCOMA

Sociedad Química y Minera de Chile

Date: April, 2022

TECHNICAL REPORT SUMMARY

FEASIBILITY STUDY

PAMPA ORCOMA

Sociedad Química y Minera de Chile

WSP-SQM0011-TRS-Pampa Orcoma-Rev0

April, 2022

WSP

Av. Las Condes 11.700, Vitacura.

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Statement of Limitations

Sociedad Química y Minera de Chile (SQM) commissioned WSP Ambiental Chile (WSP) to prepare this Technical Report Summary (TRS) on the Orcoma Project in the Tarapacá Region of northern Chile. The disclosure of any information contained in this report is the sole responsibility of the recipient. The content of the TRS has been prepared based on the professional judgment of WSP from the information made available to WSP by SQM at the time of its compilation. Any use made by a third party of this TRS, including any decision made by a third party based on the TRS, is the sole responsibility of the third party. WSP is will not be held responsible for any damages incurred by third parties as a result of decisions taken or actions based on this TRS.

WSP will keep an original copy of this TRS on file for ten years (10 years) from the date of its finalization. This copy, held securely by WSP, will be termed the Master Copy. Any copy of the TRS other than the Master Copy is to be considered a non-controlled copy. WSP cannot vouch for the content or veracity of a non-controlled copy of the TRS. However, if requested to by SQM, or required to by law, WSP will be able to make available a direct copy of the Master Copy for comparison purposes.

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A GLOSSARY

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 also 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 5 out of 86 trenches that have been dug to improving geologic and physical characterization of the caliche deposit. Drilling surveys carried out in 2014 and 2021, total 2,756 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 100m 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.

1.4 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.

Iodine and nitrate Mineral Resources, exclusive of Mineral Reserves, were estimated (Table 1-1.) based on lithologies and iodine and nitrate grades, from a 200-x-200-meter (m) grid of drill holes, considering an iodine cut-off grade of 300 ppm. The Mineral Resource is classified as Indicated, since geologic uncertainty and actual grid spacing do not allow a more precise estimation of the Mineral Resource. The 100 truncated 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 Mineral Resources to a Measured level of confidence (SQM(j), 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.

Table 1-1. Mineral Resource Estimate Exclusive of Mineral Reserves (Effective December 31, 2021)

Resource Classification	Resources (Mt)	Iodine (ppm)	Nitrate (%)
Indicated	18	457	7.4

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 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 tonnes and parts per million respectively.
(5) The Mineral Resource estimate considers an iodine cut-off grade of 300 ppm, based on accumulated cut-off iodine grades and operational average grades, as well as the cost and medium and long term prices forecast for prilled iodine production (Section 16).
(6) Donald Hulse is the QP responsible for the Mineral Resources.

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, 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 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 determined by applying modifying factors to Indicated Mineral Resource estimates. Modifying factors, considering dilution and loss, are considered in the estimation of average iodine and nitrate grades, based on historical operational use in SQM's various mining facilities. Mineral Reserves are reported as in-situ ore (caliche).

Table 1-2. Mineral Reserve Estimate (Effective December 31, 2021)

Reserves Classification	Reserves (Mt)	Iodine (ppm)	Nitrate (%)
Probable	309	413	6.9

Notes:

(1) Comparisons of values may not add due to rounding of numbers and the differences caused by use of averaging methods.
(2) The units "Mt" and "ppm" refer to million tonnes and parts per million respectively.
(3) The Mineral Reserve estimate considers an iodine cut-off grade of 300 ppm, based on accumulated cut-off iodine 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).
(4) Modifying factors of historical operational use in various of SQM's mining facilities, are applied to iodine and nitrate grades, the factors applied to iodine and nitrate grades are 0.9 and 0.85, respectively.
(5) Mineral Resources in the area without an environmental permit are estimated at 18 Mt.
(6) Mineral Reserves are reported as in-situ ore
(7) Donald Hulse is the QP responsible for the Mineral Reserves.
(8) 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.

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 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. During 2014, through the "Sumo Project (pits or calicatas)", leaching tests were conducted in isocontainers, 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 53.4% and an iodine content of 65.3% 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 rate of up to 11,000,000 tonnes 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 2,500 tonnes (t) of iodine and 320 kilotonnes (Kt) per year of nitrate salts, each ones, with an average total recovery of 66% and 63%, respectively.

1.7 Mine Design, Optimization, and Scheduling

Pampa Orcoma's Mining Plan considers caliche extraction at a first year rate of 7 Million tonnes (Mt) per year (Mtpy) ramping up to a nominal 20 Mtpy. For the period 2024-2040, a total extraction of 309 Mt of caliche with an average grade of 408 parts per million (ppm) iodine and 6.8% nitrates is projected. The area to be mined is 2,395 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 1.50 m thick (sandstones, breccias, and anhydrite crusts). The mineral (caliche) is then extracted, having a thickness of 1.50 m to 6.00 m (average of 3.50 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 126.2 kt of iodine (21.6 tonnes per day [tpd] of iodine – 7.7 ktpy of iodine-) and 20,966 kt of nitrate salts (3,582 tpd of nitrates -1,286 ktpy of nitrate-). For an average load of 0.85 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 336 liters per second (L/s) (1,190 cubic meters per hour [m³/h]). Considering the porjected heap leach yields (73.7% for iodine and 76.9% for nitrates), a flow of enriched solutions (Brine flow) of 1,034 m³/h is expected, which means a hydraulic efficiency near of 80%. Average unit consumptions are set at 0.55 cubic meters per tonne (m³/t). For the Mining Plan elaborated by SQM (2024-2040 period), the production of Iodine in piles is planned to be 84 kt (14.3 tpd) and 14,482 Kt of nitrates (2,474 tpd), which implies an average production of 231 t of Iodine and 39,838 t of nitrate salts per pile.

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's 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 tonne (USD/t) of caliche mined, including leach heap drainage construction; and 1.43 USD/t of caliche leached in heap pads, including irrigation, heap pad operations and seawater pipeline.

1.8 Capital Costs, Operating Costs, and Financial Analysis

1.8.1 Capital and Operating Costs

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 common variable costs are 3,59 USD per caliche t.

The Iodine variable cost is 16.1 USD per iodine kilogram (kg).

The salt variable cost (including transportation to Coya Sur) is 82.6 USD per nitrate tonne (brine enriched in nitrate).

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% in the period 2024 to 2040.

The estimated production of iodine and nitrates for the period 2024 to 2040 corresponds to the Mining Plan of SQM reviewed by WSP, which implies a total production of 84 kt prilled iodine and 14,482 kt of nitrate concentrate brine. nitrate concentrate brine produced in Nueva Victoria complex will be transported to Coya Sur plant to mix with KCl from Salar de Atacama to produce Potassium Nitrate Fertilizers and Solar Salts.

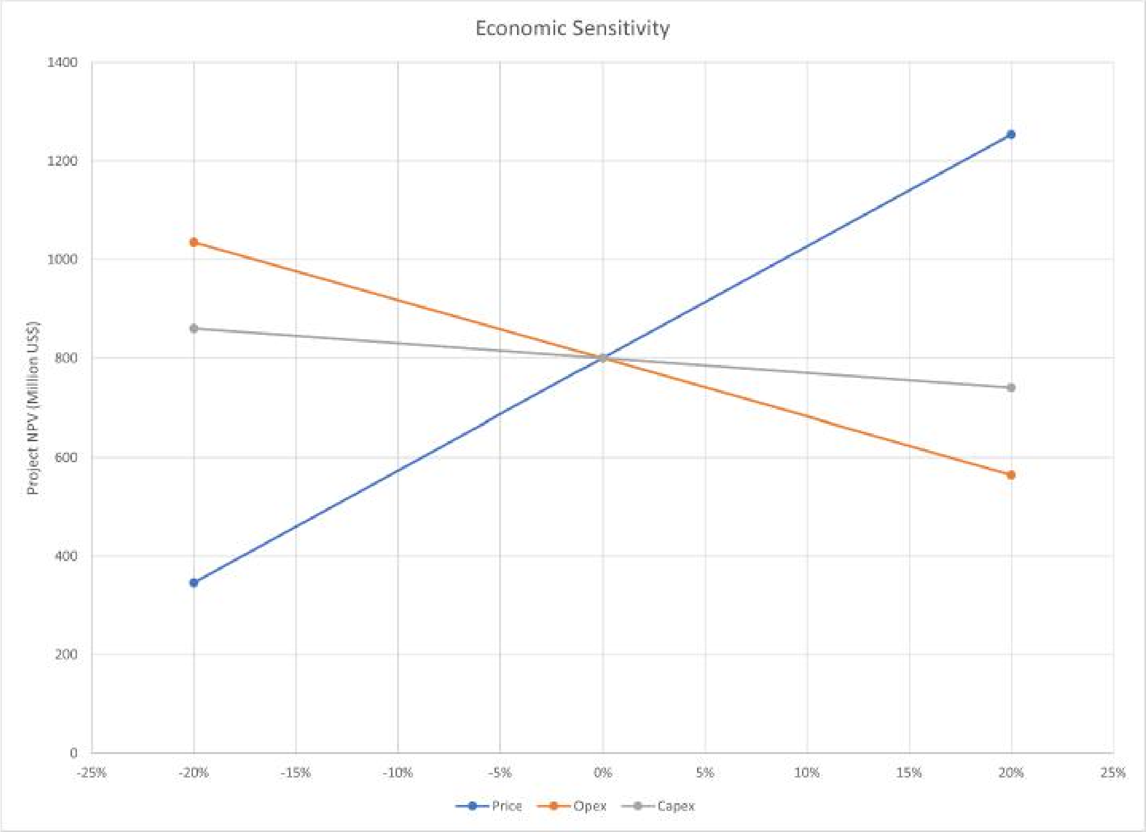
The economic analysis considers the unit costs for prilled iodine and nitrate concentrate brine production and an unit value for the prilled Iodine selling price and an unit internal price for the nitrate concentrate brine produced in Nueva Victoria complex.

The estimated Net Present Value (NPV) Base Case imply a Net Present Value (NPV) before Financial Cost (FC) & Taxes (kUSD) of $1,012,558; and a NPV after FC and Taxes (kUSD) of $680,060.

For the whole of the iodine and nitrate business, the financial analysis is presented in Table 1-3.

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



As seen in the above figure, the project NPV is more sensitive to product price while being least sensitive to capital and operational costs.

Table 1-3. Estimated Net Present Value (NPV) for the Period

NPV		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	TOTAL
REVENUE																					
Total Revenues (M US$)	US$M	-	-	167	244	297	377	458	453	419	441	468	438	461	461	461	461	461	461	461	**6,987**
COSTS																					
Common Costs (mining, leaching)	US$M	-	-	27	38	48	63	72	72	72	72	72	72	72	72	72	72	72	72	72	**1,109**
Iodine Production Costs	US$M	-	-	30	43	52	68	87	80	77	85	79	77	81	81	81	81	81	81	81	**1,249**
Nitrate Production Costs	US$M	-	-	28	42	51	64	75	78	71	72	83	76	80	80	80	80	80	80	80	**1,196**
TOTAL OPERATING COST	**US$M**	**-**	**-**	**85**	**123**	**152**	**195**	**234**	**230**	**219**	**229**	**234**	**225**	**233**	**233**	**233**	**233**	**233**	**233**	**233**	**3,554**
EBITDA	**US$M**	**-**	**-**	**81**	**121**	**145**	**182**	**224**	**223**	**200**	**212**	**234**	**213**	**228**	**228**	**228**	**228**	**228**	**228**	**228**	**3,433**
Depreciation	US$M	-	-	15	16	16	17	18	18	18	18	19	19	20	20	21	21	21	22	22	**321**
Interest Payments	US$M	-	-	10	9	7	6	5	4	3	1	-	-	-	-	-	-	-	-	-	**45**
Pre-Tax Gross Income	US$M	-	-	57	97	121	158	201	201	179	193	215	194	208	208	208	207	207	206	206	**3,066**
Taxes	28%	-	-	16	27	34	44	56	56	50	54	60	54	58	58	58	58	58	58	58	**859**
Operating Income	**US$M**	**-**	**-**	**41**	**70**	**87**	**114**	**145**	**145**	**129**	**139**	**155**	**140**	**150**	**150**	**149**	**149**	**149**	**149**	**148**	**2,208**
Add back depreciation	US$M	-	-	15	16	16	17	18	18	18	18	19	19	20	20	21	21	21	22	22	**321**
NET INCOME AFTER TAXES	US$M	-	-	56	85	103	131	162	163	147	157	174	159	170	170	170	170	170	170	170	**2,529**
Total CAPEX	US$M	150	144	8	8	12	25	9	4	4	4	9	5	10	10	7	8	12	7	5	**442**
Bank Loan	US$M	95	96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**190**
Loan Amortization	US$M	-	-	20	21	22	23	24	25	27	28	-	-	-	-	-	-	-	-	-	**190**
Working Capital	US$M	-	-	14	7	4	6	7	-0	-4	2	4	-4	2	-	-	-	-	-	-	**38**
Pre-Tax Cashflow	US$M	-55	-48	30	77	99	122	179	190	170	176	222	211	216	218	221	220	216	221	223	**2,908**
After-Tax Cashflow	US$M	-55	-48	14	50	66	77	122	133	120	123	161	157	157	160	163	162	158	164	165	**2,049**
Pre-Tax NPV	US$M	**1,013**																			
After-Tax NPV	US$M	**680**																			
Discount Rate	US$M	**10%**																			

1.9 Conclusions and Recommendations

Mr. Donald Hulse, 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:

- 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.

- 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.

- 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.

- Maintain original and/or digitized records of collar surveys, geological, and geochemical data in a secure database.

- Infilling RC drill hole grids with 100-x-50 -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

- Estimate caliche density specifically for the Pampa Orcoma project area. This is currently based on operating experience at the Nueva Victoria operation and may improve the accuracy of the mineral resource estimate.

- Construct updated procedures that describe in sufficient detail the activities of capture, administration, and backup of the data.

- Update all the procedures, methodologies, and results in the annual reports.

- 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.

2 INTRODUCTION

This Technical Report Summary (TRS) was prepared for the Sociedad Química y Minera de Chile (SQM.) The purpose of the TRS is to provide a comprehensive understanding of SQM's Pampa Orcoma Project in northern Chile based on the requirements of Regulation S-K, Subpart 1300 of the United States Securities Exchange Commission (SEC), which hereafter is referred to as the S-K 1300.

2.1 Terms of Reference and Purpose of the Report

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, 2022, while the effective date of the Mineral Resource and Mineral Reserve estimates was December 31, 2021. It is the QP's opinion that there are no known material changes impacting the Mineral Resource and Mineral Reserve estimates between December 31, 2021, and March 30, 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, 2021.

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

The purpose of this TRS is to report Mineral Resources and Mineral Reserves for SQM's Pampa Orcoma Project.

2.2 Source of Data and Information

This TRS is based on information provided directly by SQM and public data extracted from published government reports. All information relied upon is cited throughout this TRS and listed in Section 24.

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	Feeble Neutral Water
Ajay	Ajay Chemicals Inc.
AS	Auxiliary Station
ASG	Ajay-SQM Group
BF	Brine Feeble
BFN	Neutral Brine Feeble
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	Feeble neutral water
g	gram
GU	geological unit
g/cc	grams per centimeter
g/mL	grams per milliliter
g/t	grams per tonne
g/L	grams per liter
GPS	global positioning system

Acronym/Abbv.	Definition
h	hour
ha	hectare
ha/y	hectares per year
HDPE	High-density Polyethylene
ICH	industrial chemicals
ICP	inductively coupled plasma
IS	Intermediate solution
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 tonnes per day
ktpy	kilotonne per year
kUSD	thousand USD
kV	kilovolt
kVa	kilovolt-amperes
L/h-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/t	cubic meter per tonne

Acronym/Abbv.	Definition
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 tonne
Mtpy	million tonnes 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
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

Acronym/Abbv.	Definition
SFF	specialty field fertilizer
SI	intermediate solution
SING	Norte Grande Interconnected System
S-K 1300	of Regulation S-K, 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 km²
SS	soluble salt
SX	solvent extraction
t	metric tonne
TR	Irrigation rate
TAS	sewage treatment plant
TEA project	Tente en el Aire project
tpy	tonnes per year
t/m^3	tonnes per cubic meter
the Project or Orcoma Project	Pampa Orcoma Project
tpd	tonnes per day
TRS	Technical Report Summary
UF	Development Unit (Unidad de Fomento) is a Chilean financial instrument that is resistant to inflation. Currently valued at 38.7 US$
ug/m^3	microgram per cubic meter
USD	United States Dollars
USD/kg	United States Dollars per kilogram
USD/t	United States Dollars per tonne
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 details of the site inspections by the QPs are summarized in Table 2-2.

Table 2-2. Site Visits

QP	Expertise	Date of Visit	Detail of Visit
Álvaro Henríquez	Exploration, Geology	6 Dec 2021	Drilling grid, extents of the deposit, soil pits
Donald Hulse	Resources and Reserves	6 Dec 2021	Drilling grid, extents of the deposit, soil pits

In the visit to Pampa Orcoma, the QPs reviewed the drilling grid, the extents of the deposit, and selected trenches that exposed the thickness and quality of caliche and overburden.

2.4 Previous Reports on Project

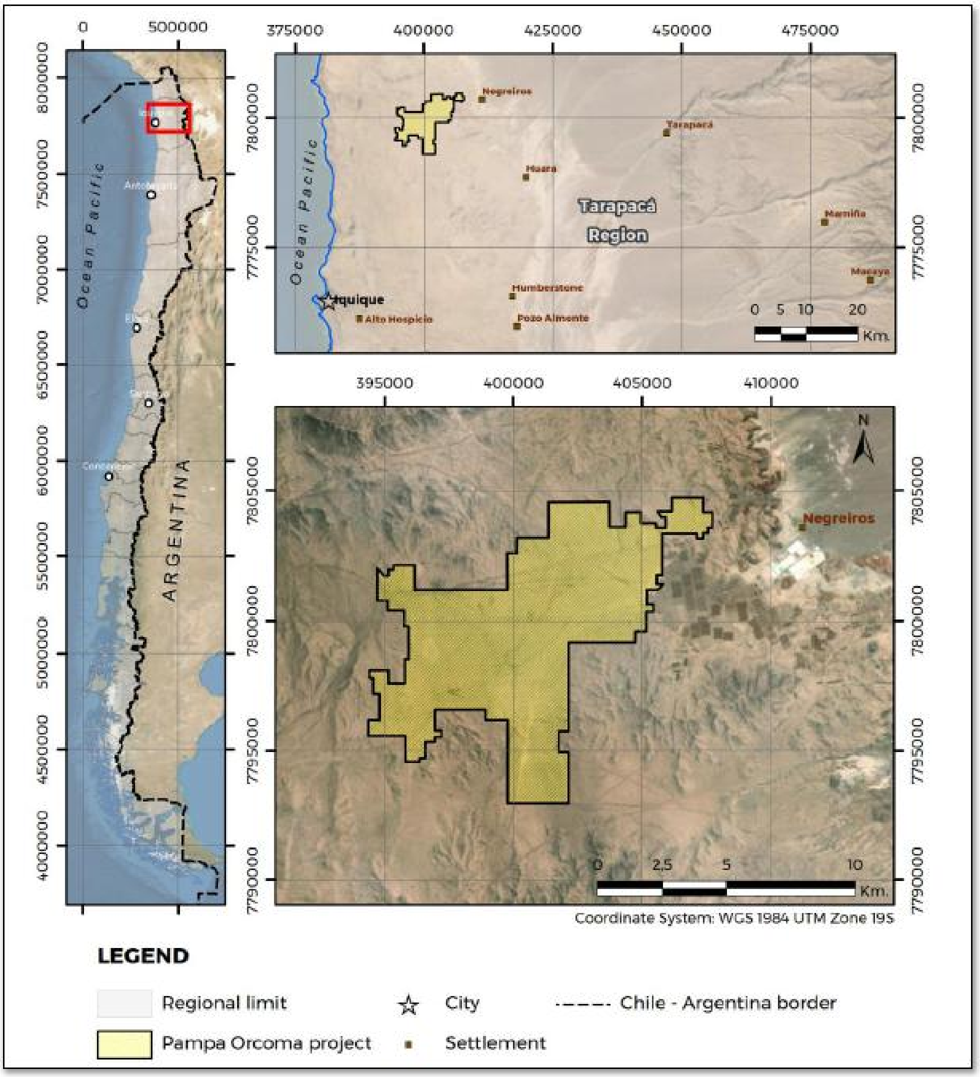
This Report is the first TRS prepared for SQM's Pampa Orcoma deposit. This TRS is not an update of a previously filed TRS.

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 (SQM(a), 2019). 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 (the Project, or 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 291,780 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.

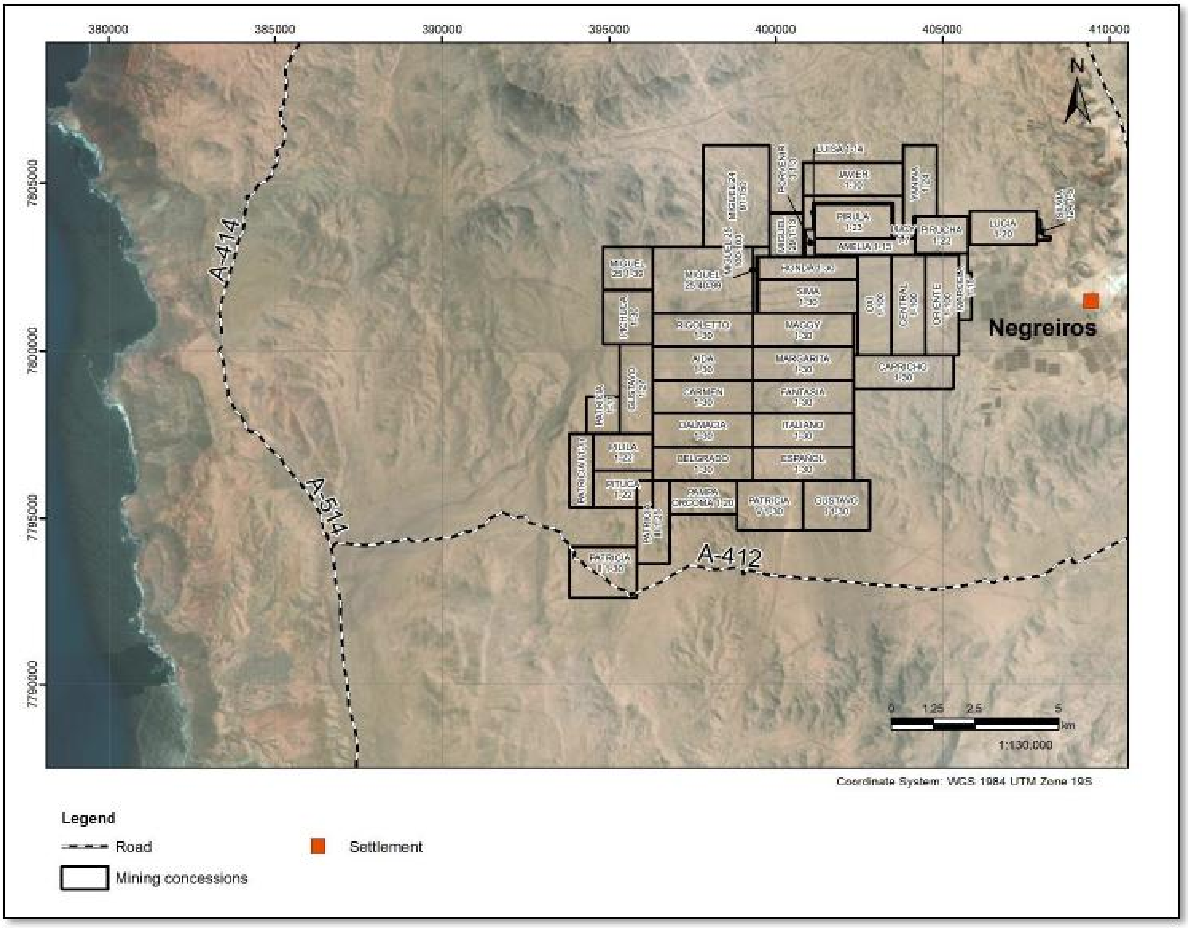
The Pampa Orcoma property comprises 43 mining concessions (Table 3-1) without expiration date, which are maintained through payment of an annual mining patent fee, all of them belong to SQM.

Table 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	ORCOMA SPA	CONSTITUIDA	2010
01206-1215-8	MIGUEL 29 1/13	ORCOMA SPA	CONSTITUIDA	2003
01206-1207-7	MIGUEL 25 100/103	ORCOMA SPA	CONSTITUIDA	2014
01206-1206-9	MIGUEL 25 40/99	ORCOMA SPA	CONSTITUIDA	2003
01206-1205-0	MIGUEL 25 1/39	ORCOMA SPA	CONSTITUIDA	2003
01206-1204-2	MIGUEL 24 91/150	ORCOMA SPA	CONSTITUIDA	2003
01206-0923-8	PAMPA ORCOMA 1/20	ORCOMA SPA	CONSTITUIDA	1999
01206-0816-9	LUISA 1/14	ORCOMA SPA	CONSTITUIDA	1996
01206-0815-0	JAVIER 1/30	ORCOMA SPA	CONSTITUIDA	1996
01206-0814-2	YANINA 1/24	ORCOMA SPA	CONSTITUIDA	1996
01206-0812-6	LUCY 1/7	ORCOMA SPA	CONSTITUIDA	1996
01206-0477-5	PILILA 1/22	ORCOMA SPA	CONSTITUIDA	1989
01206-0476-7	PITUCA 1/22	ORCOMA SPA	CONSTITUIDA	1989
01206-0475-9	PICHUCA 1/30	ORCOMA SPA	CONSTITUIDA	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	ORCOMA SPA	CONSTITUIDA	1989
01206-0459-7	HONDA 1/30	ORCOMA SPA	CONSTITUIDA	1988
01206-0458-9	SIMA 1/30	ORCOMA SPA	CONSTITUIDA	1988
01206-0410-4	LUCIA 1/20	ORCOMA SPA	CONSTITUIDA	1988
01206-0409-0	MARGARITA 1/30	ORCOMA SPA	CONSTITUIDA	1988
01206-0408-2	AMELIA 1/15	ORCOMA SPA	CONSTITUIDA	1988
01206-0407-4	MAGGI 1/30	ORCOMA SPA	CONSTITUIDA	1988
01206-0405-8	RIGOLETTO 1/30	ORCOMA SPA	CONSTITUIDA	1988
01206-0404-K	ITALIANO 1/30	ORCOMA SPA	CONSTITUIDA	1988
01206-0403-1	FANTASIA 1/30	ORCOMA SPA	CONSTITUIDA	1988
01206-0402-3	ESPANOL 1/30	ORCOMA SPA	CONSTITUIDA	1988
01206-0401-5	DALMACIA 1/30	ORCOMA SPA	CONSTITUIDA	1988
01206-0400-7	CARMEN 1/30	ORCOMA SPA	CONSTITUIDA	1988
01206-0399-K	CAPRICHO 1/30	ORCOMA SPA	CONSTITUIDA	1988
01206-0398-1	BELGRADO 1/30	ORCOMA SPA	CONSTITUIDA	1988
01206-0397-3	AIDA 1/30	ORCOMA SPA	CONSTITUIDA	1988
01206-0348-5	MARCELA 1/15	ORCOMA SPA	CONSTITUIDA	1987
01206-0265-9	OXI 1/100	ORCOMA SPA	CONSTITUIDA	1985
01206-0264-0	ORIENTE 1/100	ORCOMA SPA	CONSTITUIDA	1985
01206-0258-6	CENTRAL 1/100	ORCOMA SPA	CONSTITUIDA	1985
01201-1875-7	PATRICIA V 1/30	ORCOMA SPA	CONSTITUIDA	1997
01201-1873-0	PATRICIA III 1/25	ORCOMA SPA	CONSTITUIDA	1997
01201-1872-2	PATRICIA II 1/30	ORCOMA SPA	CONSTITUIDA	1997
01201-1871-4	PATRICIA I 1/77	ORCOMA SPA	CONSTITUIDA	1997
01201-1870-6	PATRICIA 1/11	ORCOMA SPA	CONSTITUIDA	1997
01201-1865-K	GUSTAVO I 1/30	ORCOMA SPA	CONSTITUIDA	1997
01201-1864-1	GUSTAVO 1/27	ORCOMA SPA	CONSTITUIDA	1998

Figure 3-2. Location of Pampa Orcoma property



3.4 Mineral Rights

As of the end of 2020, SQM has the right to explore and/or exploit the caliche mineral resources by the Environmental Qualification Resolution (Comisión de Evaluación Región de Tarapacá, 2017) RCA N° 75/2021. The approved area covers more than 1,563,169 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 3-2. Summary of Current Permits

Permit	Description	Authorization
PAS N°119	Research collection of Marine Life	There is no information
PAS N° 132	Permit for archaeological and anthropological excavations	Ord. N° 2673/2021 (for archeological sites)
PAS N° 136	Permit to establish tailings dump or mineral accumulation	Res. Ex. N° 1985/2021
PAS 137	Mining Closure Plan	The documents were submitted and currently is under process.
PAS N° 138	Permit for the construction, repair, modification and expansion of any public or private works for the evacuation, treatment or final disposal of wastewater, sewage of any nature	There is no information
PAS N° 140	Permit for the construction, repair, 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	There is no information
PAS N° 142	Permit for all hazardous waste storage sites: The project involves the construction of two warehouses in two sectors for the temporary disposal of hazardous waste	There is no information
PAS N° 146	Permit to hunt or capture specimens of animals of protected species for research purposes, for the establishment of breeding centers or hatcheries and for the sustainable use of the resource	There is no information
PAS N° 155	Permit for the construction of certain hydraulic works	The documents were submitted on May 13, 2021, and currently is under process.
PAS N° 156	Permit to make modifications to the riverbed	The documents were submitted on May 10, 2021, and currently is under process.
PAS N° 160	Permit to subdivide and urbanize rural land or for construction outside urban limits	There is no information
-	Authorization of the mining exploitation method	Res. Ex. N° 1860/2021
-	Beneficiation Plant Authorization	The documents were submitted and currently is under process.

It should be noted that the project has not yet been built and construction is expected to begin in 2022. Preconstruction activities are currently underway and 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 Factors 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 (SQM(a), 2019). Specifically, the mining area and industrial area are located mainly in the Cordillera de la Costa (Geobiota, 2015).

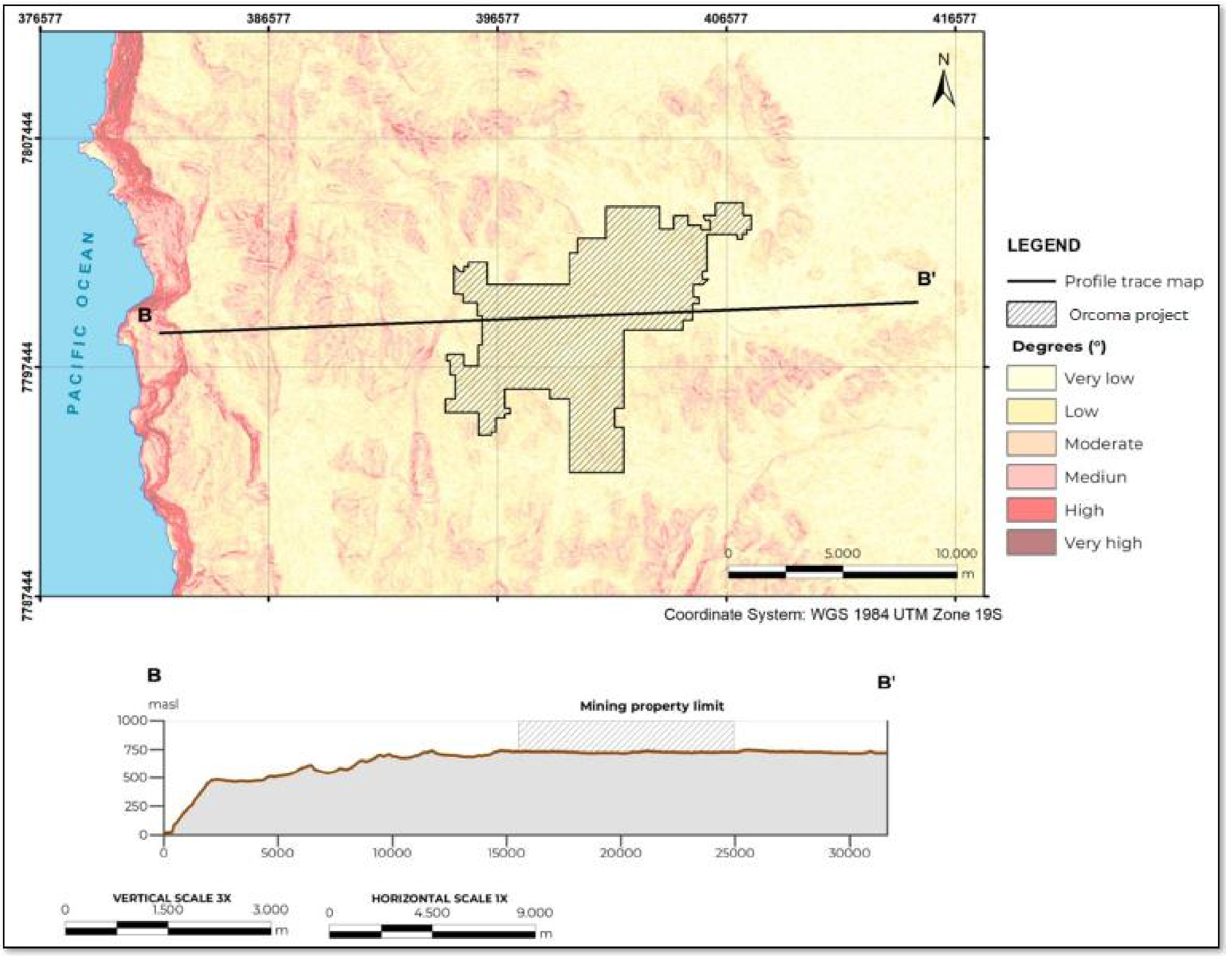
Topographic relief on a regional scale contains slopes ranging between 0 to 39°, with the steepest slopes observed close to the coast, due to the coastal scarp. In Pampa Orcoma relief is almost flat (Figure 4-1), the lower slopes imply a low relief factor Sr, close to zero, especially in the Exploration 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 (SQM(a), 2019).

Figure 4-1. Slope Parameter Map Sr and Elevation Profile Trace BB"



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

There is no infrastructure currently in the property, as mining operations are planned to begin in the year 2024. The facilities contemplated for future operations are temporal or permanent based upon their function in the mining operation (Geobiota, 2015).

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 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.

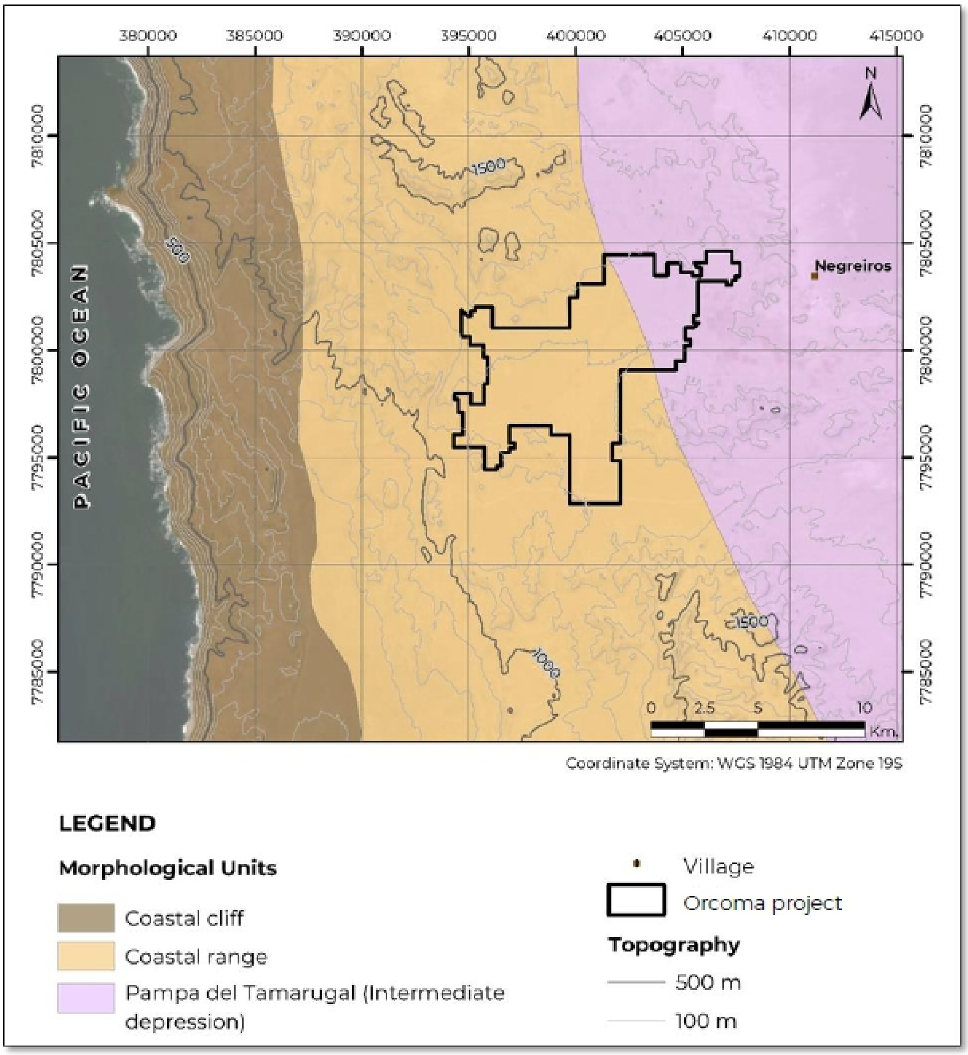
6 GEOLOGICAL SETTING, MINERALIZATION, AND DEPOSIT

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° (Geobiota, 2015).

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



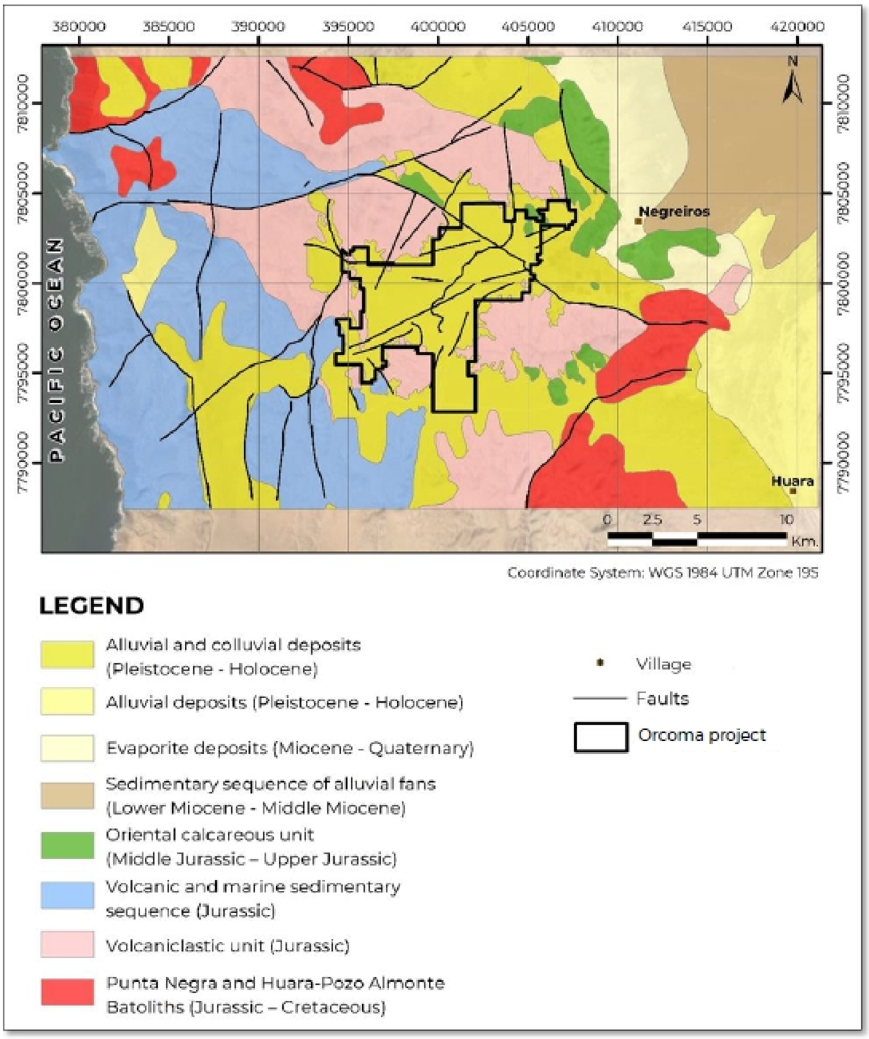
6.2 Regional Geology

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 (Geobiota, 2015). 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 volcanics 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 & clays and older piedmont deposits of gravel, sand & 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

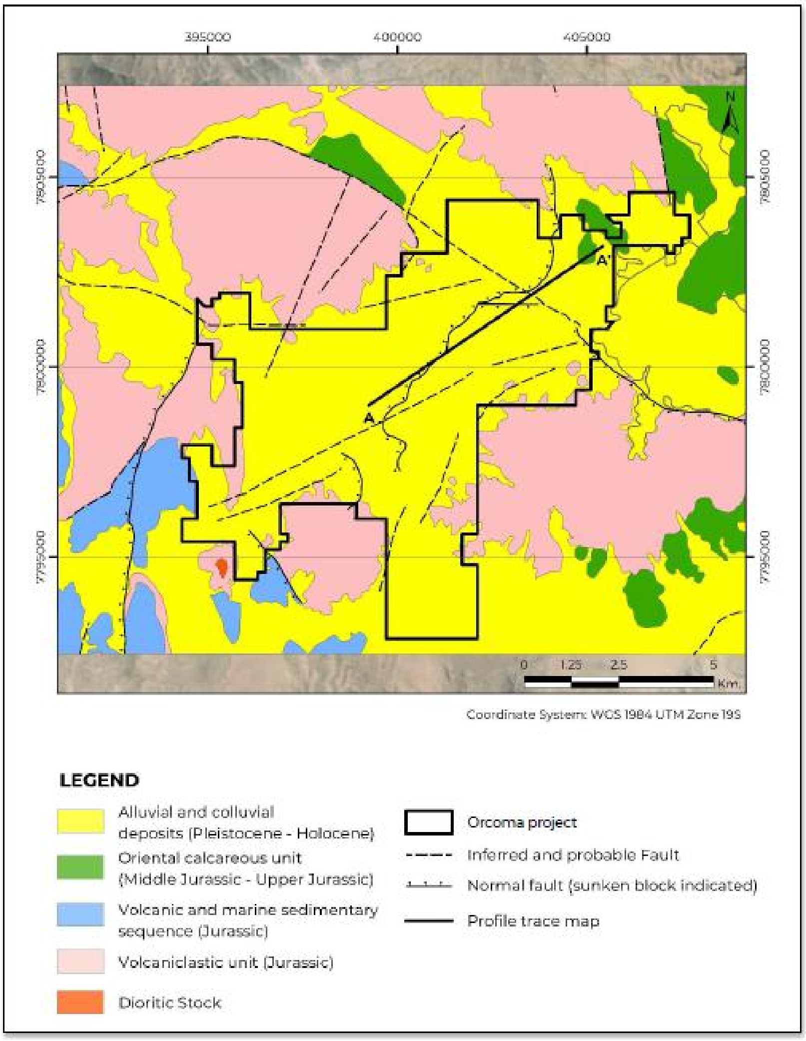
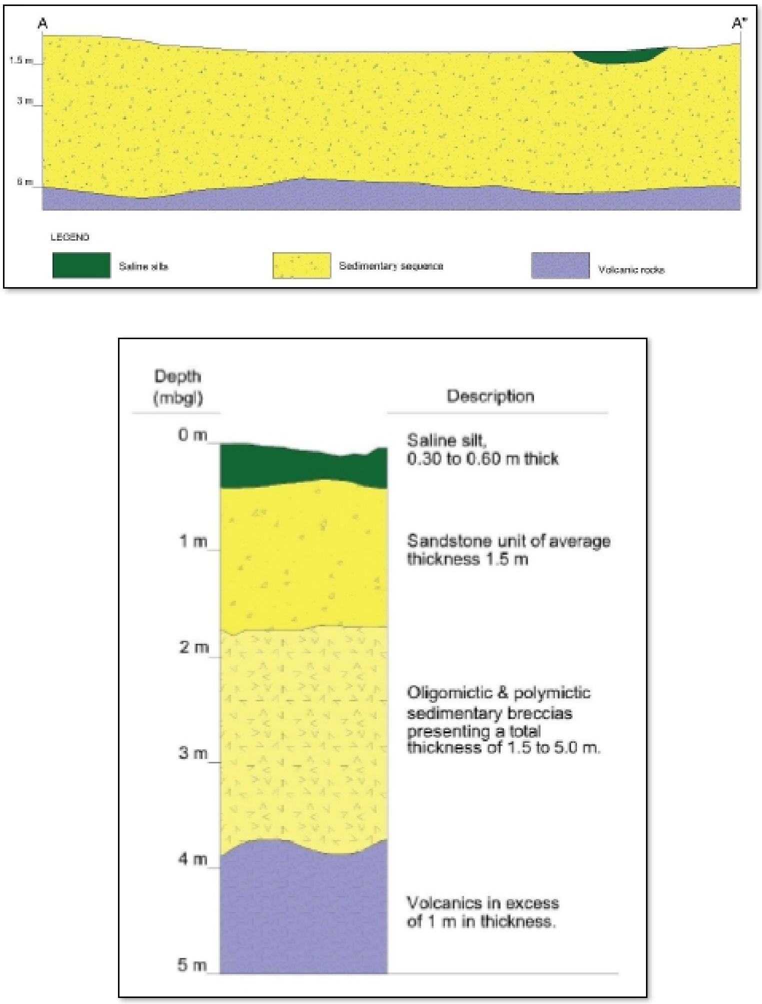


Figure 6-4. Stratigraphic Column of Pampa Orcoma



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 Orcoma Mining 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 & anhydrite composition. Its thickness over the Pampa Orcoma Property varies between 30 and 60 centimters (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 crystals. 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 thick 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 seven 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 soil pits. The soil pit excavation work was performed during two campaigns. the first occured 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 (Geobiota, 2015) (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 thick, 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).

There's also a reference to a 1996 soil pit exploration campaign, for which raw data is not available. However, conclusions from that investigation 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 2,756 drill holes located within and slightly outside of the project area, with 2,507 of them strictly inside (Figure 7-1). 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 groups 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 1,323 drill holes with 200-x-200-m spacing. The 200m 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 50-x-50 m spacing. These grids are distributed as “stamps” between the wider grids defined by “O” and “PO” drill holes (SQM(a), 2014).

- O-DDH: Year 2021 and current diamond drilling campaign, of which 60 drill holes have been perforated to date (SQM(a), 2021), with the objective of obtaining a general prospect of geological and physical characteristics of caliche in Orcoma (SQM(b), 2021). Drill holes are distributed without a specific grid spacing.

- OR: Year 2021 and current RC drilling campaign, making up the 100T grid of 865 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 (SQM(c), 2021).

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 (SQM(h), 2021).

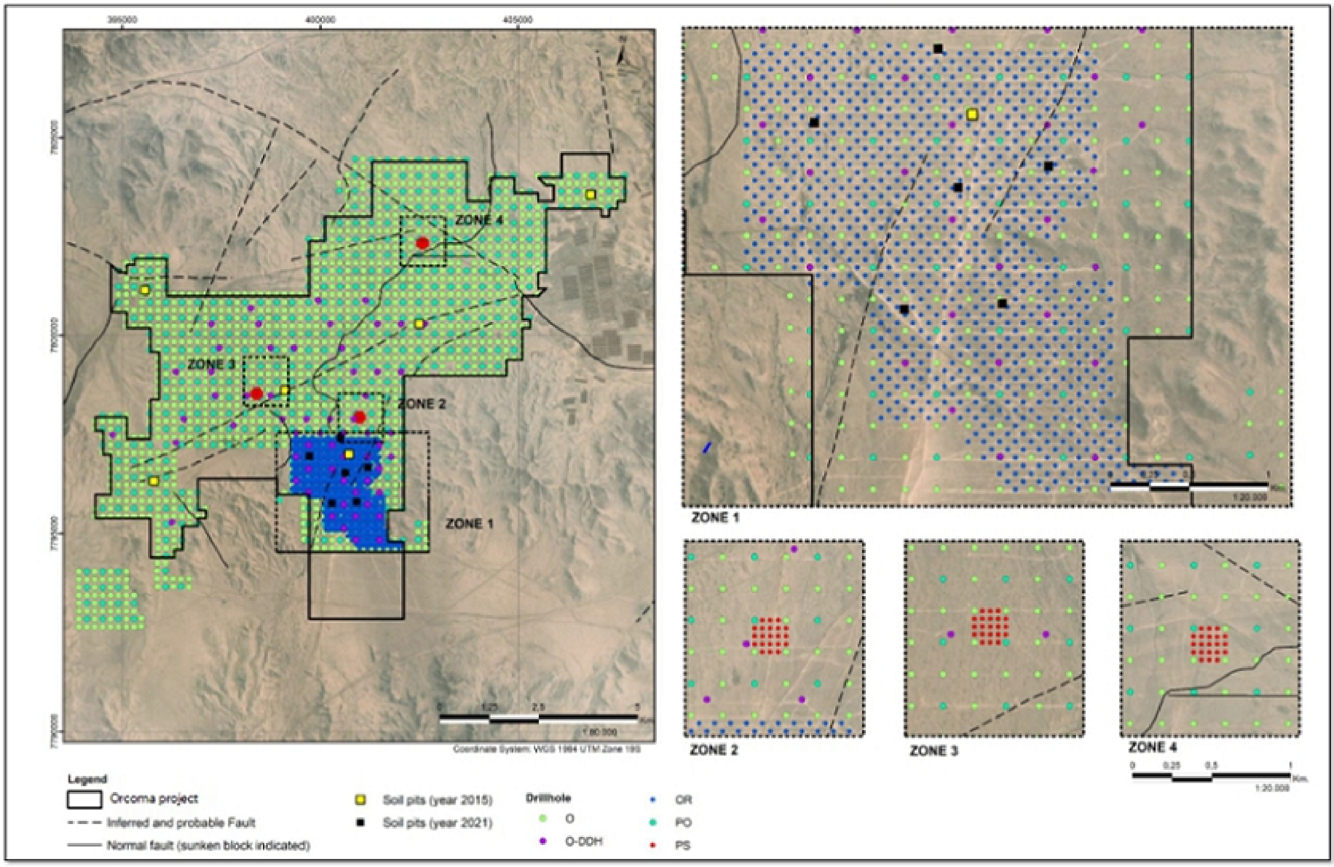
7.1.3 400-x-400 m, 200-x-200 m, and 50-x-50 m Grids Drilling Campaign Results

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, which along with the 50-x-50 m grid 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 (SQM(a), 2014). “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 to 2 m to the northeast, with intermediate sectors of values lower than 0.5 m (SQM(b), 2014).

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, 2.9, and 2.3 m, respectively (SQM(a), 2014). 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 m. The mineralized deposit has a 6 to 8% sodium nitrate (from now on referred to as 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 (SQM(b), 2014) (SQM(l), 2014).

Figure 7-1. Distribution of SQM Exploration Drill Holes and Soil Pits



Findings from the three campaigns executed in 2014, for grids of 400-x-400, 200-x-200 and 50-x-50 m spacing, show abundant information for each drill hole, has been compiled into a digital database (SQM(a), 2014). The database for the 400-x-400-m and 200-x-200-m grids is the basis for 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-m, 200-x-200-m, and 50-x-50-m Drill Hole Grids

Information available	**Description**
Geographic information	Elevation in meters above sea level, and coordinates in coordinate system WGS84 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 is an ongoing exploration campaign; however, 34 out of the 60 drill holes that have been completed, 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 available information to date from 60 DDHs, 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 (%) (SQM(a), 2021).

7.1.5 100T Grid Drilling Campaign Results

Findings for the 100T grid are shown in its database (SQM(c), 2021), 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 WGS84 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 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, wich 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,

7.3 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, taking into account 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.

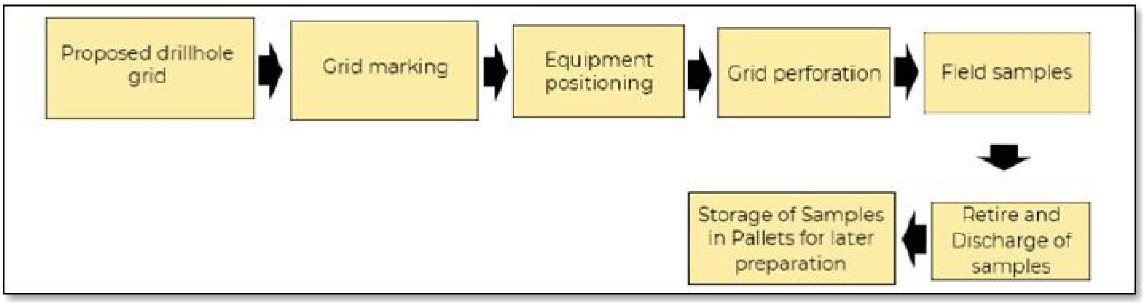
8 SAMPLE PREPARATION, ANALYSIS AND SECURITY

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, which are summarized in Table 8-1.

8.1 Methods, Splitting and Reduction, and Security Measures

The handling of drill hole samples is carried out under strict rigor. After drilling, sample recovery, collection, ordering and classification, these are carefully transferred by pallets to a sector where they are permanent (collection sector), always keeping the supervisor informed of any deviation detected during the transfer. The unloading of the samples in the sector where they are stored is carried out carefully to avoid a potential internal disorder in the boxes with drillings, this process is summarized in the Figure 8-1.

Figure 8-1. Process Sequence from the Start of Drilling, Sampling, and Storage



From the storage sector the boxes are relocated to the sector where the Cone Divider is available to begin with the first stage of reducing the size of the samples.

The sample reduction process is carried out following high safety standards, which ensures correct handling of the machinery and careful handling of the samples. The machines used to carry out this process (Cone Divider, Crushers, Rifle Cutter, and Pulverizer), are checked before and after any reduction operation, to guarantee the cleanliness of the machinery, its good condition, and to avoid contamination due to mixing of material in the samples, Possible air leaks, which could generate a possible loss of material, are also avoided.

Bags are used during the reduction process, which are located to receive the discard samples during the operation in the dividing cone, which are subsequently sent to the "discard collection sector". The samples that continue with the reduction process are discharged into a metal tray with the label corresponding to the initial sample and are stored to continue with the crushing stage.

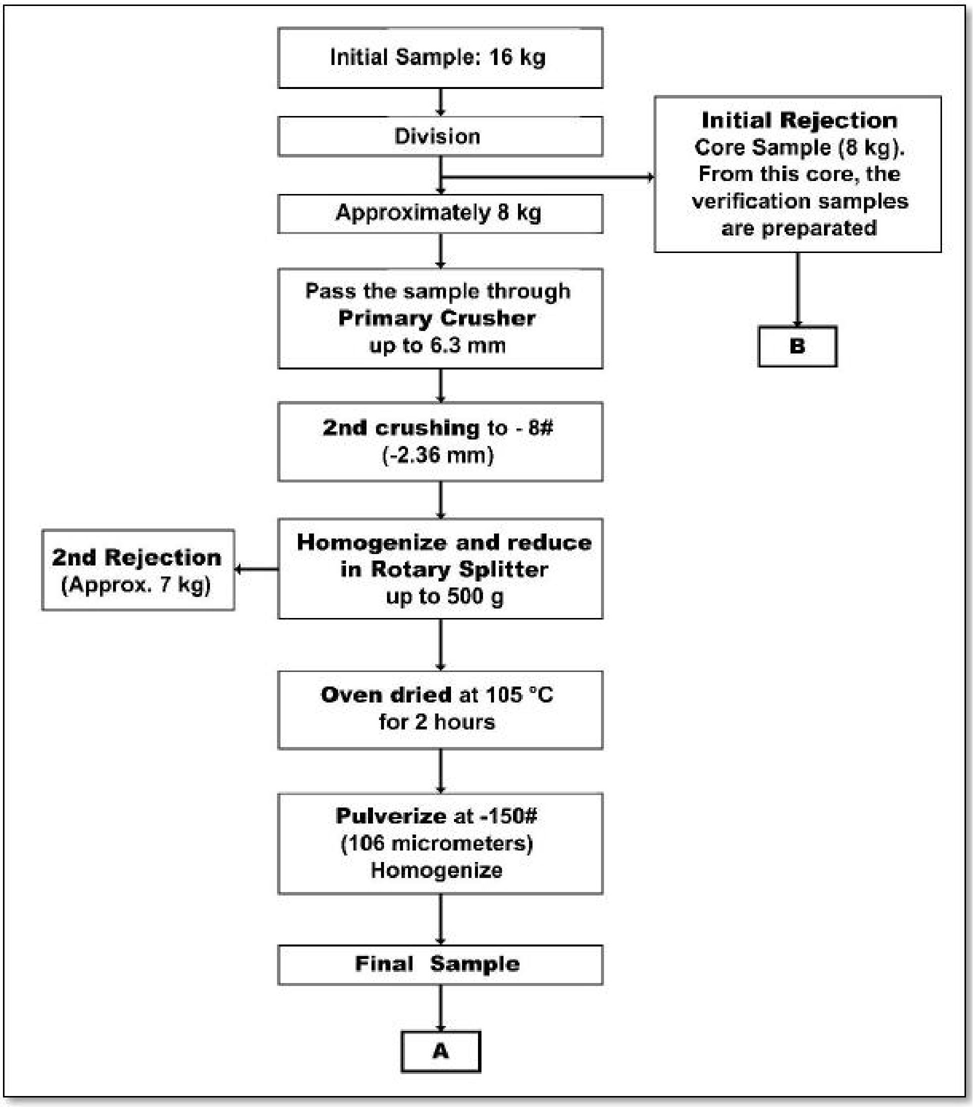
During the crushing stage, the samples entering the machine are carefully handled to avoid material loss. In the process, the crushed samples are temporarily stored in a labeled tray.

The trays with the crushed samples are diverted to the sector where the Riffle Cutter is located, and they are incorporated into the machine quickly, to avoid increasing sampling errors in the equipment, this machine splits the sample in two; therefore, the mineral is deposited in two trays in equal proportions, one of this is chosen as a discard sample and the other sample, must be less than 500 grams (g). Each tray must have its corresponding label and the latter must be stored in a collection counter to later continue with the Pulverized stage.

In the pulverization stage of the samples, the trays are slowly transferred into the machine. This ensures a longer time of permanence of the sample inside the pulverizer, and it is possible to obtain a lower granulometry in the discharge. This process is repeated several times to better ensure the required granulometry. Once the sample is pulverized, it is deposited on a tray with its respective label and stored in a sample cart.

The trolley with the pulverized samples is transferred to a packaging and labeling area. In this sector, each sample is introduced into a bag, in which it is shaken to ensure its homogenization. Later it is carefully returned to the same trays. The next step is to separate them into two portions one of 200 g, which is used for the preparation of composites, and another of 150 g that is used for analysis in the laboratory. Each one of the portions with samples must be stored in bags, which must be sealed with tape at the top of the bag. In addition, each one must have its respective labeling, differentiating the purpose and destination (Figure 8-2).

Figure 8-2. Process Sequence from Initial Sample, Reduction, and Final Sample



8.2 Sample Preparation, Assaying, and Analytical Procedures

Samples are sent from Iris pilot plant to SQM’s Nitrate-Iodine Laboratory, following a traceable chain of custody and indicating if the sample is original or a duplicate. The sample is leached and filtered to analyzed for nitrate, by using a Molecular Absorption Spectrophotometer for ultraviolet-visible spectroscopy, an analytic procedure that consists of measuring absorbance of ultraviolet and visible radiation by the analyte. According to Beer’s Law, absorbance is linearly related to concentration of the absorbent species, thus obtaining the concentration of nitrate as a percentage (SQM(d), 2021).

Samples are leached and filtered to be analyzed for iodine, by using redox titration and X-ray fluorescence (XRF). Redox titration allows for determination of an unknown iodine concentration of the analyte in an iodine rich solution, by gradually adding a standard solution of known concentration until the reaction is complete. On the other hand, XRF is executed on a compacted caliche sample with an X-ray Spectrometer Asoma Analyzer (SQM(e), 2021). Iodine and nitrate concentrations obtained from the described methods are uploaded to the SQM’s Laboratory Information Management System (LIMS).

Due to the analytical procedures used, for sodium nitrate the detection limit is 1% with a maximum of 20%, while for iodine the detection limit is 50 ppm with a maximum of 2,000 ppm (0.200%) (SQM, 2018).

Regarding other analyzed salts, various analytical procedures are used (Table 8-1) (SQM(g), 2021).

Table 8-1. Analytical Procedures for Salts in SQM's Nitrate-Iodine Lab

Analyte	Analytical procedure
Iodine	Redox titration and XRF
Nitrate	Ultraviolet-visible spectroscopy
Perchlorate	Potentiometry
Sodium	Atomic absorption (AA) and inductively coupled plasma (ICP)
Potassium	AA and ICP
Sulfates	Gravimetry and ICP
Chlorides	Volumetry
Boric acid	Volumetry and ICP
Calcium	Potentiometry, AA, and ICP
Magnesium	Potentiometry, AA, and ICP

8.3 Opinion of Adequacy

Although the difference in the means of the original and duplicate samples are not statistically significant, the QP recommends that an audit of the sample collection and preparation be performed and monitored after each drilling campaign to avoid systemic bias in the results and thus the Mineral Resource estimate.

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 excel spreadsheets, presenting the required information for the 400-x-400-m, 200-x-200-m, and 50-x-50-m database, with exception of 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, are also managed with excel spreadsheets, 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, indicating duplicate sample IDs, but does not present the data results of the duplicates.

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 QP reviewed quality control procedures that consider the analysis of duplicate samples, of adequate rates of repetition for this type of control. Blank samples are also obtained, but do not have a specified procedure for frequency of sampling. Procedures mention internal standard samples of which frequency of sampling is indicated; however, criteria for selection of the sample are not specified.

9.5 Precision Evaluation

The QP reviewed results of iodine and nitrate grades from duplicate sampling in the 400-x-400-m and 200-x-200-m drill hole grids. Duplicate samples' relative errors are within acceptable margins, with a high correlation index with corresponding original samples.

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.

9.8 Quality Control Procedures and Quality Assurance

For the analysis of iodine, sodium nitrate, and other chemical species, SQM has implemented standardized protocols designed to ensure sample representativity, from procedures applied to sample handling and procurement of control samples to laboratory protocols.

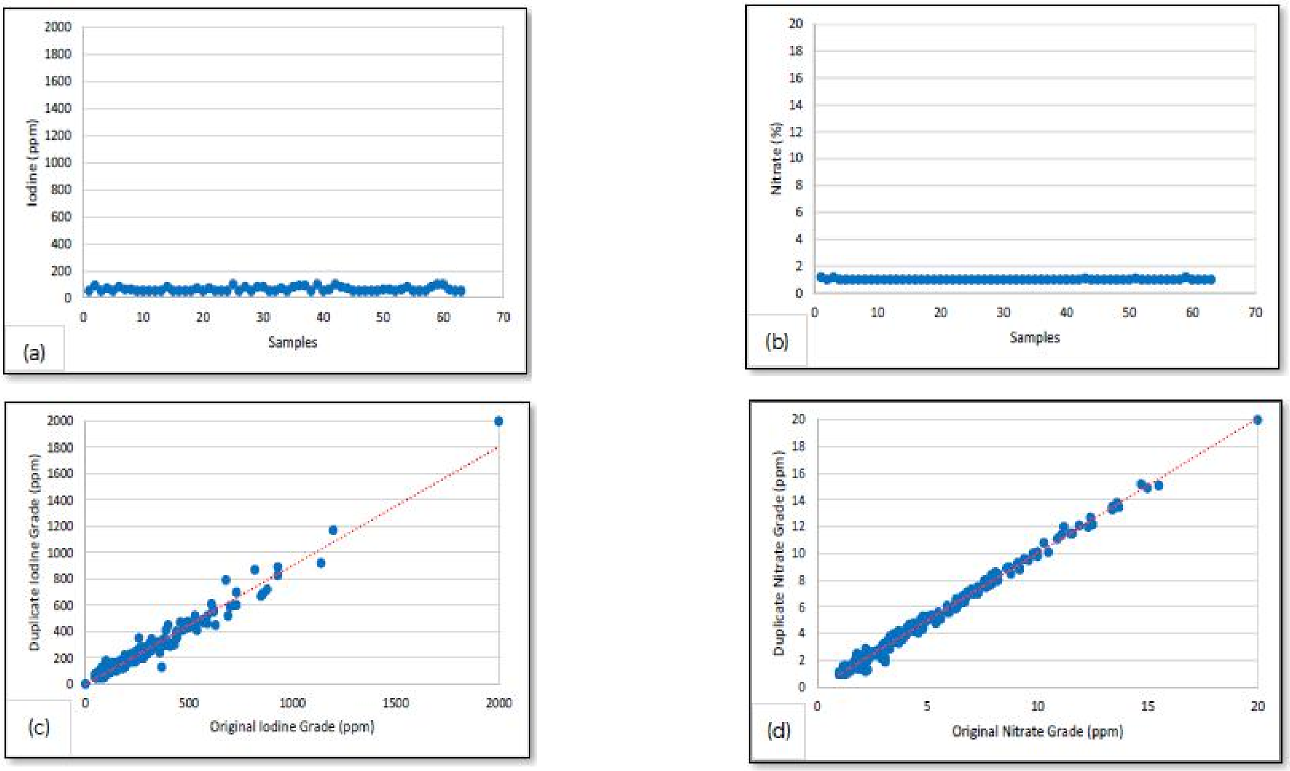
9.8.1 Quality Control Measures and Results

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. QC procedures don't mention criteria for blank sampling, however, such samples are obtained and analyzed.

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 (SQM(n), 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).

For drill holes from the 400-x-400-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 9-1 and Table 9-1), 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 (SQM(b), 2014).

Figure 9-1. Results 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 9-1. Statistics of Iodine and Nitrate Grades in Original versus Duplicate Samples of the 400-x-400 Drill Hole Grid (n = 212)

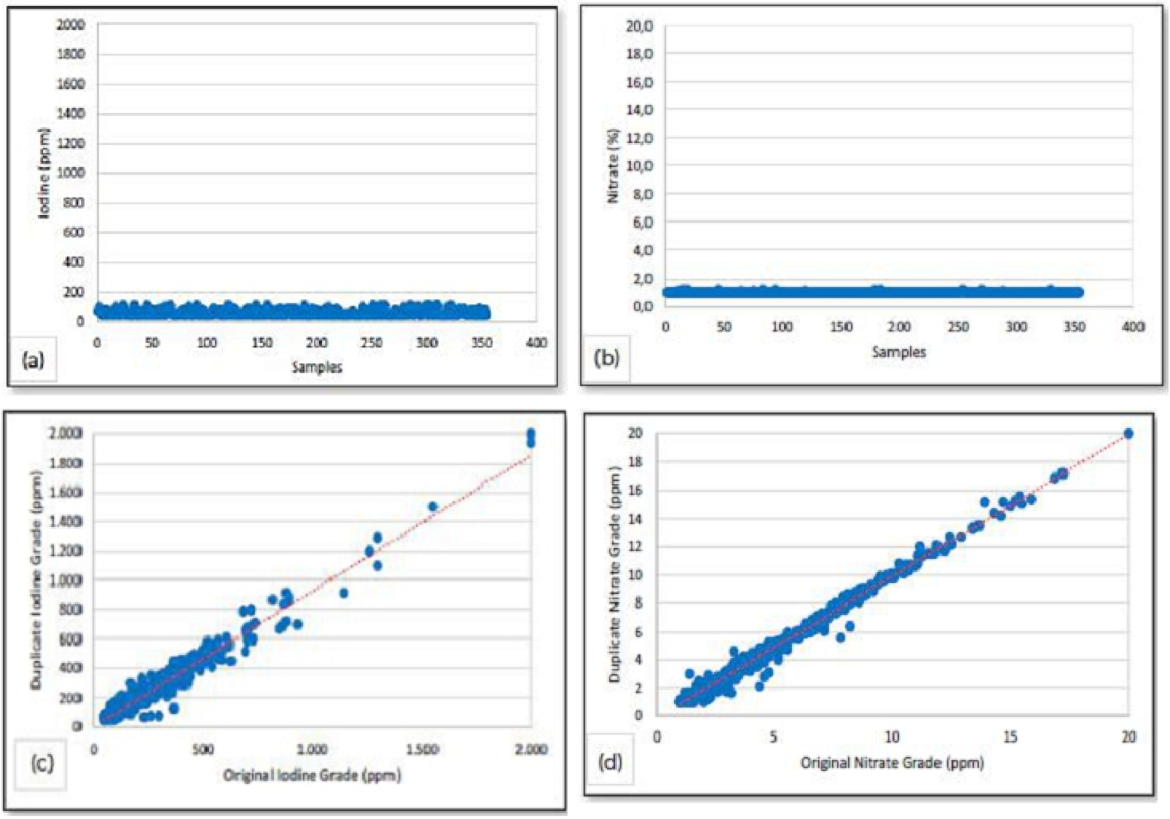
	Iodine grade (ppm)		Nitrate grade (%)	
Mont	**Original**	**Duplicate**	**Original**	**Duplicate**
Mean	305	270	5.0	5.0
Standard deviation	244	223	3.497	3.539
Minimum	50	50	1.0	1.0
25th percentile	150	140	2.2	2.2
Median	240	200	4.0	4.1
75th percentile	370	320	7.0	7.1
Maximum	2,000	2,000	20.0	20.0

Another quality control assessment was done on the total of drill holes perforated in the 400-x-400-m, 200-x-200-m, 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 9-2 and Table 9-2), 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 (SQM(b), 2014). (SQM(l), 2014).

The T Statistic is 2.2 against a threshold of 3, signifying that the difference is not significant.

Figure 9-2. Results of 400-x-400-m, 200-x-200-m and 50-x-50-m Drill Hole Grid Sample Quality Control



Notes: (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 9-2. Statistics of Iodine and Nitrate Grades in Original Versus Duplicate Samples of the 400-x-400-m, 200-x-200-m, and 50-x-50-m Drill Hole Grid (n = 511)

	Iodine grade (ppm)		Nitrate grade (%)	
Statistics	**Original**	**Duplicate**	**Original**	**Duplicate**
Mean	282	264	4.9	4.7
Standard deviation	224	212	3.421	3.463
Minimum	50	50	1.0	1.0
25th percentile	150	140	2.2	2.1
Median	220	210	4.0	3.8
75th percentile	340	320	6.7	6.5
Maximum	2,000	2,000	20.0	20.0

9.8.2 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 20-g 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 Kjeldalh method. Every 10 samples, readings are compared to the quality control and standard samples (SQM(d), 2021).

9.9 Qualified 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-m 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 (SQM (n); (o); (p)), 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.

It is expected that the results of recovery tests with continuous mining material will be included in a future report. 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.

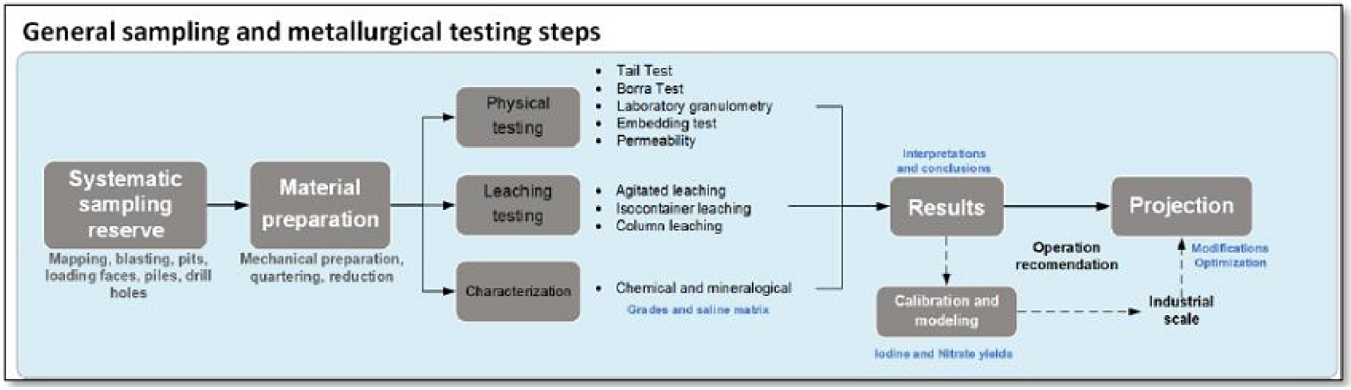
In the following sections, a description of sample preparation and characterization procedures, for metallurgical tests, and process and product monitoring/control activities of the operations through chemical analysis is given.

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 Tests 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 10.3 Analytical and Testing Laboratories.

The reports reviewed and documenting the drilling programs provide detailed descriptions of sampling and sample preparation methodologies, analytical procedures and/or safety considerations, 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:

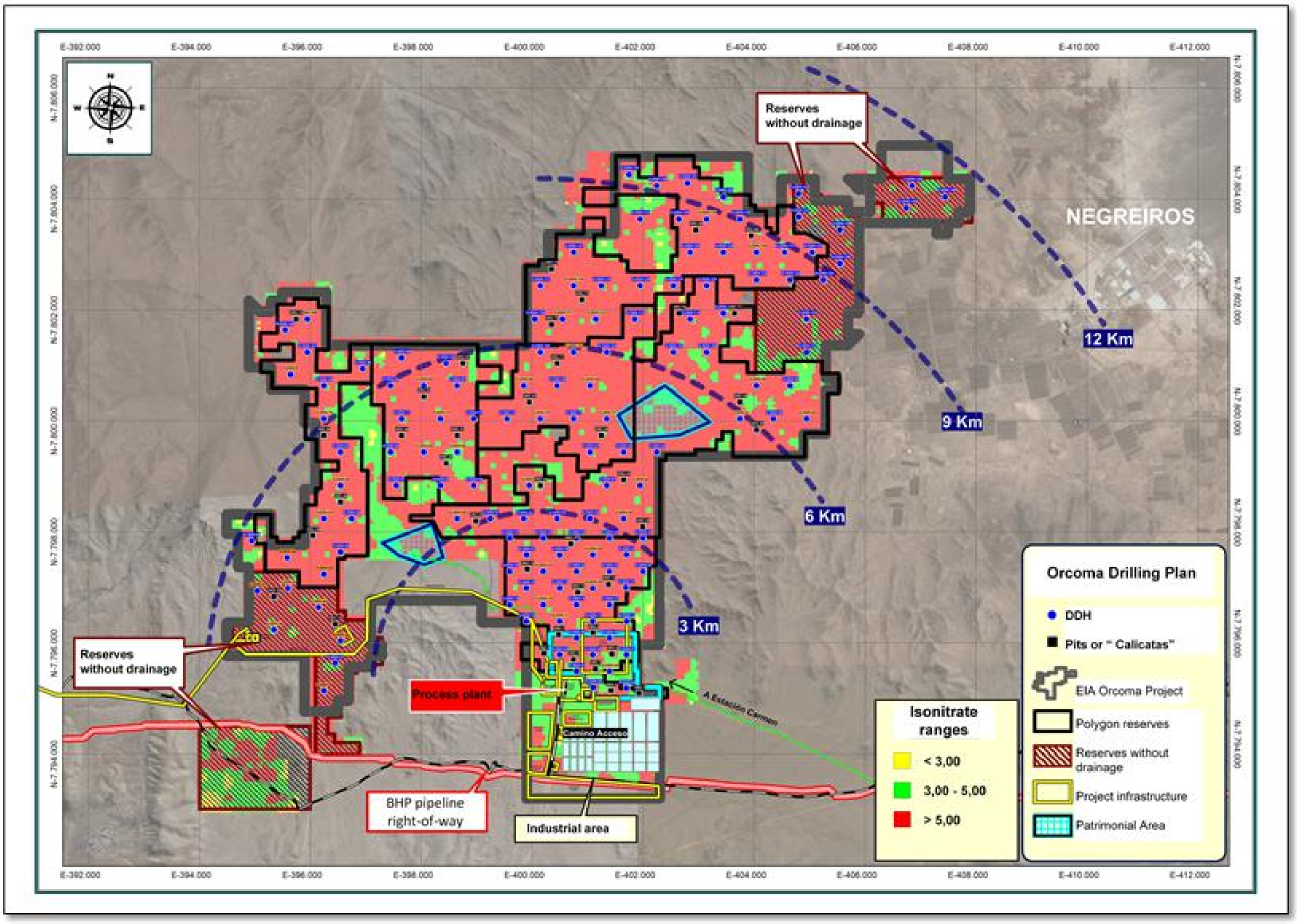
- 2014 Sumo Project (piques or calicatas).
- 2020 Diamantina Project (DDH)

For the 2014 campaign, the sampling of the reserve was based on the basic unit known as "piques or calicata ", consisting of some trial pits of approximately 3.5 m x 3.5 x, with a depth of 3 m, to extract a mass of approximately 70 t. 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 laws, 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. Test Pits and Diamond Drilling (DDH) Campaign for Composite Samples from the Orcoma Sector for Metallurgical Testing



10.1.2 Caliche Chemical and Mineralogical 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 (%), $KClO_4$ (%), NaCl (%), Na (%), Na (%), H_3BO_3 (%)), and SO_4 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
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
H3BO3	(%)	Volumetric or ICP Finish

Composite samples 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 methodologies to determine iodine in caliche: Redox volumetry and XRF. Redox volumetry involves the titration of a solution of exactly known concentration, called standard solution, which is gradually added to another solution of unknown concentration until the chemical reaction between the two solutions is complete (equivalence point).

The determination of iodine by XRF uses the XRF Spectro ASOMA equipment, in which a sample of the pressed mineral placed in a reading cell is available.

Quality assurance controls consist of checking the condition of the equipment, analyzing a reagent blank together with the samples, verifying the concentration of the titrant, repeating the analysis for a standard together with the set of reagents to confirm its value.

Nitrate Determination

The nitrate content in caliches can be determined by UV-Visible Molecular Absorption Spectroscopy. This technique allows quantifying parameters in solution, based on their absorption at a specific wavelength of the UV Visible spectrum (between 100 to 800 nm).

Determination uses the Molecular Absorption Spectrophotometer POE-011-01, or POE-017-01, in which a glass test tube containing a filtered solution obtained by leaching with filtered distilled water flows in. The result obtained is expressed in percent nitrate.

The quality assurance criteria and validity of the results are described below:

- Previous verification of equipment.
- Perform a comparative analysis of nitrate analysis once a shift, contrasting results of the same samples with other UV-VIS equipment and checking readings in the Kjeldahl method distillation unit, for Nitrogen determination.
- Standard and QC sample input every ten samples.

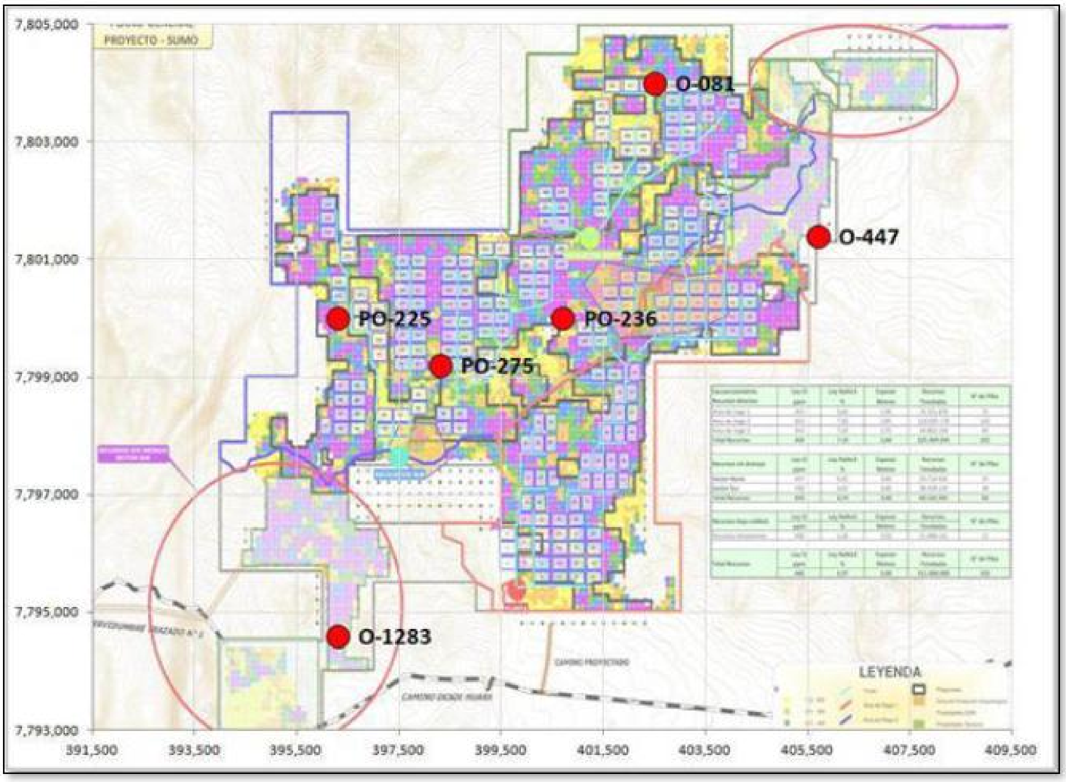
The trial pits presented the following salt matrix, shown in Table 10-2, were determined from 200-x-200-mesh exploration drillings.

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	396,3	405,7	402,5	396,3	400,7	398,3
	Coord Y	7,794,600	7,801,400	7,804,000	7,800,000	7,800,000	7,799,200
Parameter	**Unit**	**Concentration**					
I2	ppm	430	460	440	506	561	415
$NaN0_3$	%	5.5	9.4	6.6	6.7	10.2	10.0
Na_2S0_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	0.80	1.66	0.50	1.22
K	%	0.85	1.32	0.82	1.57	0.92	1.38
$S0_4AP$	%	9.6	14.3	10.6	23.2	8.0	14.6
$KCI0_4$	%	0.03	0.05	0.02	0.03	0.04	0.04
NaCI	%	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_3B0_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 10-3.

Figure 10-3. 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, polyhalite, 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-L 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 10-3.

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 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 impregnation times

Figure 10-4. Embedding, Compaction, and Sedimentation Tests Performed at the Iris Pilot Plant Laboratory

Orcoma's physical test results are compared with those of TEA (Table 10-4). 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	Compaction	%Fines	#-200	Alpha
TEA	0.024	7.37	29.47	10.89	2.72
Orcoma	0.025	10.05	32.98	12.29	2.29

According to the tests, 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. This indicates a greater uniformity in the porous bed, allowing for higher irrigation rates, and therefore, better kinetics.
- Fines: Both pampas present high percentage of fines and 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 microfines and give rise to channeling very high value in both pampas.
- Parameter Alpha: Both values in medium quality, implying acceptable embedding speed that 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 manner and consider 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 run at atmospheric pressure and temperature in a glass reactor without baffles. A propeller agitator at 400 revolutions per minute (RPM) was used to agitate the leach suspension. In summary, all experiments are performed with:

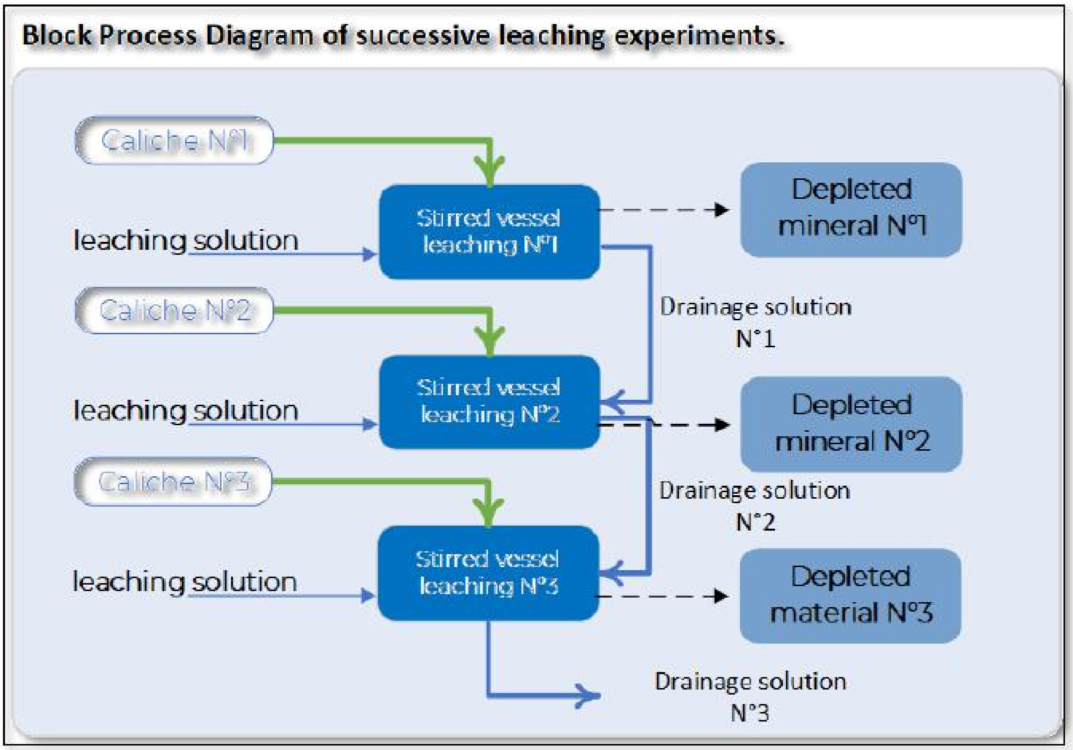
- Environmental conditions.
- Caliche sample particle size 100% mesh -65# mesh.
- Caliche mass 500 g.
- L/S ratio 2:1.
- Leaching time 2 h.
- Three contact leaching procedures with drainage solution use.

To start the leaching experiment, the initial filling of the reactor was done with distilled water and this solution was agitated carefully. After a few minutes, the pH and oxidation reduction potential (ORP) values were set, caliche concentrate is added to the solution, and the agitation is increased to the final speed.

Once finished, the product is filtered and the resulting brine solution is analyzed, checking the extraction of analytes and minerals by contact with the bleaching agent, unit consumption, and iodine extraction response.

Consecutive leaching is a complement of the agitated vessel leaching, which is also performed in an agitated vessel with the same parameters explained above, however, it contemplates leaching three caliche samples successively with the drainage solution resulting from each stage. The purpose of this test is to enrich the solution of an element of interest such as iodine and nitrates to evaluate the performance of a heap as this solution percolates through a heap. The representative scheme of successive leaching in stirred vessel reactors is shown in Figure 10-5.

Figure 10-5. Successive Leach Test Development Procedure



The results given by the company have been 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. DDH 2020 -Chemical Characterization of Samples Obtained from Successive Leach Test Results.

Element											Soluble	Iodine
Yodo (ppm)	$NaNO_3$	Na_2SO_4	Ca	Mg	K	SO_4 ap	KCl04	NaCl	Na	H_3BO_3	salts (SS, %)	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

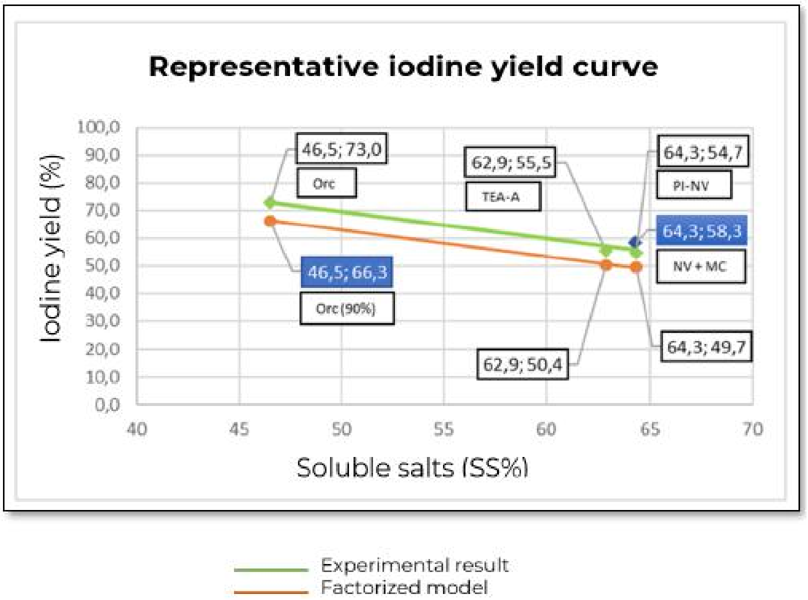
Orcoma has a higher yield than other sectors. Figure 10-6 shows the results of the agitated leaching tests of two resources from TEA and Pampa Orcoma. The graphs represent the nitrate and iodine yield achieved as a function of soluble salt content.

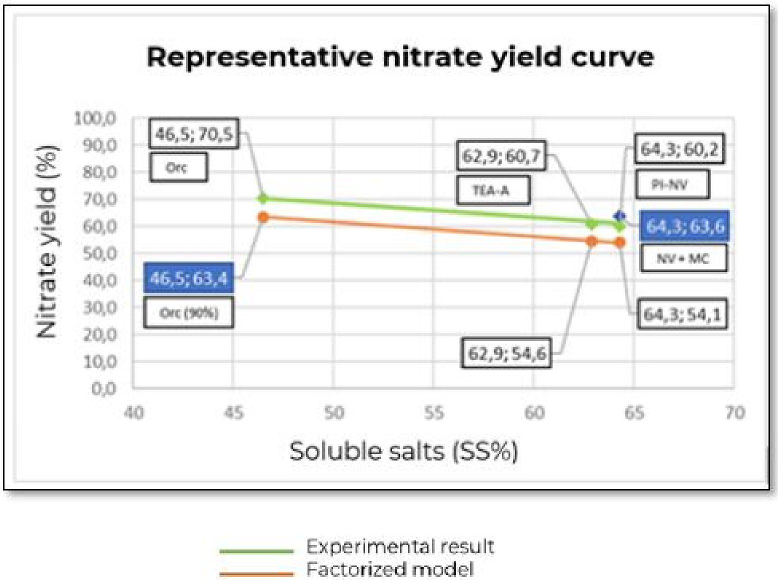
In the graphs, the green line corresponds to the experimental yield result, while the orange line indicates a modeling result of the Pampa Orcoma yield factored at 90%. The yield equivalent to 90% of what the model indicates is 66.3% for Iodine and 63.4% for Nitrate. These factored yields are conservatively 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% 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 10-6. Nitrate and Iodine Yield Obtained by Successive Agitated Leaching Test



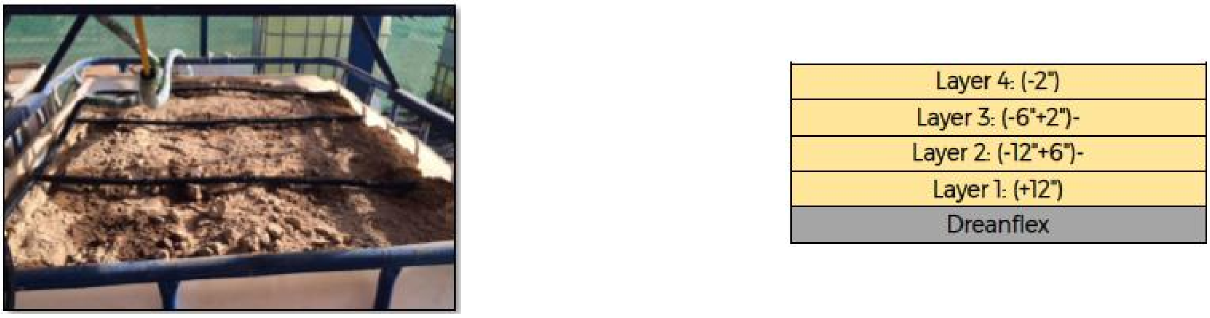


10.1.5 Leaching in Isocontainers

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 isocontainers 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 10-7.

Figure 10-7. Loaded isocontainer and Distribution of Material According to Granulometry



a) Isocontainer test with Pampa Orcoma material.

b) Iso container 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 10-6.

Table 10-6. Conditions for Leaching Experiments in Isocontainers

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 l/h/m^2
Irrigation/ rate	Water : 0.07 m^3/ton- 2/h/m^2 SI : 0.41 m^3/ton-2 l/h/m^2 Mixed : 0.09 m^3/ton-2 l/h/m^2 Washing : 0.28m^3/ton-2 l/h/m^2

From this same sampling and loading process, head samples are obtained to determine the caliche grades. The head grades are detailed in Table 10-7.

Table 10-7. Head Grade Samples Loaded to Isocontainers

Element Unit	K %	Mg %	Ca %	NaCl %	Na_2SO_4 %	NaNO3 % %	$KClO_4$ %	I2 ppm	H_3BO_3 %	Na_2CO_3 %
0-081	0.70	0.72	3.57	12.00	22.60	5.1	0.02	360	0.33	0.05
PO-225	1.20	0.98	3.73	15.90	26.10	5.3	0.03	370	0.44	0.06
PO-236	1.04	0.79	2.24	16.30	17.90	5.2	0.03	170	0.35	0.03
PO-275	0.82	0.93	3.87	11.40	25.0	4.6	0.02	400	0.54	0.06
0-447	0.96	0.95	2.77	13.90	23,00	6.3	0.02	270	0.33	0.06
0-1283	0.73	0.62	4.62	17.79	33.30	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 10-8, corresponding to averages of the four representative isocontainers.

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
I2	55.8	70.2	64.7	66.4	67.8	69.3	67.7
NaNO3	70.5	79.8	74.3	84.9	75.1	74.2	77.6

Isocontainer leachin 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 SQMPPFO property package (originally developed for Salar de Atacama brine equilibria).

Other variables were added to the isocontainer results:

- Granulometry.
- Emebid (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 10-9).

Table 10-9. **Sumo Project 2014 -Result of simulated pile scaling for 6 Pampa Orcoma trial pits**

	Elements												
Sample	**Yodo (ppm)**	**$NaNO_3$**	**Na_2SO_4**	**Ca**	**Mg**	**K**	**SO_4 ap**	**$KCl0_4$**	**NaCl**	**Na**	**H_3BO_3**	**Soluble salts (SS, %)**	**Iodine Yield**
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	0.00	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 isocontainers 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 scarce, being a critical issue for the mining industries so the use of other leaching agents such as seawater can be a viable alternative. Therefore, experimental studies of caliche leaching in mini-columns were conducted to evaluate the effect of seawater.

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, below 15 m depth.

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 (agua Feeble ácida, 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)
- Composition determined by granulometry of the material disposed in the columns.

The test development conditions are as indicated in Table 10-10.

Table 10-10. Conditions for Leaching Experiments with Seawater

Parámeter	**Detall**
Mass	3031,3 g
Granulometry	1" - ¾" - ½" - ¼" - ¼" - 20" mesh
Test Duration	7 days
Total impregnation	19 hours
Regime watering/rest	1 hour to watering /2 hours to rest 1 hour to watering /2 hours to rest 1 hour to watering /2 hours to rest 1 hour to watering h/1 h hours to rest 1 hour to watering h/1 h hours to rest 2 hour to watering h/1 h hours to rest 2 hour to watering h/1 h hours to rest
Irrigation Rate Flow-Flow	5 days and 20 h

The composition determined by granulometry of the material disposed of in the columns is as shown in Table 10-11.

Table 10-11. Characteristic Composition of the Caliche used in the Tests

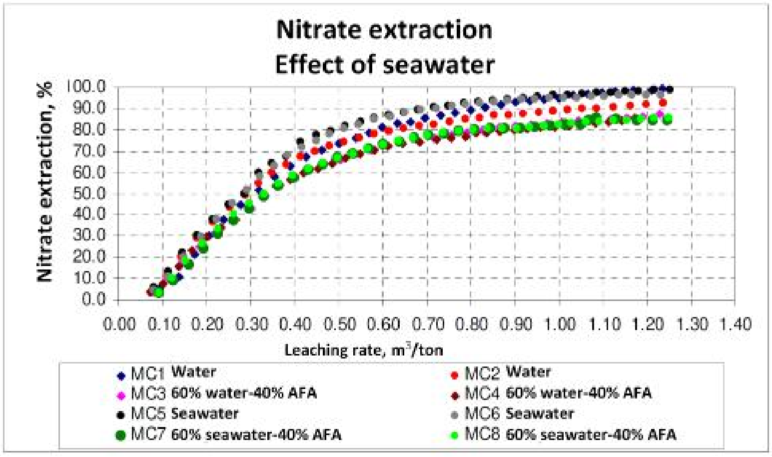
					Caliche Composition (%)						
Type	**NO_3**	**IO_3**	**CI**	**SO_4**	**CIO_4**	**BO_3**	**Na**	**K**	**Mg**	**Ca**	**CO_3**
Caliche Type +1"	3.83	0.05	5.13	22.52	0.04	0.58	8.43	1.08	0.84	4.88	0.04
Caliche Type +3/4"	4.96	0.06	5.43	19.98	0.05	0.49	7.93	1.02	0.88	4.67	0.03
Caliche Type +1/2"	5.76	0.07	5.34	14.78	0.05	0.79	9.08	0.89	0.45	2.80	0.05
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

Source: SQM- Report-Effect Sea Water 231208

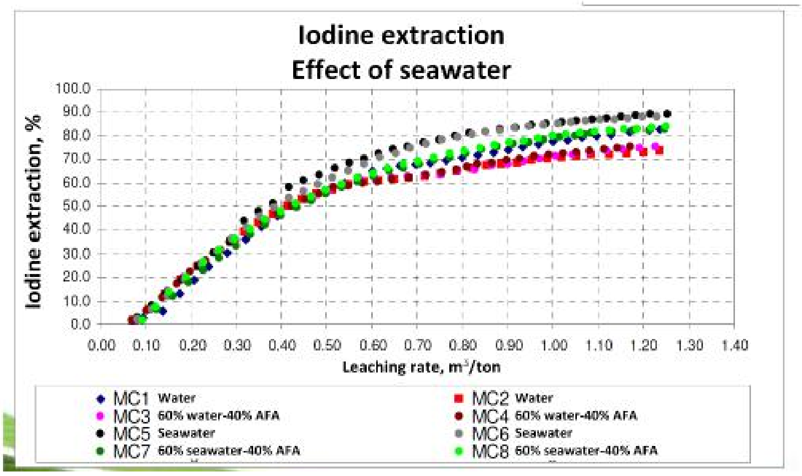
Experiments have shown that highly soluble minerals such as nitrate and iodate are rapidly leached with seawater without much difference concerning the raw water method.

Regarding nitrate and iodine extraction, higher NO_3 extraction, Figure 10-8., is observed when leaching with seawater as well as a higher IO3 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 10-8. Results of Nitrate and Iodine Extraction by Seawater Leaching



a) Nitrate extraction with seawater



b) Iodine extraction with seawater

Source: SQM- Report-Effect Sea Water 231208

In the future, SQM intends to study heap behavior through column leaching tests using seawater, by including different irrigation rates and heights of the bed in the column and analyzing the experimental concentrations of each species.

10.1.7 Laboratory Control Procedures

There is currently a quality control system for iodine production, consisting of monitoring the process from the characterization of the input brine, followed by the sampling and characterization of the cutting and oxidation brine, as well as the prill product obtained. The product obtained from the iodine prill plant undergoes a series of analyses to quantify purity, chloride/bromine ratio, sulfate, mercury, residues, and color index.

The control analyses, on liquid and solid samples, will be 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, and solution density.

Table 10-12 lists 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

Parameter	**Method**
IODINE SOLUTIONS	
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	
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 10-13).

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
$NaNO_3$	(gpl)	128	128
Na_2SO_4	(gpl)	127	127
NaCl	(gpl)		226
Ca	(gpl)	0.22	0.22
Mg	(gpl)	15.5	15.5
K	(gpl)	10.7	10.7
$KCl0_4$	(gpl)	0.9	0.9
H_3BO_3	(gpl)	4.9	4.9
Na_2CO_3	(gpl)	1.0	4.6
MgL	(gpl)	4.6	11.9
NO3/K	---	11.9	143
NO_3/ClO_4	---	143	26.0
NO_3/B	---	26.0	3.55
Alkalinity/iodine	---	1.70	
Evaporation Rate	(l/m²d)	3.55	128

Source: SQM-Plan Industrial Abril Orcoma – final.

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 Sample Representativeness

The company establishes QA/QC measures to ensure the reliability and accuracy of sampling, preparation, and assays, as well as the data obtained from assays on them. 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. So that the data generated are reliable and can be used in both resource estimation and prediction of recovery estimates.

According to the sampling protocol, samples are delivered from the drilling site to the secure and private facility for logging by technical personnel in charge of the campaign. 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 accordingly, 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. On the other hand, the Lims data management system is used, which randomly orders 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, it is the laboratory manager who reviews and requests checks of the samples, in case the duplicate or standard is out of control.
- As concerns 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, which is in charge of chemical and mineralogical analysis.
- Pilot Plant Laboratory, located in Iris- Nueva Victoria, is in charge of receiving samples and applying physical and leaching response assays.

Table 10-14 details the name, location, and analysis conducted.

Table 10-14. List of Installations Available for Analysis

Laboratory name	Location	Analysis
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 mineralizations 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 (accredited to international standard 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 attempting 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, lower is the extraction while higher calcium in SM, higher is the 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 leachability behavior of the bed.

For metallurgical recovery estimation, the formulated model contains the following grades:

- Chemical-mineralogical composition.

- Yield.

- Physical characteristics: sedimentation velocity, compaction, percentage of fines and ultrafines, uniformity coefficient and wetting.

Therefore, this metallurgical analysis is focused on determining the relationships associated with these variables, since the relationships could 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. As reported by the company, it was used the best subset regression to determine the optimal linear relationships between these predictors and metallurgical results, setting a linear relationship between yield and total salts depending on soluble salts concentration. In this way, iodine and nitrate recovery equations are represented by the following formulas and Figure 10-9.

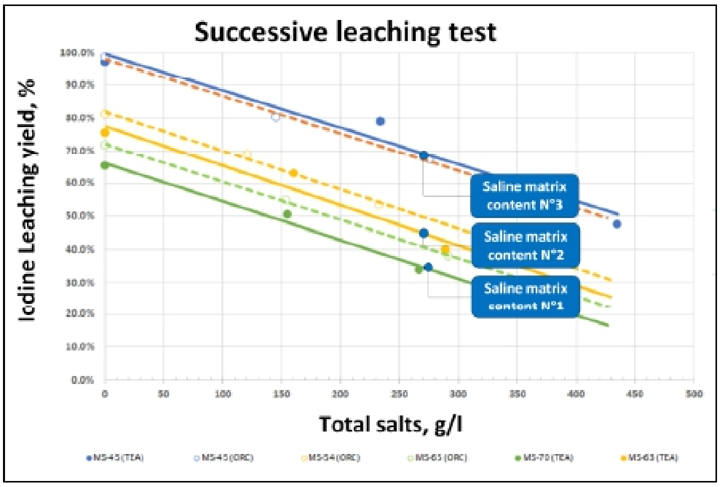
$$\boldsymbol{Iodine\ yield = A * \left[total\ salts\ \left(\frac{g}{l}\right)\right] + B_n\ ;}$$

$$where:\ B_n = f(\%soluble\ salts)\ and\ A = constant$$

$$\boldsymbol{Nitrate\ yield = C + D * \left[total\ salts\ \left(\frac{g}{l}\right)\right] + F_n;}$$

$$where:\ F_n = g(\%soluble\ salts\ \%Nitrate)\ and\ C, D = constants$$

Figure 10-9. Iodine Recovery as a Function of Total Sales Content Test Work with Samples from Two Different Resource Sectors to be Exploited by the Company



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%.

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 impregnation stage. As a result, a parameter impact ranking is established in caliche classification, in the order indicated below (from higher to lower impact):

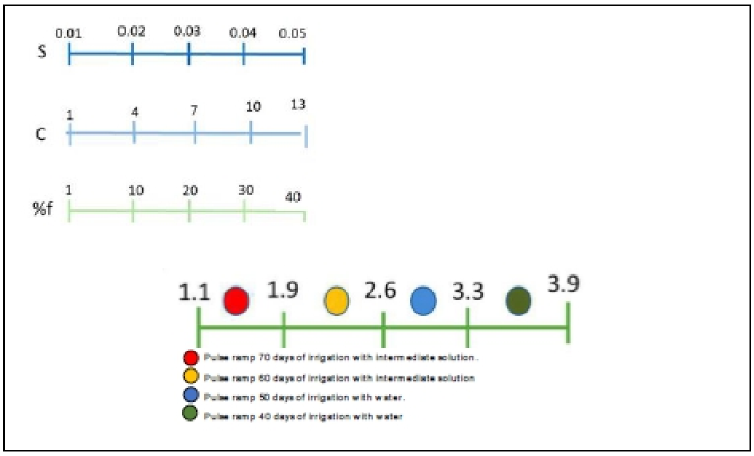
1. Compaction degree (C).

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 10-10):

- 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 Impregnation



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 in operation and the selection of the irrigation strategy is as follows:

- We proceed with a comparative review of the actual heap Salt Matrix versus that delivered by diamantine from the different mining polygons. The correlation factor between both is obtained, which allows determining, from the tests applied to diamond samples, how the heap performs in a more precise way.
- With the salt matrix value, we estimate a yield per exploitation polygon (with the empirical models) 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., Cm/min, compac, % 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 476 of Nueva Victoria, the physical test determine that the pile tends to generate mud in the crown and instability. A 60-day wetting is recommended without tendency to generate turbidity. It is recommended to irrigate at design rate.

The real composition for Pile 476, is determined by the diamond campaign by polygon is shown in Table 10-15, in which some differences can be observed and in terms of salt matrix, a difference of four percentage points.

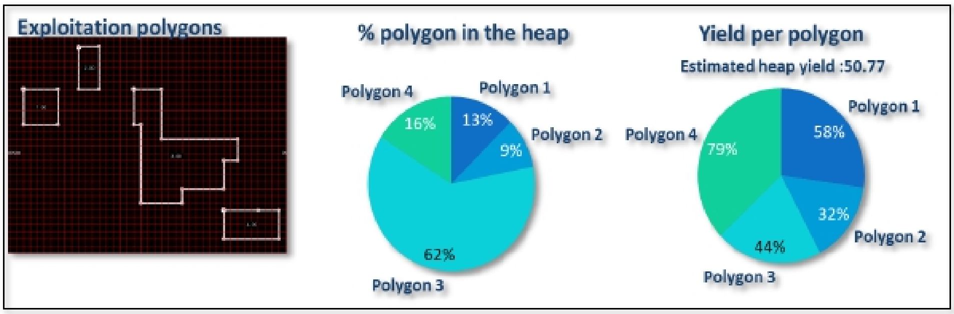
Table 10-15. Comparison of the Composition Determined for the 476 Heap Leaching Pile in Operation at Nueva Victoria

Real vs. Diamond Salts Matrix

Type	Iodine grade (ppm)	Nitrate grade (%)	Na_2SO_4	Ca	Mg	K	$KCIO_4$	NaCI	Na	H_3BO_3	Saline Matrix
Sample	411	4.71	19.6	2.32	1.09	0.83	0.68	12.96	7.39	0.31	64.4
Real	422	5.40	19.6	1.98	1.25	0.81	0.68	12.62	7.04	0.27	60.1

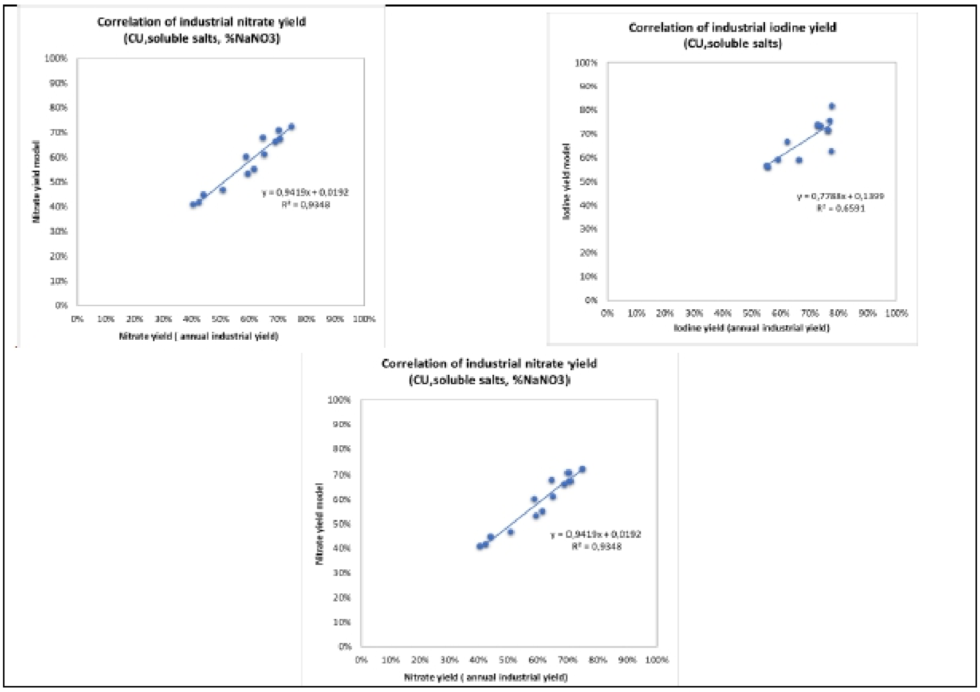
Through the established methodology, composition and physical properties, the resulting 476 pile yield estimate is 50.77%. The estimation scheme is as shown in Figure 10-11.

Figure 10-11. Heap Yield Characterization and Irrigation Strategy Selection - Pile 476 of Nueva Victoria



Following the example and in relation to the observed yield values contrasted with the values of the yield estimation calculated by empirical models, Figure 10-2 shows and Table 10-16 , respectively, the annual yield of Nueva Victoria plant, both for iodine and nitrate, for the period 2008 to 2020.

Figure 10-12. Nitrate and Iodine Yield Estimation and Industrial Correlation for the Period 2008 to 2020 at Nueva Victoria



In Figure 10-2 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 for Nueva Victoria

		Nitrate and Iodine yield correlation												
Parameter	**Unit**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Iodine grade	ppm	476	470	460	457	465	461	466	459	456	456	460	459	460
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%
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
Caliche (SS)														
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%
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%
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%
Nitrate yield correlation	%	61,4%	60,4%	71,0%	55,4%	47,0%	53,6%	68,0%	66,4%	72,6%	67,6%	41,9%	41,1%	45,1%

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 Estimation Methods, Parameters, and Assumptions

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, since actual grid spacing does not allow for a more precise estimation of the Mineral Resource. The 100T drill hole grid currently in process, will potentially allow for a future upgrading of the Mineral Resource to the Measured category (SQM(j), 2021). 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 an iodine cut-off grade of 300 ppm, by means of the following steps (SQM(a), 2014) (SQM(h), 2021) (SQM(i), 2021):

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 as the aggregate tonnage of 200-x-200-m blocks of caliche with grades greater or equal to 300 ppm and a caliche thickness greater or equal to 1.5 m, considering blocks within the area of Pampa Orcoma.

Calculation of Mineral Resource grades: Iodine and nitrate grades of Orcoma's Mineral Resources, were calculated as the aggregate weighted average of the grades of each caliche block with respect to the total caliche Mineral Resource.

11.2 Estimation Methodology 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.

11.2.1 Calculation of Drill Hole Average Iodine and Nitrate Grades

Grades were analyzed for each 0.5 m section of the drill hole, underlaying the overburden unit, with the objective of determining a single value of iodine and nitrate grade for each drill hole. The selection of sections of the drill hole to be considered in the calculation of average grades was performed through a set of criteria that follow from a 300 ppm iodine cut-off grade, as well as expert field criteria, detailed below.

Below the overburden unit, the sections of the drill hole that are considered for its average grade calculation correspond to those of iodine grades greater or equal to 300 ppm. If the shallower sections of the drill hole have a lower iodine grade than 300 ppm, or there is an intercalation of barren intervals within the mineralized mantle, criteria for defining the maximum depth of interest imposes a minimum average iodine grade of 300 ppm, if the proportion of the thickness of the barren intervals to mineralized intervals selected for grade average is less than 1.

For drill holes without mineralization of interest, the thickness of the deposit is imposed as a value similar to the average thickness calculated from mineralized drill holes.

When the sections of interest are selected for each drill hole, the grades of iodine and nitrate are calculated as an arithmetic mean of the grades of the selected sections (Table 11-1) (SQM(h), 2021).

Table 11-1. Example of Selection of Drill Hole Sections for Average Grade Calculation, in Drill Hole PO-007

Drill hole section		Iodine grade (ppm)	Nitrate grade (%)	Unit	Description	Selected for mean calculation
From (m)	To (m)					
0.00	0.40			Overburden	Overburden unit	No
0.40	0.90	520	7.1	Mineral	Iodine grade greater than 300 ppm	Yes
0.90	1.40	430	7.7	Mineral	Iodine grade greater than 300 ppm	Yes
1.40	1.90	230	2.9	Waste	Accumulated average iodine grade greater than 300 ppm and sterile:mineral < 1	Yes
1.90	2.40	170	2.2	Waste	Accumulated average iodine grade greater than 300 ppm and sterile:mineral ≥ 1	No
2.40	2.90	180	2.1	Waste	Accumulated average iodine grade greater than 300 ppm and sterile:mineral ≥ 1	No
2.90	3.40	230	2.3	Waste	Accumulated average iodine grade lower than 300 ppm	No
3.40	3.90	190	2.0	Waste	Accumulated average iodine grade lower than 300 ppm	No
3.90	4.40	150	3.9	Waste	Accumulated average iodine grade lower than 300 ppm	No
4.40	4.90	120	3.6	Waste	Accumulated average iodine grade lower than 300 ppm	No
4.90	5.40	150	3.2	Waste	Accumulated average iodine grade lower than 300 ppm	No
					Mean Iodine grade (ppm)	393
					Mean Nitrate grade (%)	5.9
					Depth of mineralization (m)	1.4

In 178 drill holes, the overburden unit is defined with a depth greater than originally mapped, considering only the sections of the drill hole below such unit when calculating its average grades and mineralization depth. Some drill holes are also evaluated individually, including waste units below a mineral unit, as long as the average iodine grade is greater, or equal to 300 ppm, not including the sterile unit, even if its inclusion meets such criteria.

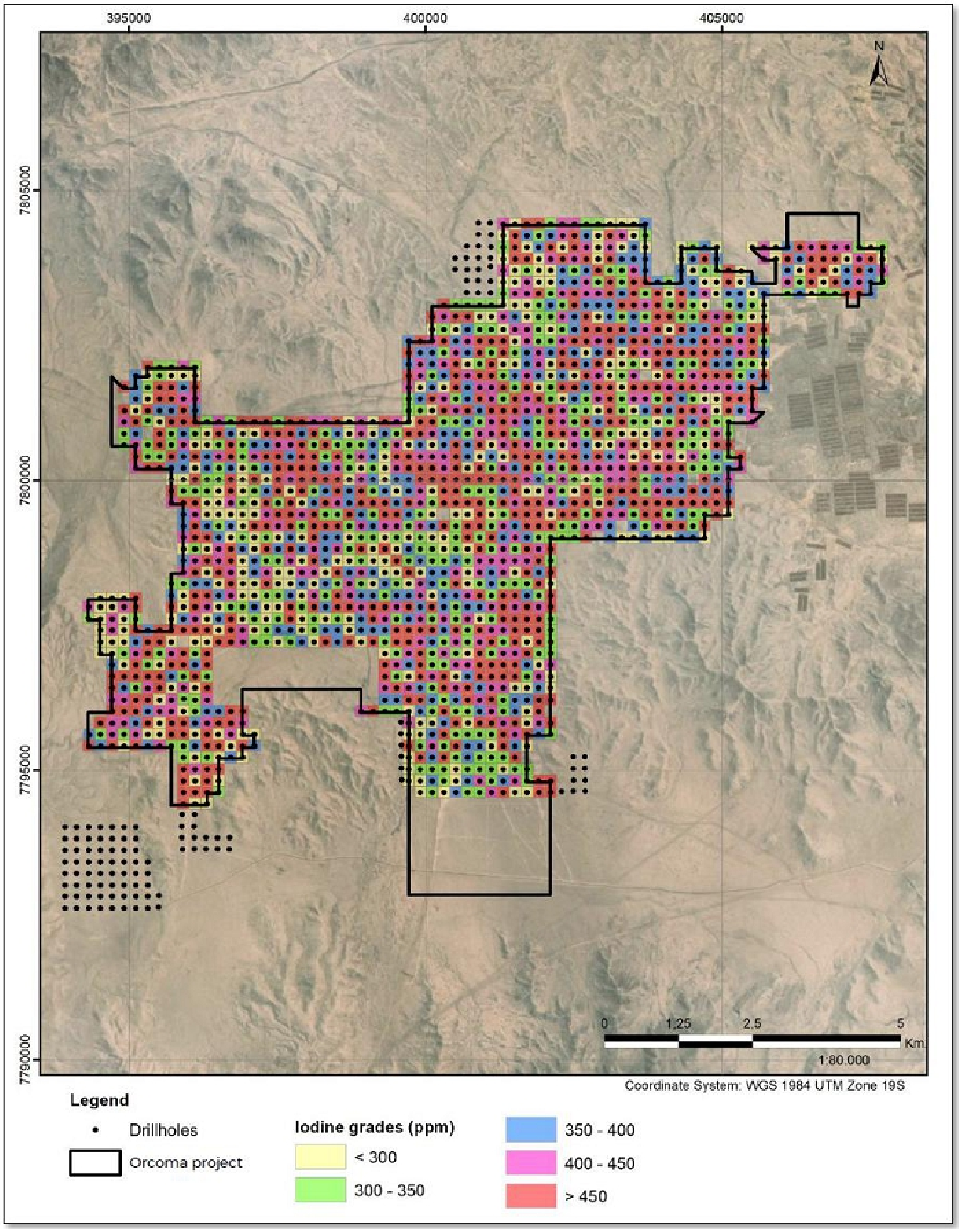
11.2.2 Estimation of the Caliche Mineral Resources

Once iodine and nitrate grades were calculated for each drill hole, the results were compiled in a database that also included overburden unit and caliche thickness. Square polygons of 200-x-200 m were generated with drill hole coordinates as the polygons' centroids. Since some drill holes were not exactly 200 m apart, there was an overlap of polygons that generated an irregular mesh. The mesh was intersected with Pampa Orcoma's permit area to obtain only the polygons inside such area.

Each polygon has a specific area, caliche thickness, and average iodine and nitrate grades associated to each drill hole (Figure 11-1) The volume of caliche was calculated from the area and thickness of each mineralized block, and its tonnage was then calculated by assuming a homogenous caliche density of 2.1 t/m^3 obtained from several analyses made by SQM in Nueva Victoria mine and other operations involving caliche deposits. The tonnage of mineralized blocks is summed for all blocks with an average iodine grade greater or equal than 300 ppm and a thickness greater or equal than 1.5 m, thus obtaining a resource estimation.

Since Mineral Resources are reported exclusive of Mineral Reserves, the Mineral Resource was estimated considering portions of the Mineral Resource polygons outside of the permit area for mining operations (Section 12.1).

Figure 11-1. 200-x-200-m Drill Hole Grid and Polygons of Average Iodine Grades Associated with each Drill Hole



11.2.3 Estimation of Mineral Resource Grades

The iodine and nitrate tonnage of each block was calculated as the weighted caliche tonnage of the block by its respective grade. Total iodine and nitrate tonnage was then determined as the sum of the iodine and nitrate tonnage of every block, as long as the iodine grade of the block was greater or equal to 300 ppm and its thickness is greater or equal to 1.5 m. The results for iodine and nitrate are then divided by the estimated caliche Mineral Resources, obtaining the average grades of the Mineral Resource.

Since Mineral Resources are estimated exclusive of Mineral Reserves, the estimate is done by considering portions of the Mineral Resource polygons outside of the project area with environmental approval for mining operations (Section 12.1).

11.3 Cut-off Grades

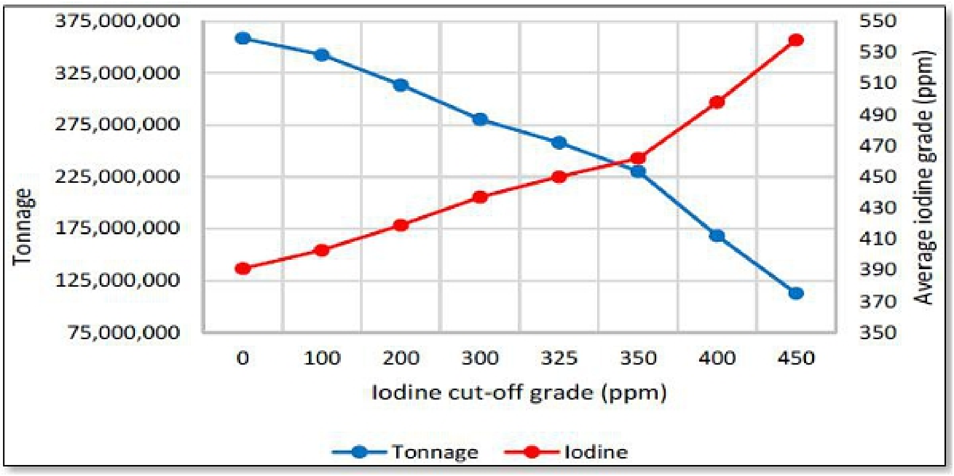
This sub-section contains forward-looking information related to establishing the prospects of economic extraction for Mineral Resources for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the 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 iodine cut-off grade was established by SQM at 300 ppm. The cut-off grade was established using a tonnage-grade curve showing the relation between variable accumulated cut-off iodine grades and operational average grades in Pampa Orcoma. A 300 ppm iodine cut-off grade implies that the average grade is greater than 450 ppm (Figure 11-2), enabling incurring costs of 15 to 20 United States Dollars per kilogram (USD/kg) of iodine, by mining 4.0 kt of caliche to produce 1 t of iodine.

Iodine prices in the medium and long term are estimated to be between 40 and 50 USD/kg, allowing for a margin of at least 20 USD/kg of iodine. Projections for annual iodine production and sales reach 11.8 kt in 2022 with a 4% growth rate, for which the net present value in a 15 year period is 2,550 million USD. Once all the Mineral Resources have been extracted with a cut-off grade of 300 ppm, the remaining mineralization of lower grades will be mined (SQM(m), 2022).

These cost and revenue data indicate an adequate cut-off grade set by SQM, as it ensures an operating profit, as demonstrated in the economic analysis section of this document.

Figure 11-2. Tonnage-Grade Curve for Different Values of Iodine Cut-off grades in Pampa Orcoma



Source: (SQM(m), 2022)

11.4 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:

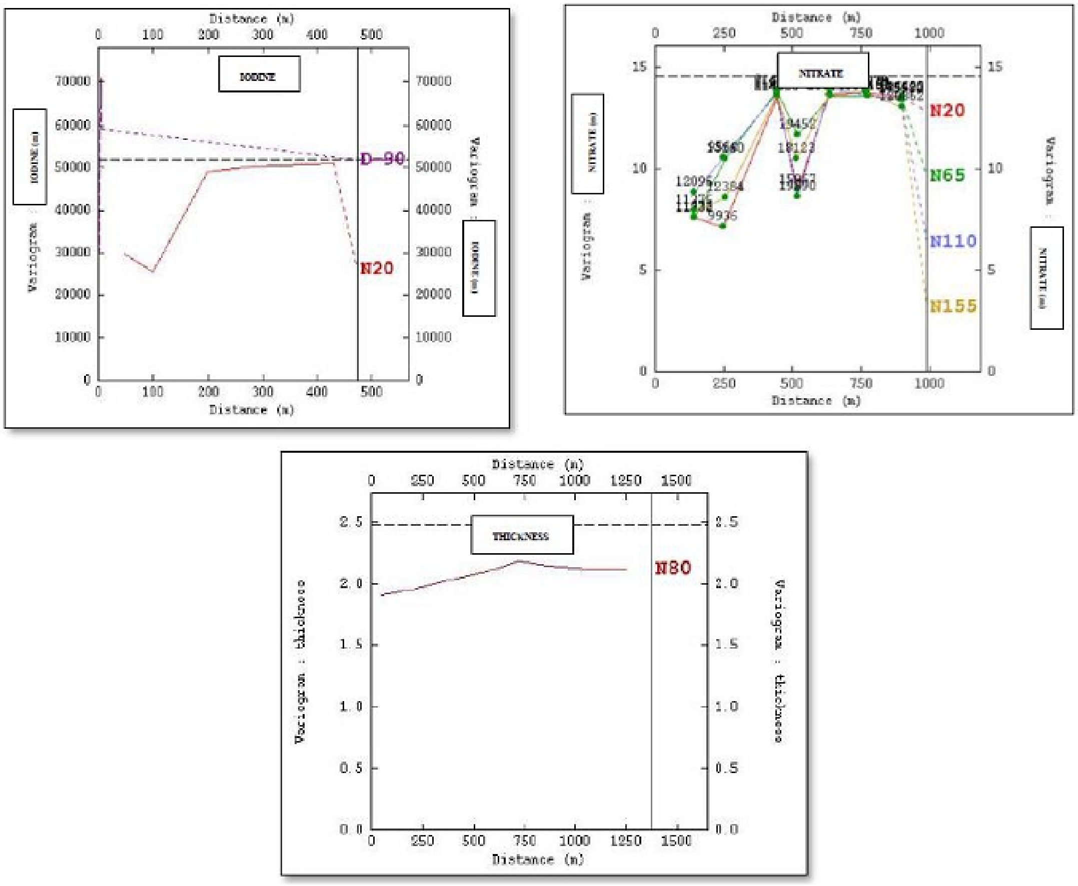
Inferred Mineral Resource: 400-x-400-m prospecting grids are carried out in the earlier stages of the project. When prospecting is carried out in districts or areas of recognized presence of caliche or when the drill hole grid is accompanied by some punctual prospecting in a smaller grid confirming the continuity of mineralization, it is possible to anticipate that such identified Mineral 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 surface geology and the definition of geological units.

Indicated Mineral Resource: a denser grid (200-x-200 m) enables a reasonable level of confidence in the dimensions, mantle thickness, tonnage and grades of the mineralized bodies as well as the continuity of mineralization, improving the characterization of geological units. These sectors have sufficient confidence in the Mineral Resource to allow the application of modifying factors.

The QP carried out an independent analysis of the variography on Pampa Orcoma. The spatial continuity of caliche mineralization was analyzed by calculating experimental variograms of iodine and nitrate grades, and mineralized thickness (Figure 11-3). The variograms were calculated using the elevation relative to topography as a reference system, concluding that grades decrease with depth.

The variograms range is greater than 200 m for iodine and nitrate grades (distance from which the data are uncorrelated), showing a high horizontal/lateral continuity for both grades. In the case of the thickness of caliche mantle there is a zonal anisotropy. Additionally, down-the-hole (DTH) variogram grades also show low nugget effect, concluding that iodine and nitrate grades, and mineralized thickness, present a high continuity.

Figure 11-3. Experimental Variograms of Iodine and Nitrate for Pampa Orcoma



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.

11.5 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.

Mineral Resource uncertainty was analyzed by variography of grades and thickness of caliche by the QP (section 11.4). Grade and thickness continuity is greater than drill hole spacing. Estimations have been replicated and validated by the QP following SQM's approach (section 11.1), with minor differences that have no material implications on Indicated Mineral Resource estimates.

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 11-2. Mineral Resource Estimate, Exclusive of Mineral Reserves (Effective December 31, 2021)

Resource Classification	Resources (Mt)	Average grade	
		I_2 (ppm)	$NaNO_3$ (%)
Indicated	18	457	7.4

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 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 tonnes and parts per million respectively.

(5) The Mineral Resource estimate considers an iodine cut-off grade of 300 ppm, based on accumulated cut-off iodine grades and operational average grades, as well as the cost and medium and long term prices forecast for prilled iodine production (Section 16).

(6) Donald Hulse is the QP responsible for the Mineral Resources.

11.6 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 Assumptions

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 mine design parameters.

SQM provided the mineral reserve estimation (tonnage and average grade) based on the data obtained from the 200-x-200-m drill hole grid executed. SQM used a geometric method to evaluate mineral reserves in situ, considering the average grade of Iodine and Nitrate from each drill hole, setting a cut-off of 300 ppm for Iodine grades and applying each average grade evaluated to a 200-x-200-m unit volume block. WSP have checked these calculations considering the unit blocks referred to the total area includes into the environmental license. For volume to mass conversion a caliche density of 2.1 t/m³ was used.

WSP has reproduced the total tonnage of ore mineral and average grades of mineral resources estimated by SQM, obtaining negligible differences which the QP considers not material.

Considering the mineral resources estimation executed by SQM and validated by WSP, mineral reserve estimate for Pampa Orcoma was prepared by applying a direct relation to mineral resource estimates (Table 11-2). A modifying factor equal to one is used for tonnage, considering the layered, shallow, and sub-horizontal geological features of the caliche deposit and the mining process for ore extraction. For iodine and nitrate grades, modifying factors of 0.9 and 0.85 respectively are used as a consequence of natural variability of grades in the mineral deposit and based on historical operational use in SQM's various mining facilities (Table 12-1) (SQM(k), 2021).

Table 12-1. Historical Operational Modifying Factors for Iodine and Sodium Nitrate Grades

Iodine factor	Nitrate factor
90%	85%

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).

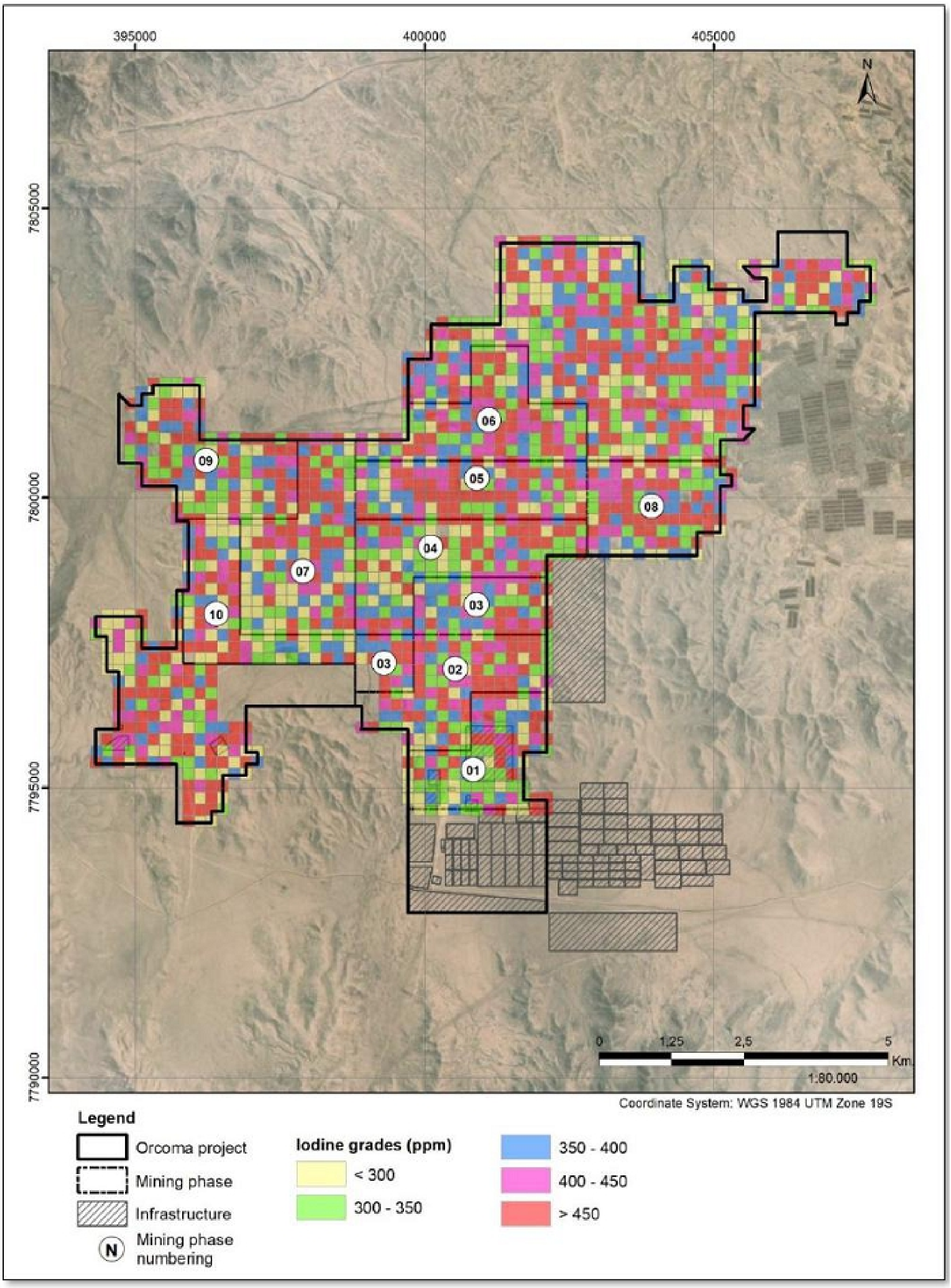
12.2 Classification Criteria

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 tonnes and grade and mine design parameters.

Mineral Reserves were all categorized as probable, as they are based on indicated resources whose iodine and nitrate grades are diluted by modifying factors. With such considerations, iodine and nitrate reserves are estimated as having the same tonnage as the calculated resources, but lower average grades.

When considering a dense recategorized 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, showing Iodine Grade Polygons from 200-x-200-m Grid Drill Holes



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 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.

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 12-2. Mineral Reserve Statement for Pampa Orcoma (Effective December 31, 2021)

Reserve Classification	Reserves (Mt)	Average Grade	
		I_2 (ppm)	$NaNO_3$ (%)
Probable	309	413	6.9

Notes:

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

(2) The units “Mt” and “ppm” refer to million tonnes and parts per million respectively.

(3) The Mineral Reserve estimate considers an iodine cut-off grade of 300 ppm, based on accumulated cut-off iodine 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).

(4) Modifying factors of historical operational use in various of SQM’s mining facilities, are applied to iodine and nitrate grades, the factors applied to iodine and nitrate grades are 0.9 and 0.85, respectively.

(5) Mineral Resources in the area without an environmental permit are estimated at 18 Mt.

(6) Mineral Reserves are reported as in-situ ore

(7) Donald Hulse is the QP responsible for the Mineral Reserves.

(8) 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 provided WSP the production data from their Mining Plan covering mining years 2022 to 2040, with more detail for the 2022-2030 period (10YP). WSP has checked that 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, WSP has been evaluated the cut-off for Iodine (I2) 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 7.5 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 1.50 m thick (sandstone, breccia, and anhydrite crusts), which is removed. The ore (caliche) is then extracted, which has a thickness of 1.50 m to 6.00 m (average of 3.50 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 -1.50 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 309 Mt of caliche with an average grade of 408 ppm iodine and 6.8% nitrates is projected.

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[1] 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.

Table 13-1. Mining Plan for Pampa Orcoma project (2024-2040)

Mining Plan (2024-2040)	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**TOTALS**	**AVERAGE**
Ore mineral production (Mtonnes)	7.5	10.5	13.5	17.5	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	**309.0**	
Drill & Blast ore production (Mt)	2.3	3.2	4.1	5.3	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	**92.7**	**5.7**
Continous Mining production (Mt) (a)	5.3	7.4	9.5	12.3	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	**216.3**	**13.3**
Iodine average grade (I2, ppm)	408	410	403	406	421	408	410	415	405	407	407	407	407	407	407	407	407		**408**
Nitrate salts average grade (NaNO3, %)	6.6%	7.0%	6.7%	6.5%	6.4%	6.9%	6.6%	6.1%	7.4%	6.9%	6.9%	6.9%	6.9%	6.9%	6.9%	6.9%	6.9%		**6.8%**
Total Soluble Salts (TSS) (%)	48.1%	46.9%	48.6%	50.3%	46.0%	48.2%	54.5%	46.8%	47.7%	51.6%	46.5%	46.5%	46.5%	46.5%	46.5%	46.5%	46.5%		**47.9%**
Iodine in situ (mineral reserves) (kt)	3.1	4.3	5.4	7.1	8.4	8.2	8.2	8.3	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	**126.2**	**7.7**
Nitrate in situ (mineral reserves) (kt)	493	732	900	1,139	1,288	1,370	1,316	1,226	1,478	1,378	1,378	1,378	1,378	1,378	1,378	1,378	1,378	**20,966**	**1,286**
Water consumption for heap pads irrigation (m³/t caliche)	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55		**0.55**
Brine Fresh Flush expected (m³/d)	9,820	13,748	17,676	22,913	26,186	26,186	26,186	26,186	26,186	26,186	26,186	26,186	26,186	26,186	26,186	26,186	26,186		**24,809**
Iodine leaching yield (average) (%)	73.5%	74.9%	71.6%	71.3%	78.8%	73.4%	69.5%	76.4%	72.8%	70.7%	74.3%	74.3%	74.3%	74.3%	74.3%	74.3%	74.3%		**73.6%**
Nitrate leaching yield (average) (%)	77.2%	77.1%	76.6%	75.7%	79.2%	76.5%	72.3%	78.6%	75.4%	73.8%	77.6%	77.6%	77.6%	77.6%	77.6%	77.6%	77.6%		**76.8%**
Iodine production in heap pads (kt)	2.0	2.9	3.5	4.6	6.0	5.4	5.1	5.7	5.3	5.2	5.5	5.5	5.5	5.5	5.5	5.5	5.5	**83.9**	**5.1**
Iodine production in heap pads (tdp)	5.6	8.1	9.8	12.7	16.7	15.0	14.3	15.9	14.8	14.5	15.2	15.2	15.2	15.2	15.2	15.2	15.2		**14.3**
Nitrate salts production in heap pads (kt)	343	508	621	777	918	943	856	876	1,003	915	963	963	963	963	963	963	963	**14,482**	**889**
Nitrate salts production in heap pads (tdp)	954	1,415	1,729	2,162	2,556	2,625	2,384	2,439	2,793	2,547	2,681	2,681	2,681	2,681	2,681	2,681	2,681		**2,474**
Prilled Iodine production (kt)	1.7	2.7	3.3	4.2	5.5	5.0	4.8	5.3	4.9	4.8	5.0	5.0	5.0	5.0	5.0	5.0	5.0	**77.4**	**4.8**
Prilled Iodine production (tpd)	0.2	0.6	0.6	0.6	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6		**0.6**
Iodine process efficiency (%)	61.3%	62.5%	59.8%	59.5%	65.7%	61.3%	58.0%	63.8%	60.8%	59.0%	62.0%	62.0%	62.0%	62.0%	62.0%	62.0%	62.0%		**61.5%**
Brine Nitrate production (kt)	343	508	621	777	918	943	856	867	1,003	915	963	963	963	963	963	963	963	**14,482**	**889**
Brine Nitrate process efficiency (%)	69.5%	69.4%	69.0%	68.2%	71.3%	68.8%	65.1%	70.7%	67.9%	66.4%	69.9%	69.9%	69.9%	69.9%	69.9%	69.9%	69.9%		**69.2%**

(a) 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).

The mining zone extends over a large area of 2,400 ha and the mining is organized by mining areas of 25mx25m, that verify the following requirements:

- Caliche Thickness ≥ 2,0 m
- Overburden Thickness ≤ 3,0 m
- Stripping Ratio (waste / ore) [weight/weight] ≤ 1.5
- Iodine operational cut-off grade (300 ppm).

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 iodine and nitrate grade into the ore mass to accumulate in the heap leaching, controlling the floor of the mining area (25-m-x-25-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.

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 114 kt of iodine (19.4 tdp of iodine) and 18,870 kt of nitrate salts (3,224 tpa of nitrates). For a load of 0.85 Mt of ROM or continuous miner caliche in leach pads, there is an average load of 313 t of iodine and 51,908 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 1.5 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 7.5 to 20 Mt of fresh caliche (408 ppm iodine, 6.8% $NaNO_3$, and 47.9% 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 t 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 tonnes 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:
  - 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.
  - 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.
  - 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 (73.6% for iodide and 76.7% for nitrates -the high rate of water for heap leaching irrigation -0.55 m^3/t- 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 1,034 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 0.55 m^3/t.

With these yields, for the 2024-2040 Mining Plan, the iodine heap production will be 84 kt (14.3 tpd) and 14,482 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 Flebe, 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/m^3, with an explosives load factor of 365 grams per tonne (g/t) (load factor of 0.767 kg/m^3 of caliche blasted).

Figure 13-2. Picture of a Typical Blast at Caliche Mines

A CM is used to exploit areas that are close to infrastructure that can damage blasting, extract softer caliche zones, and allows to obtain a more homogeneous granulometry of the mineral extracted, which generates better recovery rates in the iodine and nitrate leaching process. Additionally, it generates less dust emission than the drill-and-blast system.

SQM may use either SME-Vermeer T1655 series equipment or SME-Wirtgen 2500SM Each unit can produce 3 Mtpa. The SME-Wirtgen 2500SM Series equipment, has a different cutting design than the Vermeer equipment, with tracks for transport and the possibility of working with a conveyor belt stacking or loading material directly onto a truck. The better performance of SME-Wirtgen equipment in mining means that SQM will opt for this type of Wirtgen equipment over the Vermeer models.

Figure 13-3. Terrain Leveler Surface Excavation Machine (SEM)

Pampa Orcoma's unit mine production cost is set at 2.13 USD/t of caliche mined, including heap leach drainage construction.

The production costs of solutions enriched in iodine and nitrates (heap leach) are set at 1.63 USD/t of caliche mined.

13.4 Required Mining Equipment Fleet and Machinery, 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 (7 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 Wheeldozer
- 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 y 15 m^3
Shovels	2	13 a 15 m^3 150 a 200 tonnes
Surface Excavation Machines (SME)	2	100 a 200 tonnes
Trucks	15	100 - 150 tonnes-c
Bulldozer	4	50 a 70 tonnes
Wheeldozer	2	35 tonnes
Drill	5	Top hammer de 3,5 to 4,5 inches (diameter)
Grader	3	5 – 7 m
Roller	2	10-15 tonnes
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 1.50 m on average at Pampa Orcoma) and the extraction of caliche (3.50 m average thickness) proceed.

The reduced magnitude of the excavations (5.00 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 309 Mt, with average grades of 408 ppm iodine and 6.8% nitrates.

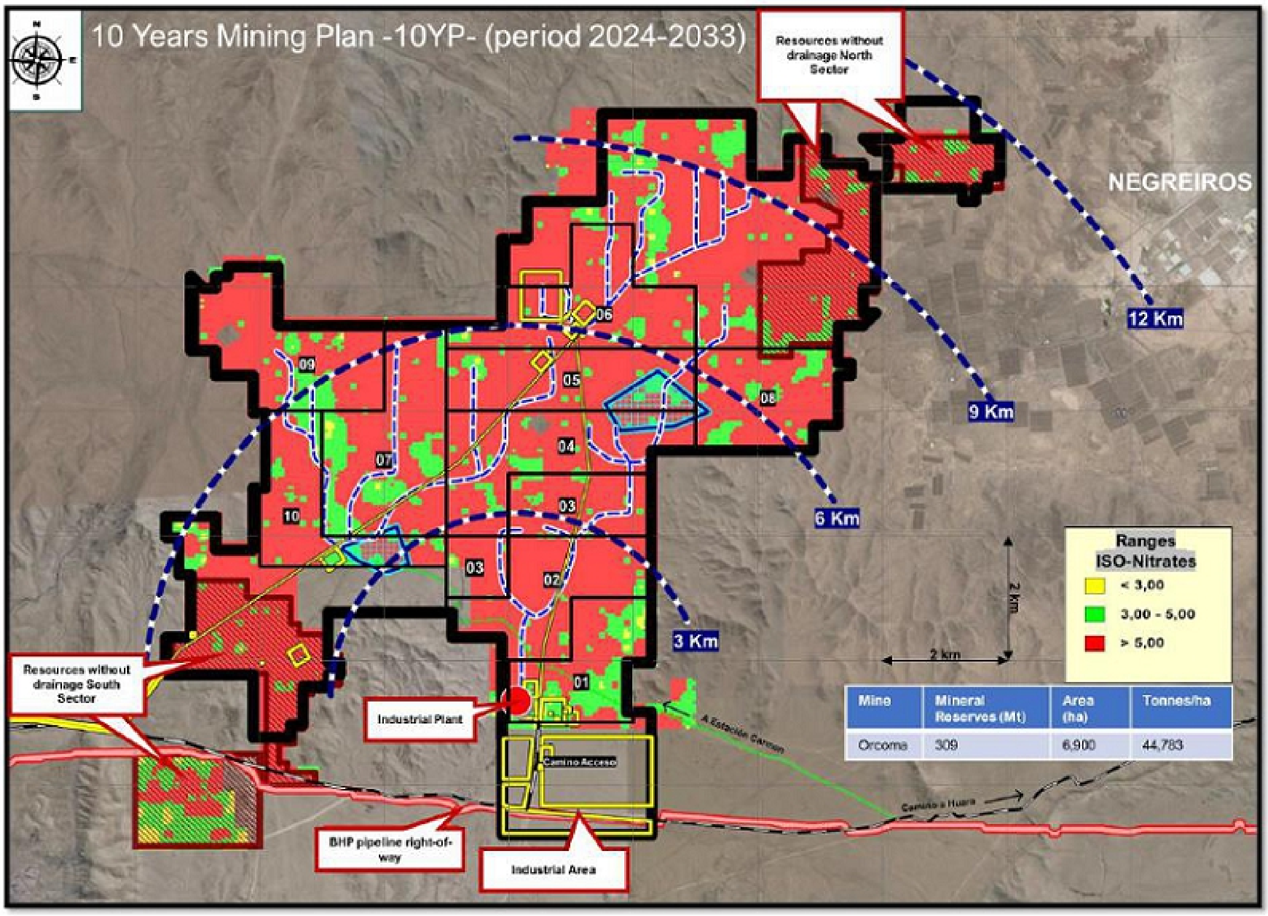
Given mining and leaching production factors, total production of 84.0 kt of Iodine and 14,482 kt of Nitrate salts is expected for this period (2024-2040), which implies producing enriched leachates with average contents of 5.1 thousand tonnes per day (ktpd) of Iodine and 889 thousand tonnes per annum (ktpa) of nitrate salts that would be sent to the processing plants.

Table 13-3. Mine and PAD leaching production for Pampa Orcoma mine – period 2024-2030

LoM 2024-2040	**Caliches ore**	**Percentage**	**Iodine**	**Nitrate**
Production (kt)	309,000			
Average grades (Iodine ppm / Nitrates ppm)			408	6.8%
Ore in-situ (kt)			126.2	20,966
Traditional mining (kt)	92,700	30%		
Continuous mining (kt)	216,300	70%[(a)]		
Mining yield		92%		
Dilution Factor Grades			2.25%	2.50%
Mining process efficiency			90%	90%
ROM heap recovery traditional mining			65%	73%
Heap recovery continuous mining			77%	79%
Heap ROM production traditional mining (kt)			22.3	4,112
Heap production continuous mining (kt)			61.5	10,370
Leaching process efficiency (%)			73.6%	76.7%
Mining & Leaching process efficiency (%)			66.4%	69.1%
TOTAL ROM heap production (kt)			**84.0**	**14,482**
TOTAL ROM heap production (ktpa)			**5.1**	**889**

(a) 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).

Figure 13-4. Ten Year Plan -2024-2033 Pampa Orcoma Mine



Mine	Mineral Reserves (Mt)	Area (ha)	Tonnes/ha
Orcoma	309	6,900	44,783

14 PROCESSING AND RECOVERY METHODS

This sub-section contains forward-looking information related to the copper 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 11,000 to 20,000 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 km^2).

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 have been 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

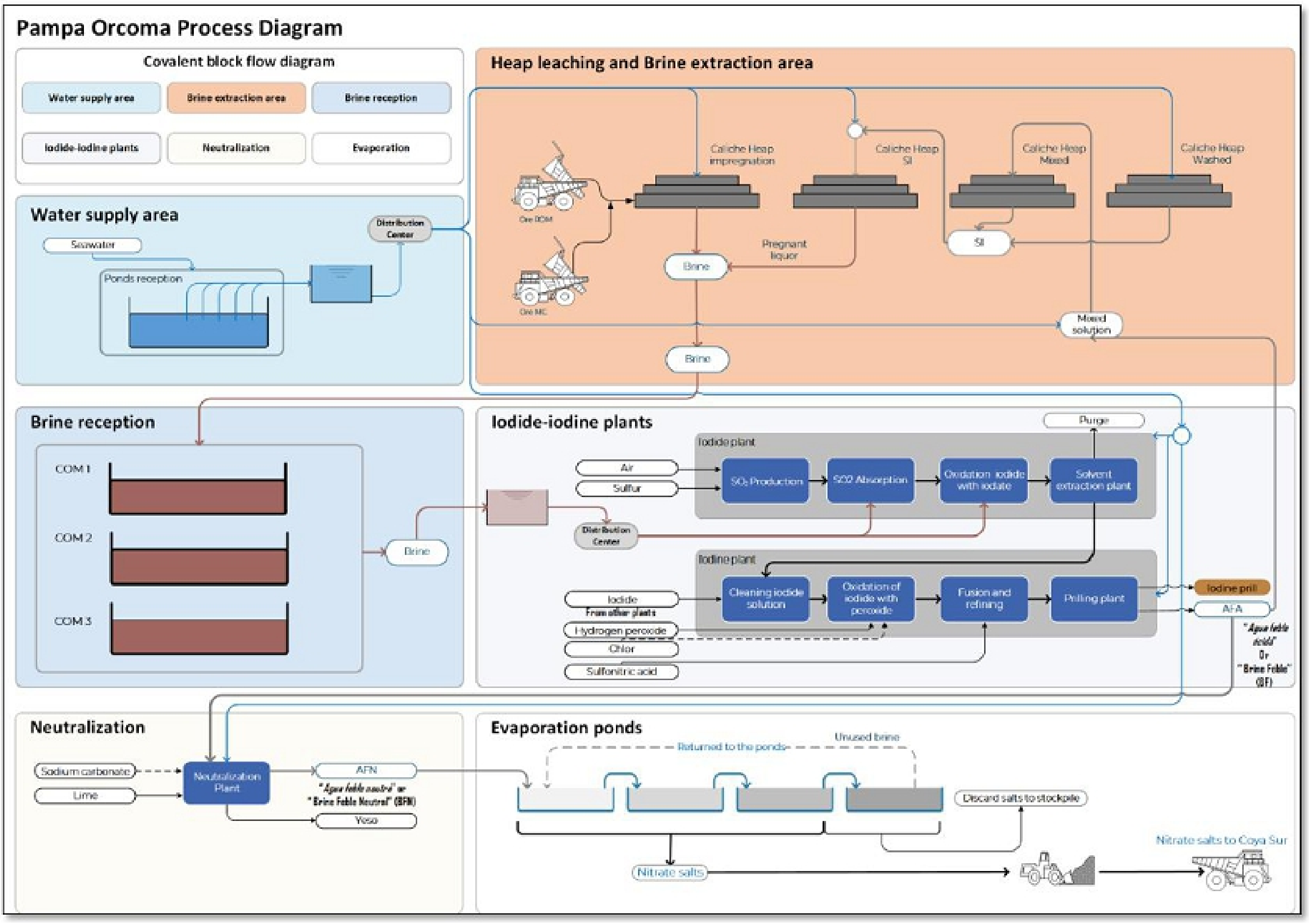
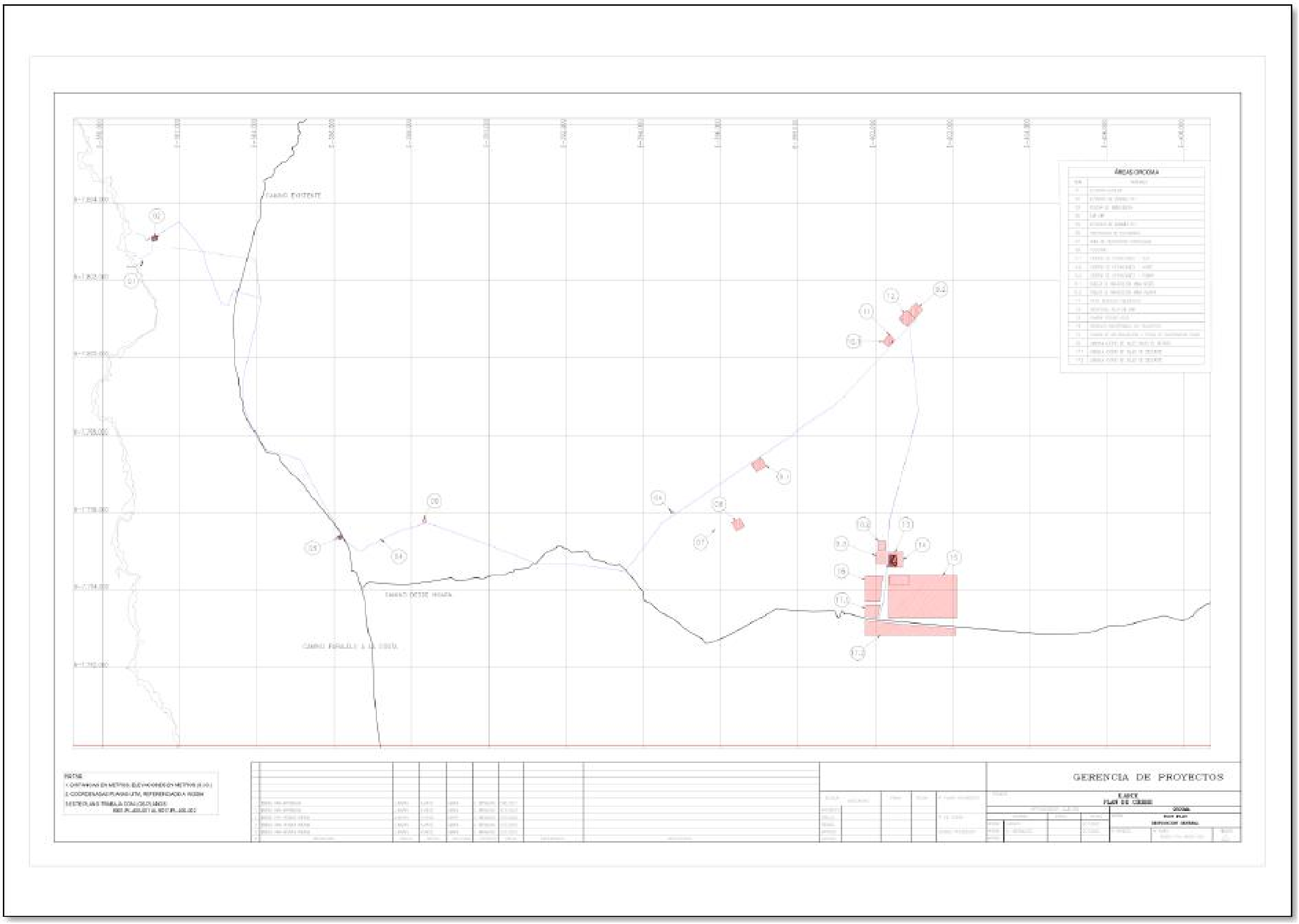


Figure 14-2. General Layout of the Facilities of Pampa Orcoma



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.

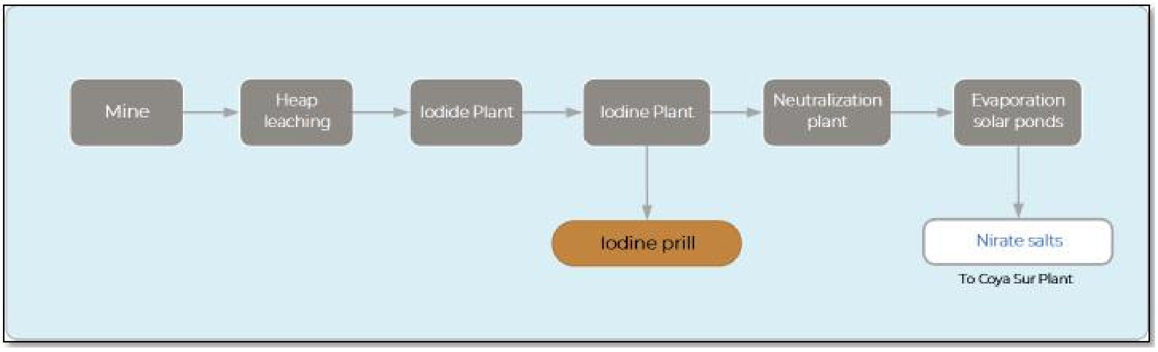
3. **Mixture:** irrigation stage composed of a mixture of recirculated weak acidic water (AFA) and water. The drainage from these heaps is considered an Intermediate Solution and is used to irrigate other heaps. This stage lasts about 120 days.

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 11 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 1.5 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 PONDS	TOTAL VOLUME (m^3)
Brine	50x40	1	500
Water	50x40	1	500
Mixed solution	50x40	1	500
Intermediate solutions (SI)	50x40	1	500
Emergency brine	54x94	1	1,000
Emergency SI	54x94	1	1,000

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".

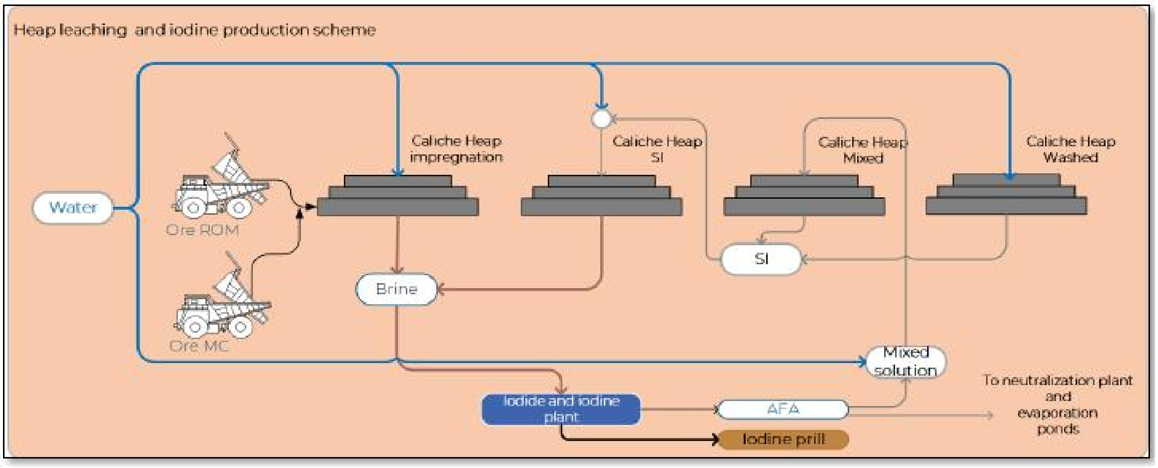
Heaps are organized to reuse the solutions they deliver, production heaps (the newest ones), which produce a rich solution that is sent to the iodine plant, and older heaps whose drainage feeds the production heaps. At the end of its irrigation cycle, an old heap leaves the system as inert tailings, 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

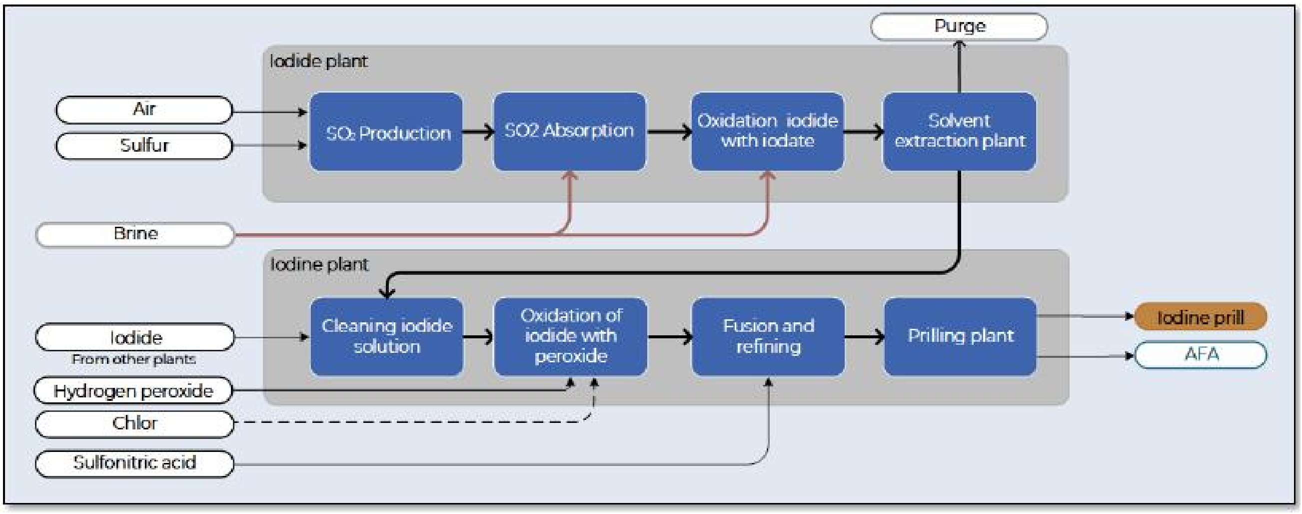
The iodine production process involves two stages: Production of iodide from iodate (iodide plant) and production of iodine from iodide (iodine plant). The capacity to produce iodide and iodine is 2,500 tpy.

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 SO2 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 SO2. The SO2 gases generated at the SO2 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 SO2 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 (coalescer).

  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 prills 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 (IO3-) 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.

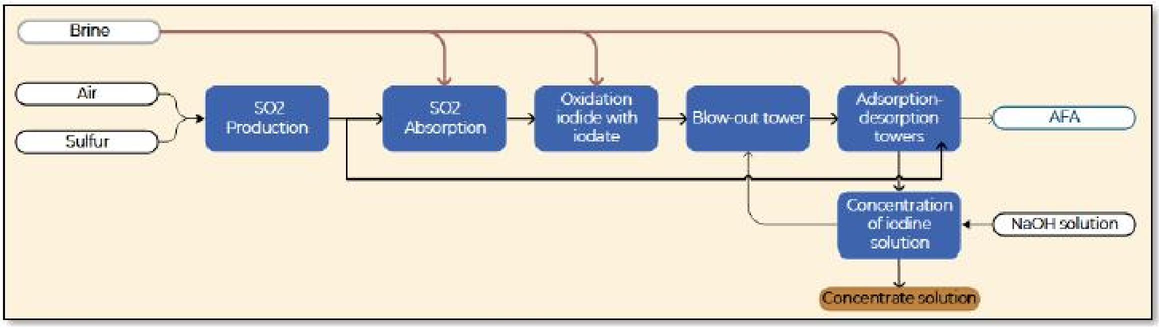
The solution from the cutter is pumped to the blowing towers, where it is counter-flowed with air. To recover iodine from the gas stream, it is sent to iodine absorption-desorption towers, using a solution containing iodide ions in counterflow, which forms triiodide ions, which are unstable. Finally, 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.

Figure 14-6. Process Diagram of Blow-out Production of Iodine Contrate Solution



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 Pond Types

Type	Area (m²)	Size (m)	Volume (m³)	N° of Ponds	Total, Volume (m³) *
Preconcentration	124,200	540x230	372,000	10	3,796,000
Cutting ponds	33,800	130x260	101,400	2	202,800
Purging ponds	33,800	130x260	67,600	1	67,600
Production	33,800	130x260	67,600	8	540,800
			Total	**21**	**4,537,200**

Note : *Maximum effective volume stored

The following five relevant stages of the evaporation system are described below.

Acid Feeble Water Alkalization: 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 0.30 to 0.60 (kg/m³). The result of this process is the Feeble Neutral Water (AFN) solution.

Pretreatment Area or Zone: 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 KNO3 and NaNO3. In these ponds, nitrate-poor salts (discard salts) will precipitate, crystals of Halite (NaCl) and Astrakanite ($Na_2SO_4XMgSO_4X4H_2O$) being the predominant precipitates.

These ponds will be operated in series and the solution will be transferred from one pond to another by pumping.

Cut-off or Boundary Pond: 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 KNO3 and NaNO3.

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 (KNO3) and sodium nitrate (NaNO3) salts will precipitate, which are the products of interest in the process, along with other impurities (NaCl, Astrakanite, KClO4, H3BO3, MgSO4, 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. Process criteria summary. Mine site and caliche heap leaching

Criteria	**Detail**
Exploitation capacity and grades	
Caliche mine exploitation	11 Mtonnes/year to 20 Mtonnes/year
Average grades	6.8% nitrate, 408 ppm iodine
Cut-off grade	300 ppm iodine
Availability/Use of availability	
Mining exploitation factor	90%
Plant availability factors	85%
Caliche factor Iodine PO	3.7 Mtonnes caliche/kg Iodine
Caliche factor Nitrate PO	21 T Caliche/T Nitrate
Heap leaching	
Caliche load	400-1,000 Mtonnes
Protective layer	40-50 cm of fine material ("chusca")
Overall metallurgical recovery nitrate	60-80% (range); 61.5% (average)
Overall metallurgical recovery iodine	60-80% (range); 69% (average)
Impregnation stage	50-70 days
Intermediate Solution Irrigation (SI)	280 days
Mixed irrigation stage Water + AFA	20 days
Washing stage with industrial water	60 days
Iodate brine (Brine)	8,910,000 m^3/year
Concentration	0.55-0.62 g/L iodine
Turbidity of iodate brine	80 NTU (maximum 250 NTU)

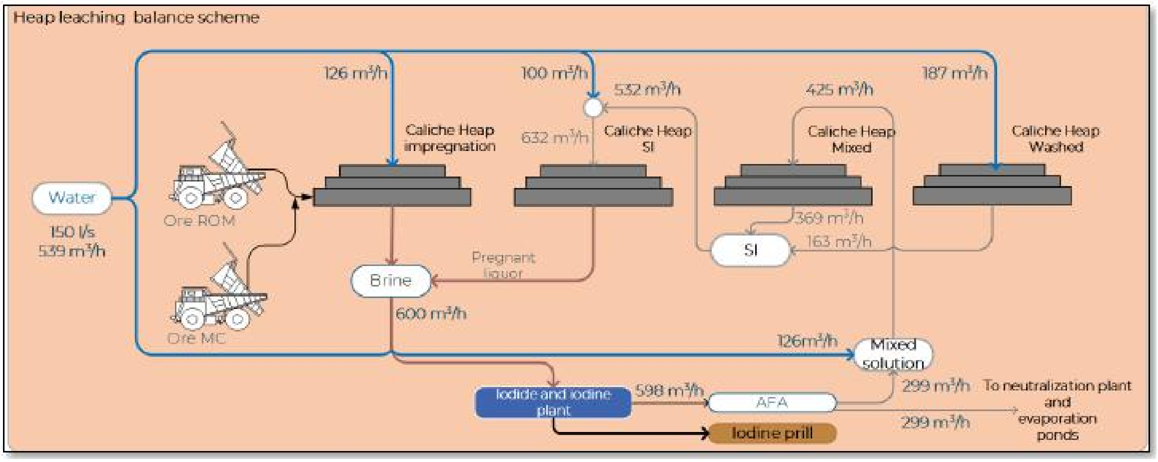
Criteria	Detail
Yield and plants capacity	
Iodate/iodide yield	94-95%
Iodide/iodine yield	97%
Iodate/iodide yield	91.9%
Iodine production	2,500 tpy
Purity of product iodine prill	99.8%
Evaporation ponds	
Evaporation rate	2.5 l/m² winter/4-5 l/m² summer
Pond yields	77.3%

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%.

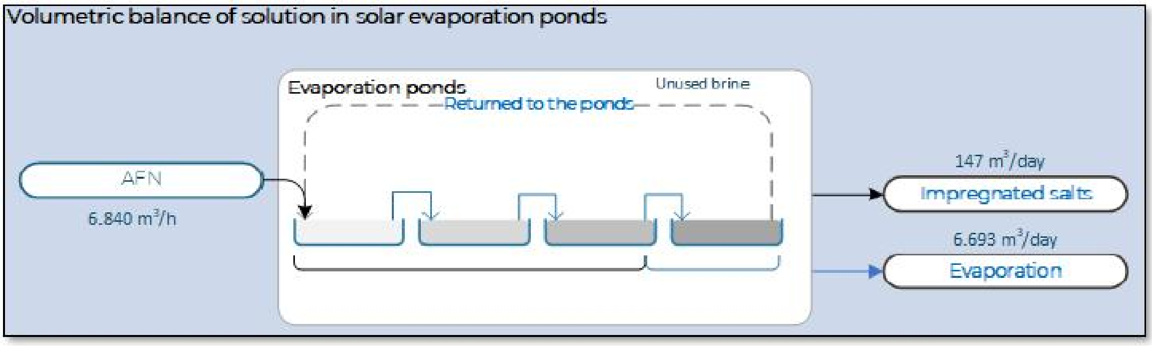
14.2.3 Balance Solutions in Evaporation Ponds

To estimate inflows and outflows from the evaporation ponds, the following balance criteria were given:

- The nominal evaporation rate is 3.78-4.50 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.

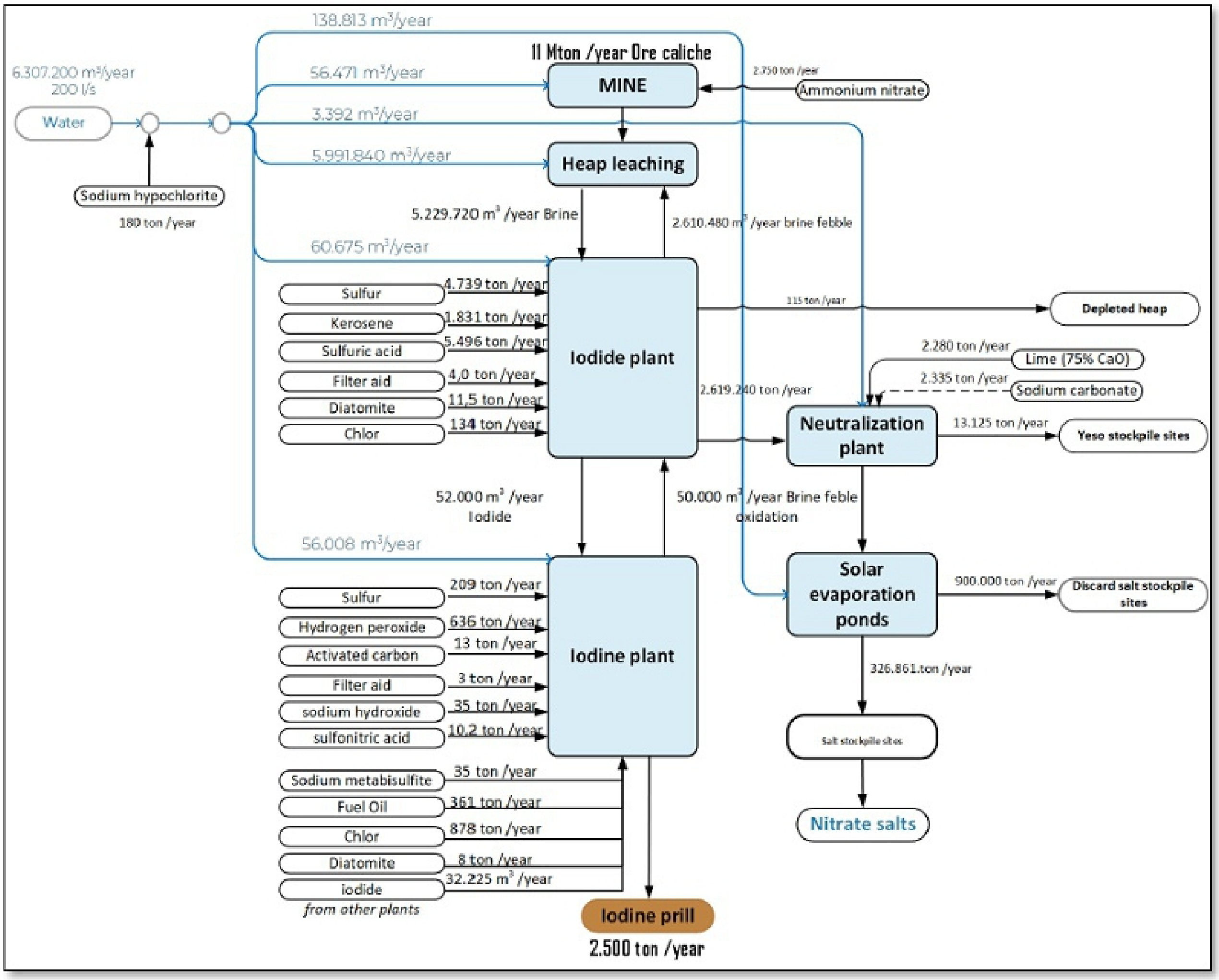
This balance is developed to perform a feasibility level assessment of resource and process water management. This assessment included the development of a deterministic water balance that takes to account inflows, such as seawater abstraction and leach solution, outflows, such as evaporation, and consumption 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 0.5-2.00 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.

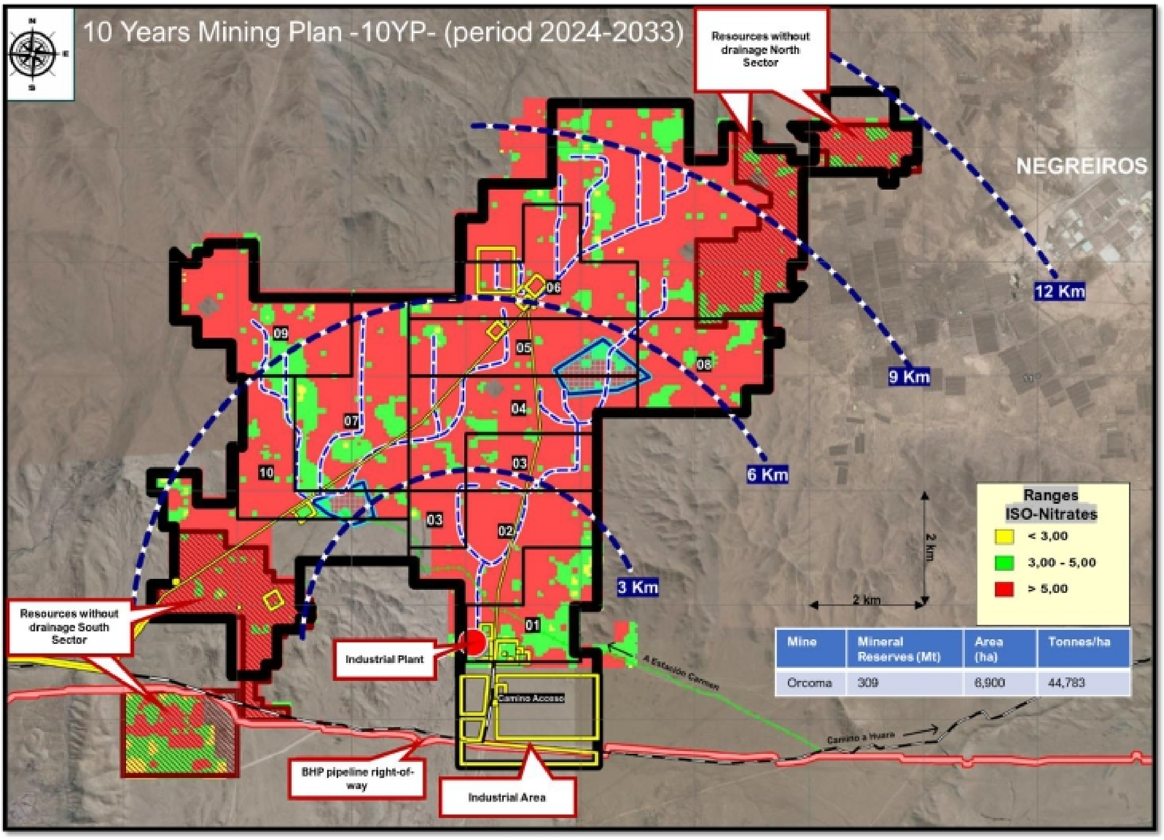
Figure 14-9. Mass balance of Pampa Orcoma per year of production



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 10 years, starting operations in 2024, is shown in Figure 14-10.

Figure 14-10. 10-year Orcoma. NaNO3 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 200L/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 5.0 ktpy of iodine and a mine rate of 20 Mtpy starting in 2027. 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

Radius	Grades		Saline matrix									Soluble salts
Km	NaNO3 (%)	I (ppm)	Na2SO4 (%)	Ca (%)	Mg (%)	K (%)	SO4 (%)	KClO4 (%)	NaCl (%)	Na (%)	H3BO3 (%)	%
3	6.6	409	23.05	3.56	0.87	0.88	10.88	0.036	12.41	7.93	0.49	45.4
6	6.9	418	22.78	3.33	0.9	0.94	10.98	0.042	12.14	8.16	0.44	48.2
9	7	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	11.8	0.042	10.92	7.56	0.5	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	2033	2034	2035-2039	2040
Average caliche (Mt)	7.5	10.5	13.5	17.5	20	20	20	20	20	20	20	20
Unit water (m³/tonnes) consumption	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
Ore grade (I2, ppm)	408	410	403	406	421	408	410	415	405	407	407	407
Ore grade (nitrate, %)	6.57%	6.97%	6.67%	6.51%	6.44%	6.85%	6.58%	6.13%	7.39%	6.89%	6.89%	6.89%
Soluble salts, %	48.08%	46.87%	48.56%	50.26%	45.98%	48.17%	54.50%	46.76%	47.73%	51.56%	46.50%	46.50%
Model yield												
Iodine leaching yield correlation, %	73.5%	74.9%	71.6%	71.3%	78.8%	73.4%	69.5%	76.5%	72.8%	70.7%	74.3%	74.3%
Nitrate leaching yield correlation %	77.2%	77.1%	76.6%	75.7%	79.2%	76.5%	72.3%	79.4%	75.4%	73.8%	77.6%	77.6%
Industrial plan target												
Iodine produced (kt)	1.9	2.7	3.3	4.2	5.5	5.0	4.8	5.3	4.9	4.8	5.0	5.0
Nitrate produced (kt)	230	340	416	520	615	632	574	587	672	613	645	645

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. Projection of energy and fuel requirements to 2024-2028

Sector	Requirement	Unit	2024	2025	2026	2027	2028
Mine	Gas	Mm^3	-	-	-	-	-
	Diesel	Mm^3	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	Mm^3	-	-	-	-	-
	Energy	GWh	1.0	4.2	4.3	7.0	8.6
	Kerosene	Mm^3	0.3	1.2	1.2	2.0	2.4

Source: SQM

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 m^3/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 m^3.

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 **Industrial Water [1]**	**Volume (m^3/Month)**	**Volume (m^3/Year)**
Mine	499,320	56,471
Leaching heaps	5,056	5,991,840
Iodide plant	4,667	60,675
Iodine plant	283	56,008
Neutralization plant	11,568	3,392
Solar evaporation ponds	499,320	138,813
Total industrial process	**525,600**	**6,307,200**
Drinking Water[1]	**1,350**	**16,200**
Road Wetting Requirements [2]		
Access Ruta 5 a 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**

Source: 1. SQM-ORCOMA Sectorial Permits. Report Mine Closure Plan; 2.RCA 75/2017

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

Actividad operativa	Pampa Orcoma
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 & Consumables	Function Or Process Area	Units	Consumption	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 the blasting to be carried out during the extraction of caliche in the mine area.	tpy	2,750	stored at the Explosives Store
Sulfuric acid	iodide plant	tpy	5,496	carbon steel pond
Sulfur	iodide and iodine consumption in iodide and iodine plants	tpy	4,739 (iodide plant)	400-m^2 concrete field
			209 (iodine plant)	
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 de iodide plant in replacement of kerosene	tpy	3,795 (iodide plant)	stored in the warehouse
			35 (iodine plant)	
Chlorine	supply chlorine to the iodine plants as an oxidizer	tpy	879	iso-tank with net capacity varying between 14 and 20 tonnes.
Filter aid	alpha cellulose powder used at iodide and iodine plants	tpy	4 (iodine plant) 3 (iodide plant)	input warehouse
Diatomite	iodide plant	tpy	11.5	in input warehouse
Hydrogen peroxide	iodine plant as an oxidizer	tpy	636	Reception in 15 m^3 tanks Storage in 2 tanks of 24 m^3 each
Activated carbon	at the iodine plant	tpy	13	input warehouse
Sulfonitric acid	at the iodine plant	tpy	10.2	tank
Sodium Metabisulfite	iodine plant	tpy	35	input warehouses
Lime (75 % CaO)	neutralization plant	tpy	2,280	2 silos of 50 m^3
				40-m^3 lime tanks
Sodium carbonate	neutralization plant for lime replacement	tpy	2,335	input warehouse
Fuel oil	Iodine plant	tpy	361	70-m^3 tanks
Barrels	packaging	units/month	3,433	Warehouses
Polyethylene bags	packaging	units/month	4,079	Warehouses
Krealon bags	packaging	units/month	3,739	Warehouses
Maxi bags	packaging	units/month	94	Warehouses

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.

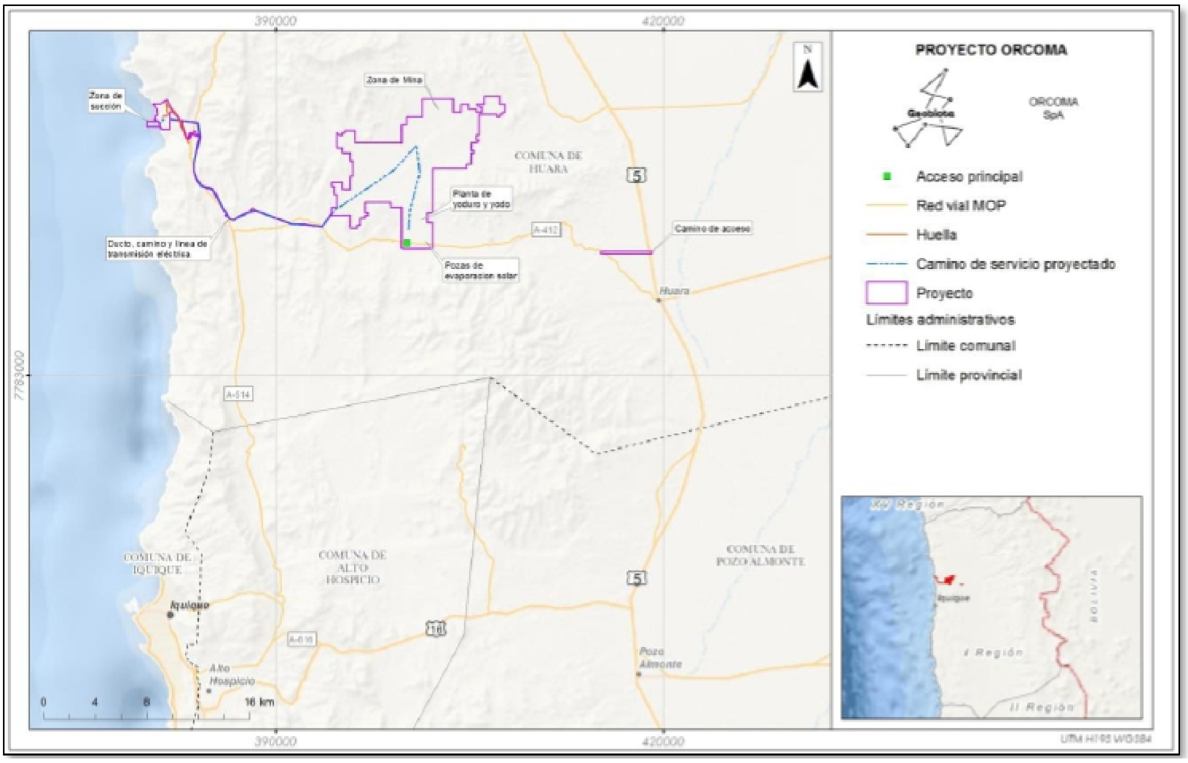
The "Orcoma" project under the Environmental Impact Assessment System (SEIA), aims to produce iodide, iodine, and nitrate-rich salts from the extraction and processing of caliche, from deposits rich in this mineral, located in the area called Pampa Orcoma, commune of Huara.

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 km^2), 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 23rd-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 by applying bischofite, which acts as a dust suppressant and stabilizer, 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:

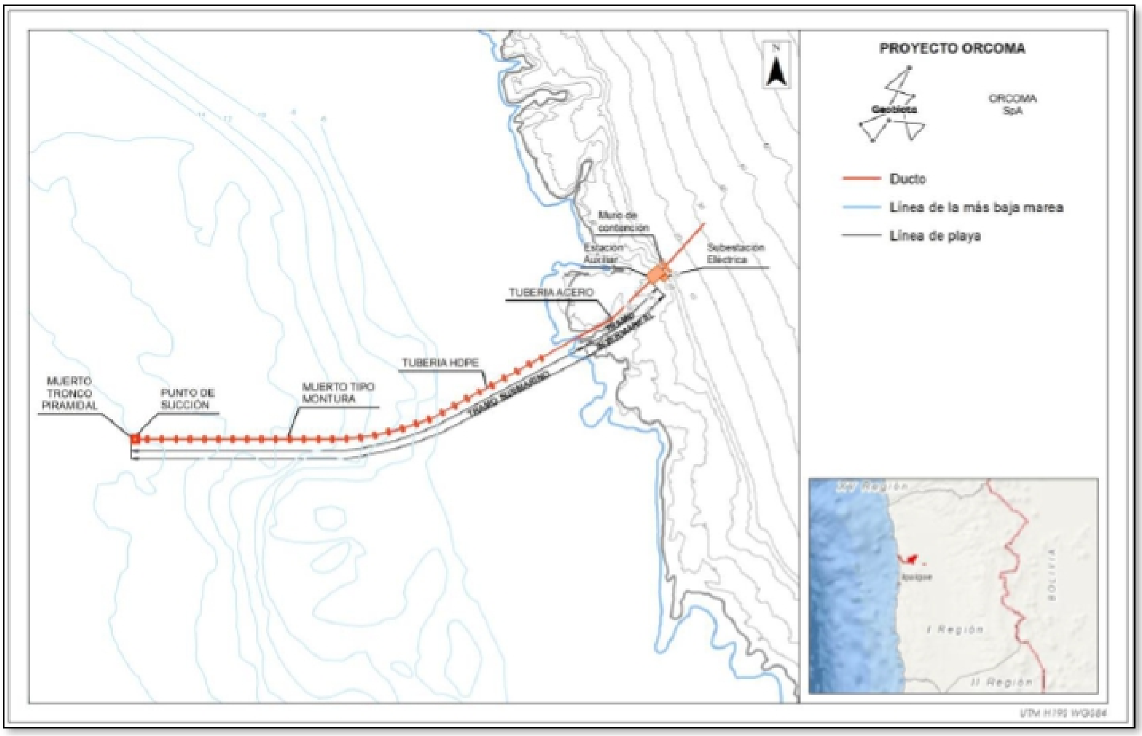
Seawater Intake System

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



Pipeline from Auxiliary Station to Pumping Station N°1

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 m³ each, discharge pump for the ponds, filter, 505 m3 pond, 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 m3 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.

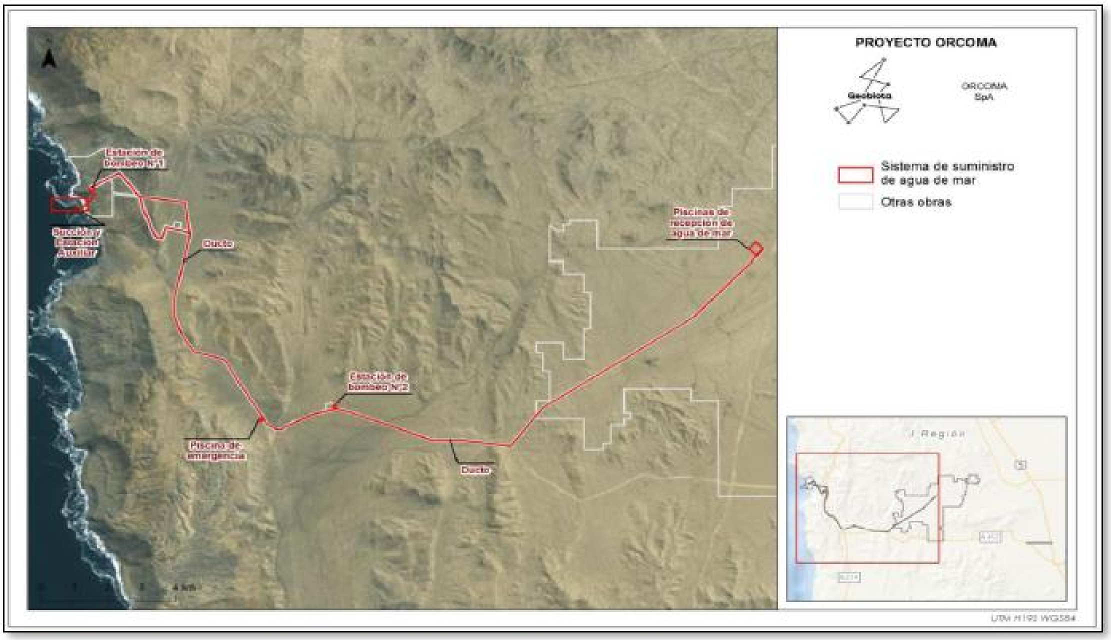
<u>**Pipeline from Pumping Station No. 2 to Seawater Reception Pools.**</u>

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 1-x-220-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 km^2), 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 m^3 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

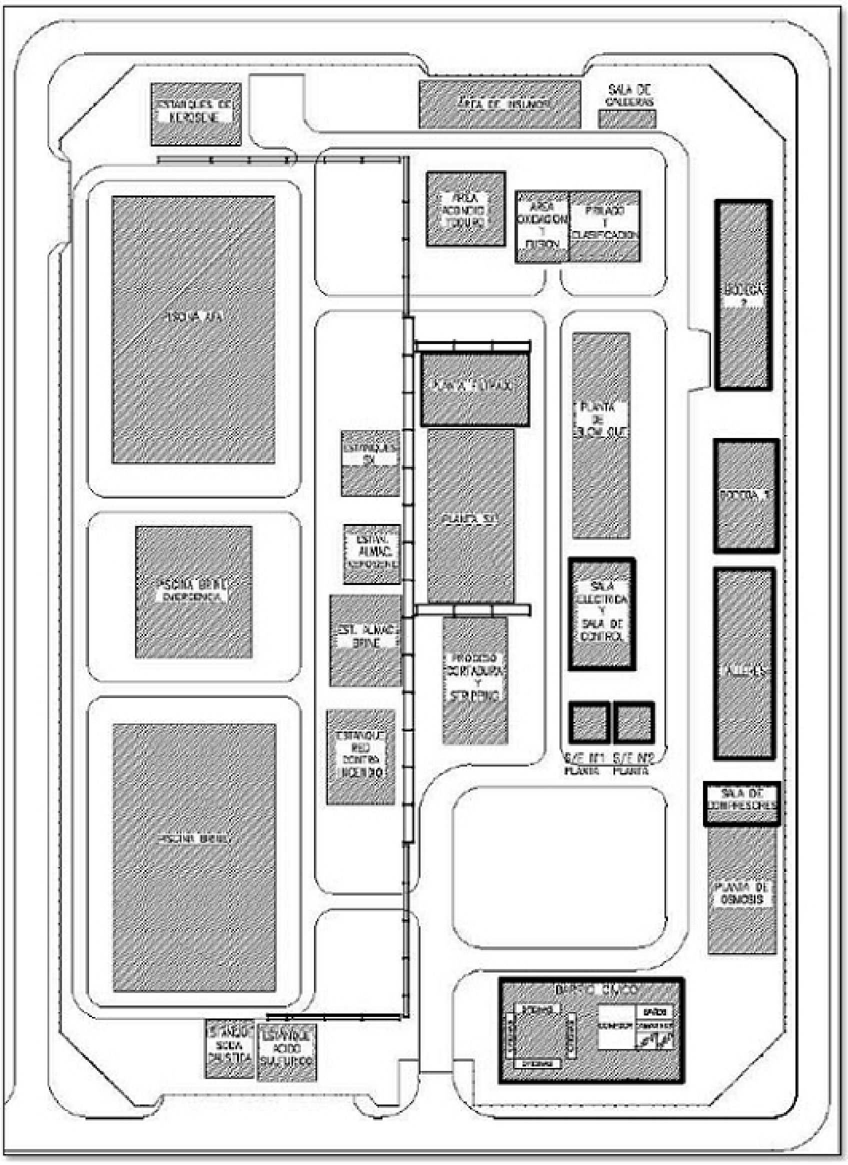
- A 10,000 m^2 iodide plant, consisting of a reception area for mineral or liquid sulfur; concrete piles for equipment installation; brine Feeble storage pool; chlorine reception and storage area; sulfuric acid reception and storage area; and kerosene reception and storage area.
- A 5,000 m^2 iodine 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 LOM 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 90% of the sales 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

Table 16-1 presents the percentage breakdown of SQM's revenues for 2020, 2019 and 2018 according to the product lines:

Table 16-1. Breakdown (%) of Revenues by SQM Production Line for the Years 2020, 2019, and 2018

Revenue Breakdown	2020	2019	2018
Specialty Plant Nutrition	39.2%	37.9%	35.3%
Lithium and derivatives	21.4%	26.5%	33.1%
Iodine and derivatives	18.7%	19.4%	14.7%
Potassium	11.7%	11.1%	12.1%
Industrial Chemicals	9.0%	5.0%	4.9%

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 2020, the SQM´s revenues from iodine and iodine derivatives amounted to USD334.7 million, representing 18.4% of the total revenues in that year. It is estimated that SQM ´s sales accounted for approximately 28% of global iodine sales by volume in 2020.

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 23% 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 account for 13% of demand; LCD and LED screens, 12%; iodophors and povidone-iodine, 9%; 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 Mt million tonnes 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 Mt of iodine, the second in the world.

The USA has similar resources in its type to Japan, but to a lesser extent (250,000 t).

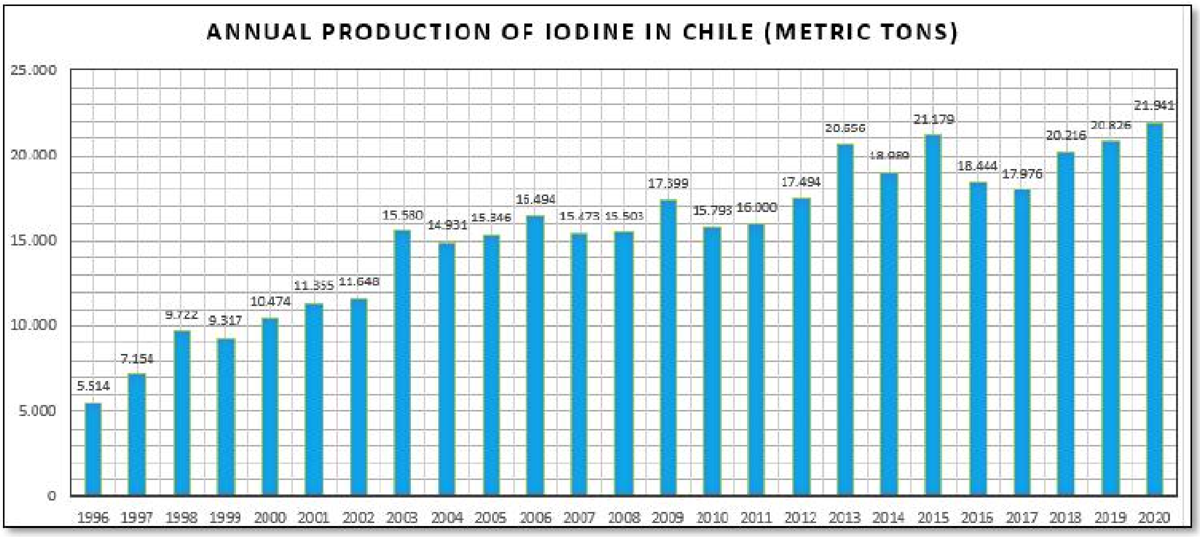
During 2020, the world production level is estimated at 39,300 t, led by Chile, Japan, and USA. Chile contributes with about 21,941 t produced that year. SQM contributes 12,000 t of iodine and derivatives.

During 2020, iodine demand was impacted significantly due to the economic crisis caused by Covid-19, with total global demand decreasing by approximately 9% to 33,200 t, of which 9,700 were sold by SQM.

Although the decrease in demand occurred across product lines, two uses of iodine had growth compared to 2019: the use of povidone-iodine grew by 6%, and the use of iodine for human nutrition grew by 1%. It is expected that most iodine applications will begin to recover demand during the course of 2021.

Figure 16-1 shows the evolution of the production of iodine and its derivatives in Chile from 1996 to 2020.

Figure 16-1. Iodine and Derivates, Production Evolution 1996-2020



Source: Chilean Copper Commission Non-Metallic Mining Statistics.

SQM supplies 12,000 t 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 produces iodine in Nueva Victoria plant, near Iquique, and in Pedro de Valdivia plant, close to María Elena. The production capacity is 14,800 t of iodine per year, including the Iris plant, which is located near 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 decreased to USD334.7 million in 2020 from USD371.0 million in 2019. This decrease was primarily attributable to lower sales volumes during 2020. SQM's sales volumes decreased 24.1% in 2020. Average iodine prices were more than 18.9% higher in 2020 than in 2019.

Table 16-2 shows the total sales volumes and revenues from iodine and iodine derivatives for 2020, 2019, and 2018.

Table 16-2. Volumes of and Revenues from Iodine and Iodine Derivatives

Sales volumes (kt)	**2020**	**2019**	**2018**
Iodine and derivatives	9.7	12.7	13.3
Total revenues (in USD millions)	**334.7**	**371.0**	**325.0**

16.2.3 odine Marketing and Customers

In 2020, SQM sold iodine products in 47 countries to 250 customers, and most of the sales were exports. Two customers each accounted for more than 10% of the iodine revenues in 2020. These two customers accounted for approximately 42% of revenues, and the 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.

Table 16-3 shows the geographical breakdown of the revenues.

Table 16-3. Breakdown of the Revenue

Revenues breakdown	**2020**	**2019**	**2018**
North America	27%	24%	26%
Europe	42%	33%	34%
Chile	0%	0%	0%
Central and South America (excluding Chile)	3%	2%	2%
Asia and Others	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 55% of total global sales of iodine in 2020, including SQM, with approximately 28%, 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.

Eight Japanese iodine producers accounted for approximately 28% of global iodine sales in 2020, including recycled iodine.

Iodine producers in the United States (one of which is owned by Toyota Tsusho and another by Ise Chemicals Ltd., both of which are Japanese companies) accounted for nearly 5% of world iodine sales in 2020.

Iodine recycling is a growing trend worldwide. Several producers have recycling facilities, where they recover iodine and iodine derivatives from iodine waste streams.

It is estimated that 19% 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.

The price of iodine recovered after the low level of USD12/kg registered in 2003, stabilizing between USD22 and USD26/kg in the period 2006-2010, and then enjoy significant growth in 2011 and 2012, exceeding USD 52/kg. The reason for this increase of four times in relation to ten years ago is mainly in a narrow of the market due to strong demand. The main cause is attributed to the explosive demand registered as a result of the earthquake in Japan that affected nuclear power plants, forcing the supply of iodine (potassium iodide tablets) to the population to avoid thyroid complications due to effects of possible nuclear radiation. In addition, this increased the medical controls that require RX, the main application of iodine. In 2013 there was a fall attributed to a more stabilized demand and to the greater Chilean supply available, which led to the price of iodine in the coming years being located at an intermediate level between the value registered in 2010 and the maximum in 2012, more in line with market fundamentals.

The annual average iodine sales prices increased to approximately USD35 per kilogram in 2020, from the average sales prices of approximately USD29 per kilogram observed in 2019 and USD24 per kilogram observed in 2018.

During 2021, the demand for iodine recovered to pre-pandemic levels, and sales volumes per SQM were close to 12,000 t, with a price close to USD35/kg.

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 located in a strip of approximately 700 km long by 30 km to 50 km wide, which is located 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 sodium nitrate, 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 Mt with an average grade of 6.3% nitrates. In turn, SQM reports that its total reserves amount to 1,378 Mt 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; and therefore, potassium-sodium is especially elaborated, which corresponds to a mixture of 70% by weight of sodium nitrate and 30% 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.

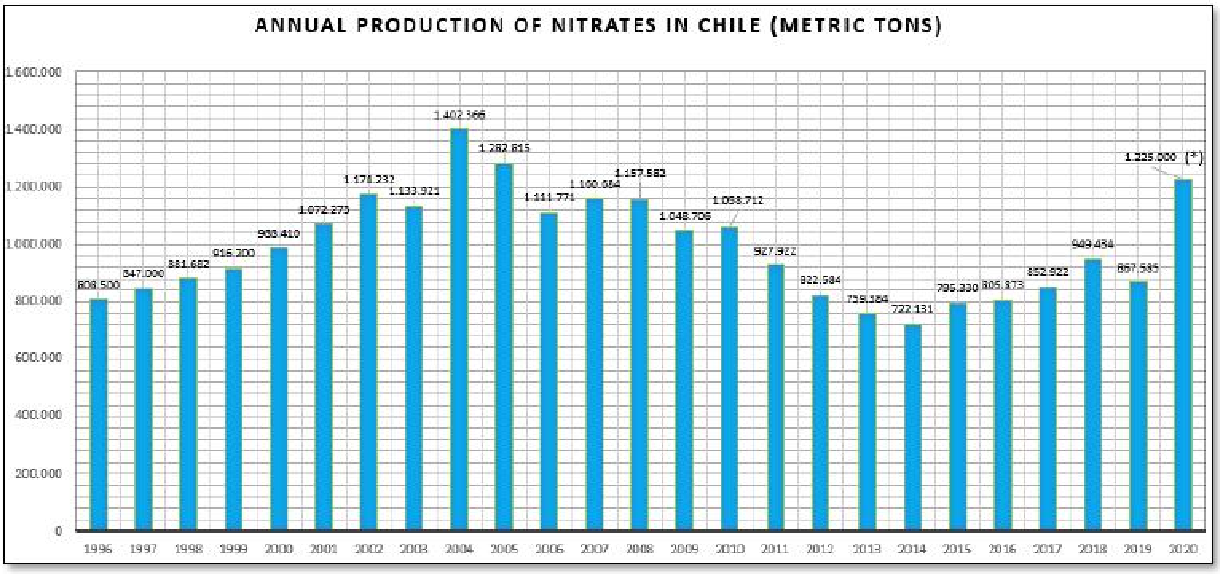
The alkaline oxides of sodium and potassium (Na_2O and K_2O) give it properties to melt as a source of sodium or potassium, required in the special glass industry. The nitrate, for its composition rich in oxygen, strengthens the oxidizing properties. Its main applications industrial are found in high-resolution 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 95% of the nitrates produced in Chile.

Figure 16-2 shows the evolution of the production of nitrates in Chile from 1996 to 2020.

Figure 16-2. Annual production of Nitrates in Chile



Source: Chilean Copper Commission Non-Metallic Mining Statistics.

Note: (*): value considers the production of nitrates in fertilizer and in the chemical industry.

In 2020, SQM supplied more than 1,000,000 t of nitrates to the specialty plant nutrition market and nearly 225,000 t of nitrates to the Industrial chemicals market.

It is estimated that the Chilean participation in the potassium nitrate market is between 47% and 53% 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 USD241/t registered in 2003, reaching USD400/t in 2006 and 2007, and stabilizing between USD650 to 900 in the period 2009-2019. In 2020, the price for Specialty Plant Nutrition was on average USD677/t and for Industrial Chemicals it was USD713/t.

In 2021, it is estimated that the demand for potassium nitrate increased by 5%, as its average price rose to around USD730/t.

16.3.1 Specialty Plant Nutrition, Market, Competition, Products, and Customers

In 2020, SQM's revenues from the sale of specialty plant nutrients was USD701.7 M, representing 39% 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, such as 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 t, of which approximately 130,000 t are linked to the tobacco industry and approximately another 120,000 t are related to horticulture. Of this total, between 15,000 and 35,000 t of potassium nitrate correspond to imports.

Specialty Plant Nutrition: Products

Potassium nitrate, sodium 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.

Table 16-4 shows sales volumes and revenue for specialty plant nutrients for 2020, 2019, and 2018.

Table 16-4. Volumes of and revenues from specialty plant nutrients

	2020	2019	2018
Sales volumes (kt)			
Sodium nitrate	25.6	30.2	25.0
Potassium nitrate and Sodium potassium nitrate	575.2	617.4	673.4
Specialty blends	271.3	238.9	242.5
Blended nutrients and other specialty plant nutrients	164.4	155.3	141.6
Total revenues (in USD millions)	**701.7**	**723.9**	**781.8**

In 2020, SQM's revenues from the sale of specialty plant nutrients decreased to USD701.7 million, representing 39% of the total revenues for that year and 3.1% less than USD723.9 million for sales of the previous year. Average prices during 2020 were down approximately 2.6%.

It is estimated that SQM's sales volume of potassium nitrate marketed during 2020 represented close to 50% of the total potassium nitrate marketed in the world for all its applications (including agricultural use). During 2020, the agricultural potassium nitrate market increased approximately 5% when compared to 2019. 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 Specialty Field Fertilizer [SFF]), or soluble (also known as Water soluble fertilizer [WSF]).

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 specialized 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 2020, SQM sold specialty plant nutrients in approximately 102 countries and to more than 1,100 customers. No customer represented more than 10% of specialty plant nutrition revenues during 2020, and the ten largest customers accounted in the aggregate for approximately 33% of revenues during that period. No supplier accounted for more than 10% of the costs of sales for this business line.

Table 16-5 shows the geographical breakdown of the sales.

Table 16-5. Breakdown of the sales from Specialty plant nutrition

Sales breakdown	**2020**	**2019**	**2018**
North America	35%	34%	31%
Europe	21%	21%	26%
Chile	14%	15%	14%
Central and South America (excluding Chile)	10%	11%	10%
Asia and Others	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 18% of total world sales during 2020 (excluding sales by Chinese producers to the domestic Chinese market). SQM's sales represented approximately 48% 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, and Customers

In 2020, the SQM´s revenues from Industrial Chemicals sales amounted to USD160.6 million, representing 8,8% 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.

SQM supplies solar salts to CSP projects around the world. In 2020, it sold approximately 160,000 t of solar salts to supply a CSP project in the Middle East. Expect to supply over 400,000 t to this project between 2020-2022. In addition, there are ten major projects currently under development worldwide that SQM believes could supply between 2020-2025. As a result, expect SQM´s sales volumes of this product to surpass 1 Mt during the 2020-2025 period.

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 increased to USD160.6 million in 2020 from USD94.9 million in 2019, as a result of higher sales volumes in this business line. Sales volumes in 2020 increased 82.3% compared to sales volumes reported last year.

Table 16-6 shows the sales volumes of industrial chemicals and total revenues for 2020, 2019 and 2018:

Table 16-6. Volumes of and Revenues from Industrial Chemicals

	2020	**2019**	**2018**
Sales volumes (kt)			
Industrial chemicals	225.1	123.5	135.9
Total revenues (in USD millions)	**160.6**	**94.9**	**108.3**

Industrial Chemicals: Marketing and Customers

In 2020 SQM sold industrial nitrate products in 54 countries to 268 customers. One customer accounted for more than 10% of SQM´s revenues of industrial chemicals in 2020, accounting for approximately 69%, and the ten largest customers accounted in the aggregate for approximately 79% 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.

Table 16-7 shows the geographical breakdown of the revenues for 2020, 2019, and 2018.

Table 16-7. Breakdown of the Sales from Industrial Chemicals

Sales breakdown	**2020**	**2019**	**2018**
North America	15%	29%	25%
Europe	7%	16%	16%
Chile	3%	42%	4%
Central and South America (excluding Chile)	3%	7%	11%
Asia and Others	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 2020, SQM's estimated market share by volume for **industrial potassium nitrate was 73%** and for **industrial sodium nitrate was 44%** (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 16% for 2020. SQM's market share was approximately 73% for 2020. 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 $35/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 $US680. 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 environmental components of the Project. It presents the applicable laws and regulations and lists the permits that will be needed in order to begin the mining operations. The environmental impact assessment (EIA) process requires that data be gathered on many components and consultations be held to inform the Project relevant stakeholders. The main results of this inventory and consultation process are also documented in this section. The design criteria for the water and mining waste infrastructure are also outlined. Finally, the general outline of the mine's rehabilitation plan is presented to the extent of the information available.

17.1 Environmental Studies

The Law 19.300/1994 General Bases of the Environment (Law 19.300 or Environmental Law), its modification by Law 20.417/2010 and Supreme Decree N°40/2012 Environmental Impact Assessment Service regulations (DS N°40/2012 or RSEIA)) determine 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 Orcoma project was submitted to the SEIA in December 2015 and was approved by the environmental qualification resolution (RCA) N°75 in September 2017.

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", in the commune of Huara.

To achieve the previously mentioned objective, the project contemplates executing the works and actions indicated below:

- Open pit exploitation of mining deposits, in an approximate area of 6,883 ha (69 km^2), with a caliche extraction rate of up to 11 Mtpy. Associated with the mine area, there will be a backup facility called the COM.
- 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 cover 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), in order to provide sufficient energy for their electrical requirements.

It should be noted that the project has not yet been built and construction is expected to begin in 2022. Preconstruction activities are currently underway and sectoral permits are being processed as indicated below. In order to avoid the expiration of the environmental resolution, the construction of the Project must start before September 2022.

Accordingly, with information provided by SQM a new EIA will be submitted to the SEIA during 2023. The new project has as objective to expand Orcoma's operation with respect to its actual environmental authorization, from 2,500 ton prill Iodine/year up to 5,000 ton prill Iodine/year considering the same mining area and emplacement for productions facilities.

It is expected to have the environmental authorization of this new project by mid-2025. There is no detailed information regarding the characteristics of the project, so it is not possible no assess the risks and the main measures that may be generated as consequence of this project.

SQM has experience presented and submitted several successful projects under SEA with similar characteristics.

Finally, there is a risk that the environmental authorization will not be obtained within the required timeframe.

17.1.1 Baseline Studies

In the Environmental Impact Statement (EIA), approved by RCA N° 75/2017, an environmental baseline study was conducted that included the following components, among others:

Climate and Weather

The Orcoma Project is located in the Tarapacá Region, characterized by its mostly arid climate. The average annual temperature fields show a marked east-west distribution, which is characterized by a decrease in temperature as the terrain has higher elevations.

According to the document prepared by the Meteorological Directorate of Chile, this field is divided into highland, intermediate and coastal zones, where the highest average temperature records are obtained in the coastal zone and decrease toward the east, reaching their minimum values in the Andes Mountains. The latter zone has records between 11°C and 13°C, while in the intermediate and coastal zones the records vary between 14°C-16°C and 16°C-18°C, respectively.

The records indicate winds from the southwest during the day with speeds between 4.5 and 6.5 m/s, while at night winds from the northeast with speeds between 2.5 meters per second (m/s) and 3 m/s are generally observed.

Due to the location of the project, the relative humidity values of the atmosphere vary greatly, reaching ranges close to 100% at night.

Air Quality

The company adopted as a voluntary commitment the monitoring of air quality in four surrounding sectors: Huara, Colonos Rurales, Bajo Soga and Zapiga, commitment which was made from pre-construction stage, six months before construction began. During this stage, concentrations of PM_{10}, $PM_{2.5}$ at the Colonos Rurales and Bajo Soga stations, concentrations of PM10 and gases (SO_2, NO_x, CO, and O_3) at Huara, and sedimentable particulate matter (SPM) at Zapiga will be monitored. This is done to verify that there are no significant impacts on this environmental component. To date, one monitoring has been carried out, corresponding to October 2021.

At Huara station, average concentrations for PM_{10} were 61 microgram per cubic meter (ug/m^3)N, for SO_2 2.9 parts per billion volume (ppbv), for NO_2 17.9 ppbv, for CO 1.35 ppbv and for ozone (O_3) 75.8 ppbv.

At Colonos Rurales station, daily maximum PM_{10} was 45 ug/m^3N, and $PM_{2.5}$ was 20 ug/m^3N; and at Bajo Soga station, daily maximums for PM_{10} and $PM_{2.5}$ were 44 ug/m^3N and 9 ug/m^3N, respectively.

At Zapiga station, sedimentable particulate matter (SPM) was measured, which ranged from 15 to 34 mg/m^3 per day.

Considering that D.S. 59/1998 of MINSEGPRES establishes a limit of 150 ug/m^3N of PM_{10} concentration, and D.S. 12/2012 of the Environmental Ministry (MMA) establishes a limit of 50 ug/m^3N of $PM_{2.5}$, all stations are currently in compliance with the standard.

Hydrology

Precipitation in this area is almost null, with annual average values varying from 0.7 to 5 mm/year.

Information from the General Directorate of Water (DGA), regarding the meteorological stations closest to the project area, these are Iquique and Huara in Fort Baquedano, indicate that the average annual precipitation in the project area would be between 0.8 - 1.3 mm per year,

Due to the extreme aridity of the area, there is no permanent surface runoff in the area of influence; there may only be sporadic or intermittent runoff associated with precipitation events. There is no defined drainage network for the area of influence, which corroborates the above.

An average temperature of 16.4 °C was calculated, with average maximum minimum temperatures of 19.3°C in February and average minimum temperature of 14.4°C in July (DGA information at the Baquedano Fort station 1993-2013).

Evaporation is estimated at 3,043 mm/year with 4 years of records at the Huara station at Fort Baquedano.

Hydrogeology

In the area of influence there are two hydrogeological units, fill and hydrogeological basement. The area of influence is located almost exclusively on the Sedimentary Fill unit. The fill corresponds to polymictic sandy gravels, supported matrix, well cemented by salts, while the hydrogeological basement corresponds to intrusive and volcanic sequences.

There are no groundwater resources in the project site area.

Soil

The soils observed in the area of influence correspond to soils with a very low degree of edaphic development, according to the extreme environmental conditions of aridity, which have limited the intensity with which soil-forming processes have acted.

Two homogeneous soil units have been identified, catalogued as "Pampas desert soil" and "Desert alluvial soils", mainly associated with the depositional plains or alluvial plains sectors. The main characteristics of the "Pampas Desert Soil" unit are a limiting stratum close to the soil surface, without structuring throughout the profile, and extremely high salinity values. The "Alluvial desert soils" unit has been formed from successive alluvial events caused by rainfall in the altiplano zone. It is characterized by strata of gravels, sands or clays.

Two miscellaneous units have also been identified, corresponding to the "Miscellaneous Coastal Farellón slope terrain" unit and the "Miscellaneous Coastal Dune" unit. These correspond to deposits of mineral material deposited by eolian and alluvial-colluvial mechanisms, respectively, without any evidence of edaphic evolution, located within the Farellón Costero morphostructural unit.

Of the total area of influence, 95.5% is associated with the homogeneous unit "Pampas Desert Soils" and 1.1% with "Desert Alluvial Soils"; while the representation of the miscellaneous units "Coastal Farellón Slope Land" and "Coastal Dune" is very marginal, each representing 2.7% and 0.7% of the total area of influence, respectively.

The main limitations identified, which define the assigned use capacity class, are related to the shallow effective depth, excessive soluble salt content, and low inherent fertility (very low organic matter content).

Flora and Vegetation

The area of influence considered for this component corresponds to the area where the works and/or activities of the Project will be executed (Huara-Caleta Buena Sector) and the Zapiga sector, corresponding to the surface where the vascular flora or terrestrial vegetation could be affected:

- Huara- Caleta Buena Sector:

  The studies show an absolute absence of flora and vegetation on the coastal edge. The rest of the sector (toward the east) is inserted in an area of absolute desert, where extreme arid conditions prevent the development 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.

  The forest inventory determined a total of 276.541 specimens present in the planted area in this sector. Of these, 4.4% (12.101 specimens) correspond to standing dead trees.

  The dominant height of the trees in the Zapiga sector was very variable, with trees ranging from 2,5 m to 14 m in height. The most frequently occurring dominant heights varied between 3,5 and 4,5 m, which was observed in 51.9% of the total area inventoried (2.749 ha).

Fauna

Eight species were recorded in the Pampa, seven of which were native and one introduced species. The endemic species Microlophus theresioides (Teresa's racer) is classified as "Rare", and Phrynosaura reichei (Reiche's dragon) as "Insufficiently known". Phyllodactylus gerrhopygus (Great northern gecko) is in the "Vulnerable" conservation category and has a "High" risk index, being a species sensitive to disturbances. Leucophaeus modestus (garuma gull) is classified as "Vulnerable", with a "Medium" risk index, and is considered endemic and a highly sensitive species. Finally, the presence of Pseudalopex culpaeus (culpeo fox), a highly mobile species with a conservation category of "Least Concern".

A total of 16 species were counted on the coastal edge, of which the endemics correspond to: Microlophus quadrivittatus (four-banded racer), Cinclodes nigrofumosus (coastal churrete), L. modestus (garuma gull), and Numenius phaeopus (curlew), which is a boreal migratory bird. Eight species are in some conservation category: the species Lontra felina (chungungo) is highly sensitive to disturbance because it is in the "Vulnerable" conservation category and has a "High" risk index because it is a habitat specialist. However, it is highly mobile along the coastal edge, which allows it to use this type of environment extensively. The species Phalacrocorax bougainvillii (guanay) and Leucophaeus modestus (garuma gull), classified as "Vulnerable", and M. quadrivittatus (four-banded racer), in the "Insufficiently known" conservation category, have a "Medium" risk index. The species Phalacrocorax gaimardi (sandpiper) and Sula variegata (booby) have a "Low" risk index and "Insufficiently known" conservation category. Finally, Spheniscus humboldti (Humboldt penguin) is in the "Vulnerable" category and was detected only through the remains of one specimen, establishing it as a circumstantial record.

It was also possible to see numerous groups of Otaria flavescens (common sea lion), a species listed as "Least Concern" and considered highly mobile. Although specimens were observed along the coastal strip in both field campaigns, no out-of-water specimens or reproductive sea lions were detected in the area proposed for the installation of the seawater intake pipeline. This allows us to dismiss the possibility that the Project's works will have a significant impact on reproductive colonies of this marine mammal.

In the Zapiga sector, thirteen species were recorded, five of which are in conservation status: P. gerrhopygus (northern gecko) classified as "Vulnerable", M. theresioides (Teresa's racer) classified as "Rare", in addition to being the only endemic of this sector, Conirostrum tamarugense (tamarack comesebo) classified as "Insufficiently known", while Eligmodontia puerulus (silky-footed mouse) and P. culpaeus (culpeo fox) are classified as "Least concern".

Cultural Heritage

In terms of archaeology, a total area of 114.5 m^2 was excavated, which represents a sample fraction of 8.02 % of the surface of the intervened sites. The excavation of 459 test pits in 103 heritage sites made possible; i), the precise morpho-functional classification of heritage elements; ii), the delimitation of their subsurface deposits; and iii), the characterization of the cultural contexts of these deposits.

With the fulfillment of these objectives, the final design and specific quantification of the mitigation, repair and compensation measures plan for the impact of the Orcoma project on the cultural heritage elements was made possible.

Regarding paleontology, at observation points Nº 8 and 9, the existence of fossil material remains *in-situ* corresponding to superficial exposures of the Santa Rosa Formation was identified. In the remaining monitoring points, where the presence of paleontological components was also detected (27, 29, 30, 31, 34, 34, 35, 35, 37, 39, 40, 40, 51, 53, 54, 54, 55, 56, and 61), they only revealed the presence of allochthonous fossils, without identifying any outcrops with in-situ material.

Human Environment

For the characterization of the human environment, the area of influence of the project is considered to be the settlements of Huara, Bajo Soga, Colonos Rurales and Pisagua, all belonging to the commune of Huara, Tarapacá region.

The commune of Huara has a total area of 10,474.6 km2 and is characterized by being 100% rural. Its main localities correspond to the settlements of Huara, Pisagua, Tarapacá, Pachica, Mocha, Sibaya, Sotoca, Chiapa, Jaiña Huaviña, Miñimiñe, Achacagua, and Chusmiza.

This territory has been used ancestrally since pre-Hispanic times by Andean populations in its different ecological levels through the mountain ravines, pampas and coastal areas. Since the political-cultural processes produced by Tiwanaku, later with the Inca expansion of Tawantinsuyu and then with the arrival of the Spanish invasion to the area, the Aymara population has managed to resist culturally to the western assimilation, due - among other things - to the wide use of the territory and the management of its resources, configuring itself as an essentially commercial culture that has achieved the exchange of goods and territorial management.

The settlements in the project’s influence area have the following characteristics:

In terms of geography, in all the settlements there is a natural flow toward Iquique, due to its role as a nodal pole. There, the population obtains products, carries out procedures, receives health care and accesses more complex and specialized education, and more. In addition, an important part of the population of these settlements has family members who live in Iquique and sell their agricultural products in this city, so they maintain a constant link with it.

In anthropological terms, the settlements have an indigenous character. There are Aymara indigenous communities and associations (mainly) in all of them. Bajo Soga and Colonos Rurales are mainly composed of Aymara population, although in Colonos Rurales the plot owners reside more permanently in Arica. Also, although Bajo Soga has a larger indigenous population than the other localities, the indigenous organizations (Indigenous People of Colchane, Pisiga Choque Indigenous Community, and Central Citani Indigenous Community) are not currently active, which is mainly due to migration to other mountainous sectors.

It is worth mentioning, with respect to cultural events, the celebration of San Lorenzo de Tarapacá, which takes place on August 10. This festival attracts inhabitants of the towns of Huara, Bajo Soga and other surrounding areas and is the second most important in the region, after La Tirana, due to its high attendance.

In terms of socioeconomics, both Bajo Soga and Colonos Rurales are predominantly agricultural settlements, where the main economic activities are the cultivation of vegetables and fruits. In the case of Bajo Soga, production is higher, so they sell products to regional markets, such as Iquique and Arica. In Pisagua, the settlement's economy revolves around the extraction of marine resources (fishing, diving and seaweed collection). According to interviews, fishermen and seaweed gatherers use the Caleta Buena sector sporadically as a free area for fishing and seaweed gathering. In this sense, it is not an area of preferential productive use for fishermen, who regularly extract seaweed in Caletas Pisagua, Junin, and Mejillones. The Caleta Buena area would serve to protect the boats that use it occasionally.

Finally, with respect to basic social welfare, the settlements of Huara and Pisagua have few lodging and food establishments, while the rest of the localities do not have any type of establishments. Nevertheless, the locality of Huara has a Family Health Center, which has the capacity to exclusively serve the inhabitants of the commune.

17.1.2 Environmental Impact Assessment

Based on the results of the EIA (Section 5), the 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.

In addition, other components whose impacts are not significant were included and actions will also be taken to minimize the effects in the project area.

The environmental components and types of measures included in the project's mitigation, reparation and compensation measures plan are listed below:

- With respect to air quality, in view of the increase in the concentration of particulate matter and polluting gases, a mitigation measure is proposed (non-significant impact).
- Regarding wild animals, mitigation and compensation measures are proposed for habitat disturbance of low mobility species in the conservation category (reptiles) (significant impact).
- Also, for the wildlife component, a mitigation measure is proposed for the collision and/or electrocution of birds (non-significant impact).
- Regarding marine biota, mitigation measures are proposed for the alteration of intertidal and subtidal biota, planktonic communities and marine currents (non-significant impact).
- Mitigation and compensation measures are proposed for the alteration of archaeological terrestrial heritage (significant impact).
- Mitigation measures are proposed for the alteration of paleontological cultural heritage (non-significant impact).
- Finally, in relation to the human environment, in view of the impact on the supply of basic goods and services and the alteration of specific economic activities, mitigation measures are proposed (non-significant impact).

Additionally, it's important to mention that the environmental resolution defines some commitments that must be complied before starting with the construction phase. Table 17-1 shows that SQM is developing the commitments defined for the pre-construction phase.

Table 17-1. Pre-construction Activities

Commitment	When has to be done	Status of execution
Rescue and relocation of commercially important mobile hydrobiological species and macroalgae specimens (Lessonia trabeculata).	15 days before starting with the works in the submareal zone to install the pipeline	The construction of the pipeline should start in 2022.
Plan de Seguimiento de Calidad de Aire	6 months before starting with the construction phase	There are reports of the following monitoring activities: - Colonos Rurales Station-, i. Report of October 2021: send it by SQM and available in SNIFA ii. Report of November 2021: available in SNIFA iii. Report of December 2021: available in SNIFA - Huara Station: i. Report of October 2021: send it by SQM ii. Report of November 2021: available in SNIFA iii. Report of December 2021: available in SNIFA - Zapiga Station: i. Report of October 2021: send it by SQM and available in SNIFA ii. Report of November 2021: available in SNIFA iii. Report of December 2021: available in SNIFA - Bajo Soga Station: i. Report of October 2021: send it by SQM and available in SNIFA ii. Report of November 2021: available in SNIFA iii. Report of December 2021: available in SNIFA Before starting with the construction of the project monitoring activities during January, February and March of 2022 must be developed.

Source: Own elaboration.

17.2 Operating and Post Closure Requirements and Plans

17.2.1 Waste disposal requirements and plans

Two types of waste are generated during mining operations. Mineral and non-mineral wastes.

Mineral waste

In this case, the mineral wastes or mining residues correspond to inert salts that are called waste salts. These salts are transported to certain areas for deposit, stacked on the ground in the form of piles.

For this purpose, the Orcoma mine has a Sectoral Waste Salt Stockpile Permit presented and approved by the authority in accordance with current regulations (article 339 of D.S. No. 132/2002, Mining Safety Regulations of the Ministry of Mining, for the establishment of a tailings dump), and it also has the corresponding environmental authorization.

The Orcoma Project considers two contiguous sectors for the tailings deposit called "waste salts deposit", which will be the destination of the waste salts generated during the evaporation stage of the process in the solar evaporation ponds, as well as the waste generated from the neutralization process (gypsum).

In particular, the waste salt deposits will be located within the industrial area of the site and will cover an area of 63.8 ha and 11.6 ha each.

The construction of these reservoirs requires the installation of a waterproofing system and material movements (backfilling and compaction) for the formation of platforms. Subsequently, the salts to be disposed of during the operation are neutral, without presenting any health risks.

The tanks will not have drainage pipes, but a perimeter drainage system will be established, which will have two functions. On one hand, it will allow for the collection of solutions generated by the runoff generated by the impregnation solutions, which will be channeled to a collection pool and then pumped to the evaporation ponds. The other function of this drainage system will be to channel rainwater.

During operation, 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 front loaders will be utilized to spread the waste salts and create safety berms on the edges of the tanks to facilitate the unloading of the trucks.

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

Given the characteristics of the waste (salts that form a crust and the final brine impregnation level of the residue from the neutralization process is approximately 20%), there will be no particulate, or gas emissions.

Non-Mineral Waste

Within non-mineral waste we can find all types of waste, which in turn can be classified into hazardous waste and non-hazardous waste according to the environmental and sectorial regulations in force in Chile.

Non-hazardous waste associated with this type of project includes solid waste similar to household waste, sludge from the sewage treatment system, packaging of non-hazardous supplies, non-hazardous discards, waste associated with maintenance, and waste generated as a result of actions taken in contingencies, among others.

Hazardous waste (RESPEL) comes from process discards, maintenance of used lubricant oils generated by changes in equipment and machinery, batteries, paint residue, ink cartridges, fluorescent tubes, contaminated cleaning materials, among others.

The disposal of this type of waste has the current environmental and sectoral legal authorizations described in section 17.3 below.

In addition, the company's 2020 Sustainable Development Plan contains a set of commitments, including reducing industrial waste generation by 50% by 2025.

17.2.2 Monitoring and Management Plan as Defined in the Environmental Authorization

The project requires the presentation of a Mitigation and Compensation measures Plan, including generic and specific measures for air quality, wild animals, marine biota, archaeological and paleontological cultural heritage, and human environment. In this sense, Table 17-2 summarizes the impacts identified and the measures committed.

Table 17-2. Measures Committed in the RCA 75/2017

Environmental component	Assessed impact	Type of measure	Measure
Air quality	Increased concentration of particulate matter and pollutant gases	Mitigation	Control of emissions of particulate matter and pollutant gases
			Wetting of roads and work areas
			Dust suppression
			Speed restriction on unpaved roads
			SO2 abatement system at Iodide Plant
			Lime silo in sleeve filter
Wild animals	Habitat disturbance of low-mobility species in conservation category (reptiles)	Mitigation	Rescue and relocation of low mobility fauna (reptiles).
		Mitigation	Controlled disturbance plan for low mobility fauna (reptiles).
		Compensation	Provision of micro-shelters for rescued reptiles.
	Collision and/or electrocution of birds	Mitigation	Installation of anti-collision devices.
			Design of support of conductors on poles to avoid electrocution.
Marine biota	Alteration of intertidal biota	Mitigation	Use of rock billers in intertidal zone
	Alteration of subtidal biota		Control of suction speed and depth
	Alteration of planktonic communities		
	Alteration of currents		
Terrestrial archeology	Alteration of terrestrial archaeological heritage	Mitigation	Creation of archaeological heritage protection areas
		Compensation	Intensive archaeological survey and documentation
		Compensation	Improvement or fitting out of rooms for the conservation of pieces of tangible cultural heritage (archeology and paleontology)
Paleontology	Alteration of paleontological cultural heritage	Mitigation	Rescue of elements of paleontological interest
		Compensation	Scientific-educational publication on local and regional paleontology
		Compensation	Improvement or fitting out of rooms for the conservation of pieces of material cultural heritage (archeology and paleontology)
Human environment	Impact on the supply of basic goods and services	Mitigation	Implementation of a protocol of good practices in community relations between contractors and workers
	Disruption of specific economic activities		

Source: Own elaboration

The generic mitigation measures will be implemented to avoid or prevent the execution of activities that generate negative effects on the environment and to promote actions that produce beneficial effects. In this regard, the measures to be implemented are as follows:

- Inductions for all personnel (Owner and Contractors) with the objective of generating awareness among workers regarding the importance of caring for and protecting the natural, social and cultural resources present in and interacting with the Project.
- Waste management will be explained to all workers. It will be strictly forbidden to dispose of any type of waste inside the project area outside the containers or areas defined for this purpose. Waste management considers additional measures to restrict access to fauna, such as the use of containers with hermetic lids and the frequency of removal to prevent excessive accumulation. It should be made clear that internal regulations strictly prohibit the feeding of wildlife.
- The washing of machinery and vehicles using water from unauthorized sources and in places not intended for such activity is strictly prohibited.
- The transportation of fuel within the area of influence will be carried out in accordance with the protocols established by the applicable environmental regulations, and each of the trucks involved in the transportation will have containment and rapid response equipment to deal with potential spills.
- All loading and unloading of material that could be a source of particulate matter shall be carried out with due care to avoid excessive dust generation.
- Prior to the execution of any work on the Project, the internal procedure for environmental clearance of the work areas will be complied with. The main objective of this procedure is to ensure that any intervention of natural resources has been identified, declared and approved in accordance with the EIA and its subsequent RCA.

Additionally, the environmental resolution defined a monitoring and following up plan regarding the different components affected by the project. Table 17-3 shows the monitoring activities committed to.

Table 17-3. Committed Follow-up Activities

Component	Monitoring Activities	Phase of the Project	Report
Air Quality	Air monitoring	Pre-construction/ Construction/ operation/ Closure	Pre-Construction: monthly report during 6 months before the beginning of the construction. Construction: semi-annual report and final report Operation: annual report
	Monitoring of road irrigation activities	Construction/ operation	Construction: annual report Operation: annual report
	Monitoring of dust suppression activities	Construction/ Operation	Construction: annual report Operation: annual report
	Monitoring of speed restriction activities	Construction/ operation/ Closure	Construction: semi-annual report and final report Operation: annual report
	Monitoring of SO2 abatement system	Operation	Annual report
	Monitoring of sleeve filter	Operation	Annual report
Fauna	Monitoring rescue and relocation activities	Construction/ operation	10, 30 and 60 days after de relocation
	Monitoring controlled disturbance activities	Construction	After each activity
	Monitoring of efficiency of anti-collision devices	Operation (3 first years of operation)	Annual report
	Monitoring of the efficiency of conductors on poles to avoid electrocution	Operation (3 first years of operation)	Annual report
Marine Biota	Monitoring of using of rock billers in intertidal zone	Construction	One report to describe the process
	Monitoring of the suction speed and depth	Operation	Annual report

Component	**Monitoring Activities**	**Phase of the Project**	**Report**
Archeological and Paleontological component	Monitoring of Intensive archaeological survey and documentation activities	Construction/ operation	Construction: semi-annual report Operation: semi-annual report
	Monitoring of the Creation of archaeological heritage protection areas	Construction/ operation	Construction: semi-annual report and final report Operation: semi-annual report
	Monitoring of paleontological rescue activities	Construction/ Operation	Construction: semi-annual report and final report Operation: semi-annual report
	Monitoring of activities of improving of the rooms for conservation pieces	Construction	Report at the end of the activity enacted by the saltpeter museum corporation
	Monitoring of Scientific-educational publication on local and regional paleontology activities	Operation	Annual report
Social component	Monitoring of the implementation of the protocol of good practices in community relations between contractor and workers	Construction/ operation	Construction: semi-annual report Operation: Annual report.

Source: own elaboration

17.2.3 Requirements and plans for water management during operations and after closure

The Orcoma Project considers the use of seawater. The seawater supply system will ensure during operation the water supply required for caliche processing with a maximum flow of up to 200 L/s. The total seawater consumption used during the operation phase will amount to approximately 6,307,200 m^3/year.

The total consumption of seawater used during the operation phase will amount to approximately 6,307,200 m3/year. This will come from the seawater suction system and will be stored in the reception pools.

At the end of the operation, the seawater supply system will be shut down and all installations will be removed.

17.3 Environmental and Sectorial Permits Status

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.

In accordance with current legislation, in particular the General Environmental Law and Supreme Decree 132 of 2002, which approves the Mining Safety Regulations, there are a series of permits required to operate a mining project: sectoral or mining permits, which can be filed with SERNAGEOMIN; and mixed environmental permits, which can be filed with the corresponding SEREMI of the Environment.

For this project, in concordance with the RCA N° 75/2021 and the mining and environmental legislation, the applicable permits are those detailed in the following table.

Table 17-4. Applicable permits related with RCA N° 75/2021

Permit	**Description**	**Authorization**
PAS N°119	Research collection of Marine Life	There is no information
PAS N° 132	Permit for archaeological and anthropological excavations	Ord. N° 2673/2021 (for archeological sites)
PAS N° 136	Permit to establish tailings dump or mineral accumulation	Res. Ex. N° 1985/2021
PAS 137	Mining Closure Plan	The documents were submitted and currently is under process.
PAS N° 138	Permit for the construction, repair, modification and expansion of any public or private works for the evacuation, treatment or final disposal of wastewater, sewage of any nature	There is no information
PAS N° 140	Permit for the construction, repair, 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	There is no information
PAS N° 142	Permit for all hazardous waste storage sites: The project involves the construction of two warehouses in two sectors for the temporary disposal of hazardous waste	There is no information
PAS N° 146	Permit to hunt or capture specimens of animals of protected species for research purposes, for the establishment of breeding centers or hatcheries and for the sustainable use of the resource	There is no information
PAS N° 155	Permit for the construction of certain hydraulic works	The documents were submitted on May 13, 2021, and currently is under process.
PAS N° 156	Permit to make modifications to the riverbed	The documents were submitted on May 10, 2021, and currently is under process.
PAS N° 160	Permit to subdivide and urbanize rural land or for construction outside urban limits	There is no information
-	Authorization of the mining exploitation method	Res. Ex. N° 1860/2021
-	Beneficiation Plant Authorization	The documents were submitted and currently is under process.

Source: own elaboration

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

Additionally, the environmental authorization of the project (RCA No. 75/17) defined, the following environmental impacts associated with human groups in the territory were identified:

1) Affectation of the supply of basic goods and services.

2) Alteration of specific economic activities.

Accordingly, the following measure was approved: "Implementation of a protocol of good practices in community relations for Orcoma's own contractors and workers", which includes provisions and requirements for behavior with the local community applicable to contractors and workers of the project, during all stages of the project.

Additionally, and in relation to non-significant impacts, the Project defined four Voluntary Environmental Commitments (VEC) for the Human Environment component in the territory, defined in the following terms, as discussed below.

Connection road between Route 5 and Route A412

The objective is to minimize the occurrence of negative effects in the town of Huara, associated with increased vehicular traffic, and considers the construction of an access to the Project area.

Incorporation of informative vertical signs

The measure consists of the implementation of informative vertical signs to increase safety levels and standards associated with the intersections and vehicular routes to be used by the Project.

Implementation of early informative meetings

The objective is to inform the local community about the main works, operations and activities that are contemplated for the development of the Project, defining together with the community, the most appropriate procedures with regard to the localities of: Huara, Bajo Soga, Colonos Rurales and Pisagua. Early community briefings were developed in January 2018 with the communities of Huara, Bajo Soga, Colonos Rurales and Pisagua. The report of these activities was uploaded to the Superintendence of Environment online system called SNIFA (Sistema Nacional de Información de Fiscalización).

Implementation of a mechanism for managing community consultations and complaints

The measure seeks to formally manage community concerns and complaints in the area of influence of the project, based on a record that considers a management report and community contingencies, available in the field, for all phases of the Project.

Permanent Communication Channel

The channel will be available for all phases of the project, through meetings that will inform the local community about the main works, works and activities that are contemplated for the development of the project. Its management is contemplated with representatives of the localities of Huara, Bajo Soga, Colonos Rurales, Pisagua, and Alto Hospicio.

Working Table

The commitment will apply to all phases of the project (construction, operation and closure), as a mechanism for dialogue and the generation of permanent agreements between the Contractor and the relevant social organizations of Huara, Bajo Soga, and Colonos Rurales.

At the table, central aspects of the project will be addressed (management, impacts, mitigation measures, project progress), and the requirements of the community will be managed in areas such as: historical heritage; education and culture; social development.

17.4.2 Commitments to Local Procurement or Hiring

No commitments regarding the hiring of local labor were made as part of the environmental proceedings.

17.4.3 Social Risk Matrix

There is no specific risk matrix to evaluate these aspects at corporate level. In the framework of the work meetings for the preparation of this report, it was indicated that there are initiatives to evaluate these aspects, but they lack a specific program, or derive in a specific commitment, or goal.

17.5 Mine Closure

This sub-section contains forward-looking information related to mine closure for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this sub-section including prevailing economic conditions continue such that 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 Reclamation Plans

Currently the Orcoma Mining Site approved by RCA N°75/2017, has a sectorial closure plan permit (in process). It details the activities and closure measures included in the original Environmental Qualification Resolution document RCA N°75/2017, and new closure measures from the risk assessment carried out.

Additionally, the site has three sectorial permits, associated with mine area "Method of Exploitation, ORCOMA project" approved by Res. Exe. N° 1860/2021, Iodine-Iodide Plant "Beneficiation Plant, ORCOMA project" (in process), and stockpiling of waste salts "Permit for the establishment of tailings deposit, ORCOMA project" approved by Res. Exe. N° °1985/2021, “Permit for major hydraulic works for evaporation ponds PAS 155” (in process), and “PAS 156 Channel Modification Permit” (in process).

Closing Measures

The closure measures detailed in the closure plan permit in process for the non-remaining facilities correspond to de-energization, removal of pipes, equipment and structures, removal of steel, concrete, removal of supplies, road closures and installation of signage.

The remaining facilities correspond to the Mine Zone, Mine Operations Center, Solar Evaporation Ponds, and Discard Salts Stockpiles. The closure measures associated with these facilities are shown in Table 17-5.

Discarded salts will be removed from the site.

For all closure measures, the objective is to achieve and ensure the safety of people. The means of verification will be the photographic record.

Table 17-5. Closure Measures of Remaining Facilities ORCOMA Mining Site

Installation	Main Characteristics	Closure Measure
Mine area	6506 ha caliche mining area	Closure of explosives warehouse
		Removal of supplies (powder magazine)
		Waste removal
Mine operation center	Set of ponds and basins for solution handling	HDPE pipe removal
		Removal of metal structures, piping and equipment
		Removal of concrete structures
		Removal of support structures
		Waste removal
		Liner removal
		Leveling of parapets
Neutralization plant and evaporation ponds	194,12 ha of ponds for nitrate salt production.	HDPE pipe removal
		Removal of metal structures, piping and equipment
		Removal of concrete structures
		Removal of support structures
		Removal of nitrate-rich salts
		Removal of supplies
		Waste removal

Source: Adenda 1 Closure Plan Permit (in process)

Closure and post-closure measures (Table 17-6) correspond to the maintenance of signage and roads.

Table 17-6. Post-Closure Measures

Installation	Measure	Tracking points (quantity)	Unit	Frequency (years)	Duration
Plant iodine - iodide	Maintenance of signage	12	unit	5	Perpetuity
	Road closure maintenance	3	N° closures	5	Perpetuity
Seawater supply system	Maintenance of signage	2	unit	5	Perpetuity
	Road closure maintenance	1	N° closures	5	Perpetuity

Source: Closure Plan (in process)

Risk Analysis

Law No. 20.551, which regulates the closure of mining sites, indicates that at the time of closure, a risk assessment is required for the different facilities of a mining site. For this purpose, it proposes the "methodological guide for risk assessment for the closure of mining sites".

It should be noted that the same guide states that "It should be noted that this Methodological Guide is not mandatory, although its objective is to guide the risk assessment, and each mining company may use the methodology that best suits the reality of its site".

The Risk Assessment conducted in the Closure Plan (in process) indicates that all risks associated with the remaining facilities are low and not significant, safeguarding the health of people and the environment. The summary of the Risk Assessment presented in Annex 7 of the Closure Plan Permit (in process) is presented in Table 17-7.

Table 17-7. ORCOMA Mining Site Remaining Facilities Risk Assessment Summary

Record	Risks		Level	Significance
Mine Pit				
MR1	MR1.P	To people due to failure of the pit slope, which exceeds the exclusion zone due to an earthquake.	**LOW**	Non-significant
	MR1.MA	To the environment due to failure of the pit slope that exceeds the exclusion zone as a result of an earthquake.	**LOW**	Non-significant
MR2	MR2.P	To people due to DAR infiltration from the mine	**LOW**	Non-significant
	MR2.MA	To the environment due to DAR infiltration from the mine	**LOW**	Non-significant
Sterile Storage				
DE1	DE1.P	To people due to groundwater contamination from rainfall (infiltration of solutions).	**LOW**	Non-significant
	DE1.MA	To the environment due to groundwater contamination caused by rainfall (infiltration of solutions).	**LOW**	Non-significant
DE2	DE2.P	To people due to groundwater contamination from floods/floods	**LOW**	Non-significant
	DE2.MA	To the environment due to groundwater contamination caused by floods/floods	**LOW**	Non-significant
DE3	DE3.P	To people due to emissions of particulate matter into the atmosphere caused by wind	**LOW**	Non-significant
	DE3.MA	To the environment due to particulate emissions into the atmosphere caused by wind	**LOW**	Non-significant
DE4	DE4.P	To people due to surface water contamination caused by heavy rainfall	**LOW**	Non-significant

Record	Risks		Level	Significance
	DE4.MA	To the Environment due to surface water pollution caused by heavy rainfall	**LOW**	Non-significant
DE5	DE5.P	To people due to surface water contamination caused by floods	**LOW**	Non-significant
	DE5.MA	To the Environment due to surface water contamination caused by floods	**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 for 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
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**	Non-significant
	PE1.MA	To the Environment due to failure in the slope of the pool, which exceeds the exclusion zone as a result of an earthquake.	**LOW**	Non-significant
PE2	PE2.P	To persons for DAR infiltration	**LOW**	Non-significant
	PE2.MA	To the environment by infiltration of DAR	**LOW**	Non-significant

Source: Annex 7 – Closure Plan (in process)

17.5.2 Closure Cost

The total amount of the closure of the Orcoma Mine site, considering closure detail in the valorization of de closure plan (in process), adds up to 105,340 UF (4.08 million USD) (93,810 UF closure cost and 11,530 UF post-closing cost). See Table 17-8 and Table 17-9.

Table 17-8. Detail of Closing Cost

Item	Detail
Total direct cost per installation (UF)	59,721
Indirect costs (UF)	5,972
Contingencies 20% (UF)	13,139
IVA 19% (UF)	14,978
Total cost (UF/Million US$)	93,810(UF) Million US$ 3.63

Source: Annex 3 of Adenda 1 Closure Plan (in process)

Table 17-9. Detail of Post-Closing Cost

Item	Detail
Direct cost	598
Indirect cost	60
Contingencies	132
IVA (19%)	150
Total cost	940
Frequency (years)	5
Post closure total cost (UF/ US$) Current value	11,530 UF US$ 446,200

Source: Annex 3 of Addenda 1 Closure Plan (in process)

The result of the calculation of the useful life for the ORCOMA mine according to the Res Exe. N°1421/2015 is 17 years (2015-2032). The constitution of the guarantees will be carried out as follows. See Table 17-10.

According to RCA No. 75/2017, the mine has an environmentally approved useful life of 25 years. However, considering the Mineral Reserves and the caliche exploitation rate of the total mine areas (11 Mtpy), the Orcoma Mine is expected to have a useful life of 28. The estimate of warranties was made considering the parameters set out in Table 17-10.

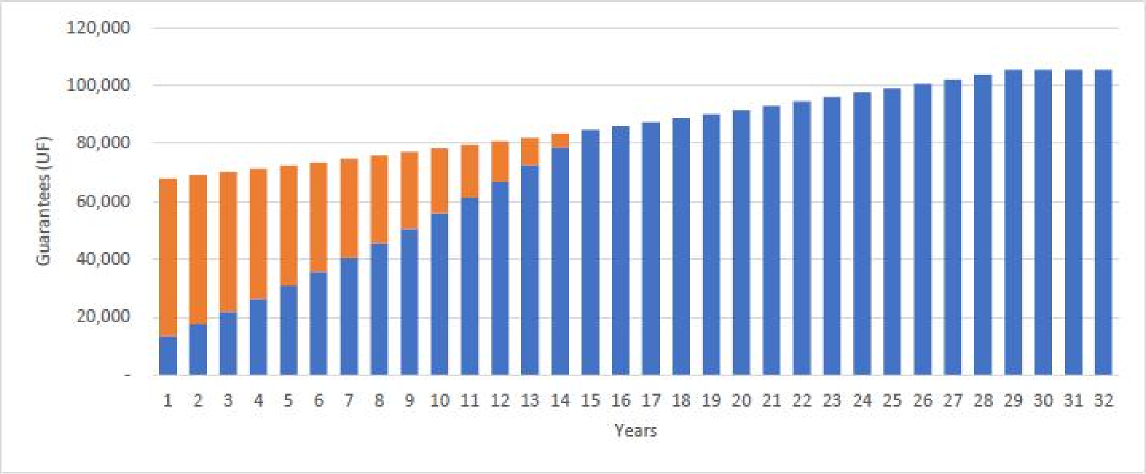
The estimated warranties are presented in Figure 17-1.

Table 17-10. Parameters for Estimation of Pampa Orcoma Guarantees

BCU Rate 30 years	1.58%	Average from March 2016 to February 2021
Useful life	29	years
Guarantee provision period	15	years
Closing phase	3	years
Warranty life cycle	32	years

Source: Annex 3 of Addenda 1 Closure Plan (in process)

Figure 17-1. Disposition of Pampa Orcoma's Financial Guarantees



Source: Annex 3 of Addenda 1 Closure Plan (in process). Blue color is the guarantee or bond (UF), orange color is the difference with protected value (UF).

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 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 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 90% 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 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, at a maximum flow rate of 200 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	MMUSD
	Nitrates & Iodine Orcoma Project Operation	**100%**	**294**
1	Caliche Mine Extraction (*)	0%	0
2	Leaching (COM & porterage system)	5%	14
3	Iodide & Iodine Plant	10%	29
4	Solar Evaporation Ponds	32%	95
5	Water resources (Seawater system)	30%	89
6	Electrical Distribution System	4%	13
7	Roads	4%	12

Note: (*): Does not include investment in mining equipment (~50 MMUSD included in the operational cost of the mine).

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

Iodine	Kt	5.0
AFA	Kt nitrate	940
Caliche	Mt	20
Iodine grade (I2)	ppm	408
Nitrate grade ($NaNO_3$)	%	6.8%
Iodine leaching yield	%	66.4%
NaNO3 leaching yield	%	69.1%
Soluble Salts	%	47.9%
Iodine plants yield	%	92.5%
Ponds yield	%	77.3%
Coya Sur yield for solar salts	%	58.1%

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 operating mining costs are presented in Table 18-3.

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 Tonne of Caliche Extracted

Mining	2.13	US$/T Caliche
Leaching	0.95	US$/T Caliche
Seawater	0.51	US$/T Caliche

Source: SQM

To produce iodine, it is estimated that approximately 1 kg of iodine is obtained for every 4 t of caliche. In the case of the production of nitrates, it is estimated that for every 22.9 t of caliche, 1 t of nitrate is obtained, 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)

Solution Cost	12.5	US$/kg I2	78%
Plant Iodide	1.7	US$/kg I2	11%
Plant Iodine Prill	1.9	US$/kg I2	12%
Iodine Variable Cost	**16.1**	**US$/kg I2**	**100%**

The estimated costs to produce nitrates are presented in Table 18-5. The cost presented is per tonne 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 tonne)

Solution Cost	10.5	US$ / t nitrate	13%
Ponds + preharvest	11.2	US$ / t nitrate	14%
Ponds depreciation	11.2	US$ / t nitrate	14%
Others (G&A)	9.6	US$ / t nitrate	12%
Harvest + screen	4.9	US$ / t nitrate	6%
Transportation to Coya Sur	35.1	US$ / t nitrate	42%
Intermediate Salts Variable Cost	**82.5**	**US$ / t nitrate**	**100%**

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.

WSP utilized operating costs and capital expense estimates provided by SQM. SQM is a well-established operation with a long history and the staff well experienced in the planning and cost estimation for all aspects of the operation. Therefore, since estimates are based on actual operating experience, it is WSP's opinion that the costs provided and considered for this study meets the requirements of accuracy and contingency required of a pre-feasibility level study for the economics required to support Mineral Reserve estimates.

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 Q4 2021 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.

In turn, the income from sales of each of the products has been considered, as well as the current projection of their prices. In the case of the price of Iodine, a base value of 35 USD/kg has been considered and for the price of Nitrates it has been considered at 680 US$/tonne as a final product. As the nitrates finish their process in Coya Sur (CS), it has been considered a cost of production (according to SQM numbers) in CS of 275 US$/tonne plus a 20% for component losses during process and a 20% gross margin, so the price (internal price) to estimate the revenues is 295 US$/tonne.

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.

Lastly, it has been considered to apply a discount rate of 10% and a tax of around 28% to the profit.

Once the revenues flow for the Base Case were obtained, the sensitivities to production, sales prices, and operating costs were carried out. The foregoing allows for the estimation of revenues in situations other than the base case that have a certain probability of occurrence during the operation (between 2024 and 2040).

Table 19-1. Production of Iodine and Nitrates with and without Orcoma Project

	2024	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**TOTAL**
Orcoma Ore Tonnage (Mt)	7.5	10.5	13.5	17.5	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	**309.0**
Average grade Iodine in situ (I2, %)	408	410	403	406	421	408	410	415	405	407	407	407	407	407	407	407	407	**408**
Iodine in situ (kt)	6.6%	7.0%	6.7%	6.5%	6.4%	6.9%	6.6%	6.1%	7.4%	6.9%	6.9%	6.9%	6.9%	6.9%	6.9%	6.9%	6.9%	**6.8%**
Yield process to produce prilled Iodine (%)	3.1	4.3	5.4	7.1	8.4	8.2	8.2	8.3	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	**126.2**
Prilled Iodine production (kt)	61.3%	62.5%	59.8%	59.5%	64.4%	61.3%	58.0%	63.8%	60.8%	59.0%	62.0%	62.0%	62.0%	62.0%	62.0%	62.0%	62.0%	**61.5%**
Average grade Nitrate Salts in situ (NaNO3, %)	1.9	2.7	3.3	4.2	5.4	5.0	4.8	5.3	4.9	4.8	5.0	5.0	5.0	5.0	5.0	5.0	5.0	**77.6**
Nitrate salts in situ (kt)	493	732	901	1,139	1,288	1,370	1,316	1,226	1,478	1,378	1,378	1,378	1,378	1,378	1,378	1,378	1,378	**20,966**
Yields process to produce Brine Nitrate (%)	69.5%	69.4%	69.0%	68.2%	70.6%	68.8%	65.1%	70.7%	67.9%	66.4%	69.9%	69.9%	69.9%	69.9%	69.9%	69.9%	69.9%	**69.9%**
Brine Nitrate production (kt)	343	508	621	777	910	943	856	867	1,003	915	963	963	963	963	963	963	963	**14,482**

Estimated sales of Iodine and Nitrates are shown in Table 19-2.

Table 19-2. Sales of Iodine and Nitrates for the Orcoma Project

Prices	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	TOTAL
Iodine (US$/Tonne)	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	**35,000**
Nitrates @ Coya Sur (US$/Tonne)	295.0	295.0	295.0	295.0	295.0	295.0	295.0	295.0	295.0	295.0	295.0	295.0	295.0	295.0	295.0	295.0	295.0	295.0	295.0	**295.0**
Sales																				
Iodine (kt)	-	-	1.9	2.7	3.3	4.2	5.4	5.0	4.8	5.3	4.9	4.8	5.0	5.0	5.0	5.0	5.0	5.0	5.0	**78**
Nitrates @ Coya Sur (kt)	-	-	342.6	508.2	621.0	776.5	910.0	942.8	856.4	866.8	1,003.1	914.8	962.9	962.9	962.9	962.9	962.9	962.9	962.9	**14,482**
Revenues																				
Iodine (M US$)	-	-	65.7	94.2	113.9	148.0	189.7	175.0	166.5	185.3	172.3	168.1	176.6	176.6	176.6	176.6	176.6	176.6	176.6	**2,715**
Nitrates @ Coya Sur (M US$)	-	-	101.1	149.9	183.2	229.1	268.4	278.1	252.6	255.7	295.9	269.9	284.0	284.0	284.0	284.0	284.0	284.0	284.0	**4,272**
Total Revenues (M US$)	**-**	**-**	**166.7**	**244.1**	**297.1**	**377.1**	**458.1**	**453.1**	**419.1**	**441.0**	**468.2**	**438.0**	**460.7**	**460.7**	**460.7**	**460.7**	**460.7**	**460.7**	**460.7**	**6,987**

As the nitrates finish their process in Coya Sur (CS), it has been considered a cost of production (according to SQM numbers) in CS of 275 US$/tonnes plus a 20% for component losses during process and a 20% gross margin, so the price to estimate the revenues is 295 US$/tonnes.

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 19-3.

Table 19-3. Main Costs of Iodine and Nitrates Production

		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	TOTAL
COSTS																			
COMMON																			
Mining	US$M	16.0	22.4	28.8	37.3	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	42.6	**658**
Leaching	US$M	7.1	10.0	12.8	16.6	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	**294**
Seawater	US$M	3.8	5.4	6.9	8.9	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	**158**
Total Mining Costs	**US$M**	**26.9**	**37.7**	**48.5**	**62.8**	**71.8**	**71.8**	**71.8**	**71.8**	**71.8**	**71.8**	**71.8**	**71.8**	**71.8**	**71.8**	**71.8**	**71.8**	**71.8**	**1,109**
IODINE PRODUCTION																			
Solution Cost	US$M	23.5	33.6	40.7	52.9	67.7	62.5	59.4	66.2	61.5	60.0	63.1	63.1	63.1	63.1	63.1	63.1	63.1	**970**
Iodide Plant	US$M	3.2	4.6	5.5	7.2	9.2	8.5	8.1	9.0	8.4	8.2	8.6	8.6	8.6	8.6	8.6	8.6	8.6	**132**
Iodine Plant	US$M	3.6	5.1	6.2	8.0	10.3	9.5	9.0	10.1	9.4	9.1	9.6	9.6	9.6	9.6	9.6	9.6	9.6	**147**
Total Iodine Production Cost	**US$M**	**30.2**	**43.3**	**52.4**	**68.1**	**87.3**	**80.5**	**76.6**	**85.2**	**79.3**	**77.3**	**81.3**	**81.3**	**81.3**	**81.3**	**81.3**	**81.3**	**81.3**	**1,249**
Total Iodine Production Cost	**US$/kg Iodine**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**
NITRATE PRODUCTION																			
Solution Cost	US$M	3.6	5.3	6.5	8.2	9.6	9.9	9.0	9.1	10.5	9.6	10.1	10.1	10.1	10.1	10.1	10.1	10.1	**152**
Ponds and preparation	US$M	7.7	11.4	13.9	17.4	20.4	21.1	19.2	19.4	22.5	20.5	21.6	21.6	21.6	21.6	21.6	21.6	21.6	**324**
Harvest production	US$M	1.7	2.5	3.0	3.8	4.5	4.6	4.2	4.2	4.9	4.5	4.7	4.7	4.7	4.7	4.7	4.7	4.7	**71**
Others (G&A)	US$M	3.3	4.9	6.0	7.5	8.8	9.1	8.3	8.4	9.7	8.9	9.3	9.3	9.3	9.3	9.3	9.3	9.3	**140**
Transport to Coya Sur	US$M	12.0	17.8	21.8	27.3	31.9	33.1	30.1	30.4	35.2	32.1	33.8	33.8	33.8	33.8	33.8	33.8	33.8	**508**
Total Nitrate Production Cost	**US$M**	**28.3**	**42.0**	**51.3**	**64.1**	**75.2**	**77.9**	**70.7**	**71.6**	**82.9**	**75.6**	**79.5**	**79.5**	**79.5**	**79.5**	**79.5**	**79.5**	**79.5**	**1,196**
Total Nitrate Production Cost	**US$/t Nitrate**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**83**	**83**
TOTAL OPERATING COST	**US$M**	**85**	**123**	**152**	**195**	**234**	**230**	**219**	**229**	**234**	**225**	**233**	**233**	**233**	**233**	**233**	**233**	**233**	**3,554**
TOTAL OPERATING COST	**US$/t Caliche**	**11.4**	**11.7**	**11.3**	**11.1**	**11.7**	**11.5**	**11.0**	**11.4**	**11.7**	**11.2**	**11.6**	**11.6**	**11.6**	**11.6**	**11.6**	**11.6**	**11.6**	**11.5**

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 Ktpyear of Nitrate Salts and 5.0 MMm^2 of Evaporation ponds, with a useful life of 25 years.

Pampa Orcoma reserves have been quantified at 309 Mtpy with 408 ppm of iodine, 6.8% $NaN0_3$ and 47.9%. of Soluble Salts.

The Orcoma project initial investment is close to USD 294 million, distributed as follows:

- Seawater Intake and Piping:
    - Investment USD 101 million (includes Road)
    - 33 km pipeline from Caleta Buena bay
    - Total water cost of 1.20 USD/m^3
- Iodide Plant: USD 29 million.
- Solar Evaporation Ponds 5.0 Km^2, USD 95 million (19 USD/m^2).
- Operation Centers (COP) & Port System, USD 14 million.
- Electrical Connection System, USD 13 million.
- Other Investments, USD 42 million (Mining Workshop, General Services, Environment Studies and Monitoring, and Contingencies).

The estimated investments in the period 2022 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 6.99 billion including sales of iodine and nitrates
- Total Operating Cost: estimated to be USD 3.55 billion.
- EBITDA: estimated at USD 3.43 billion
- Tax Rate of 28% on pre-tax gross income
- Capital Expenditure estimated at USD 442 million
- Bank Loan and Loan Amortization estimated at USD 380 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 680 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

Investments (M US$)	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**TOTAL**
Orcoma	150.0	144.0	8.2	8.0	12.0	24.8	8.8	4.0	4.2	4.4	9.0	5.4	9.8	10.2	7.2	8.0	11.8	6.8	5.4	442.0

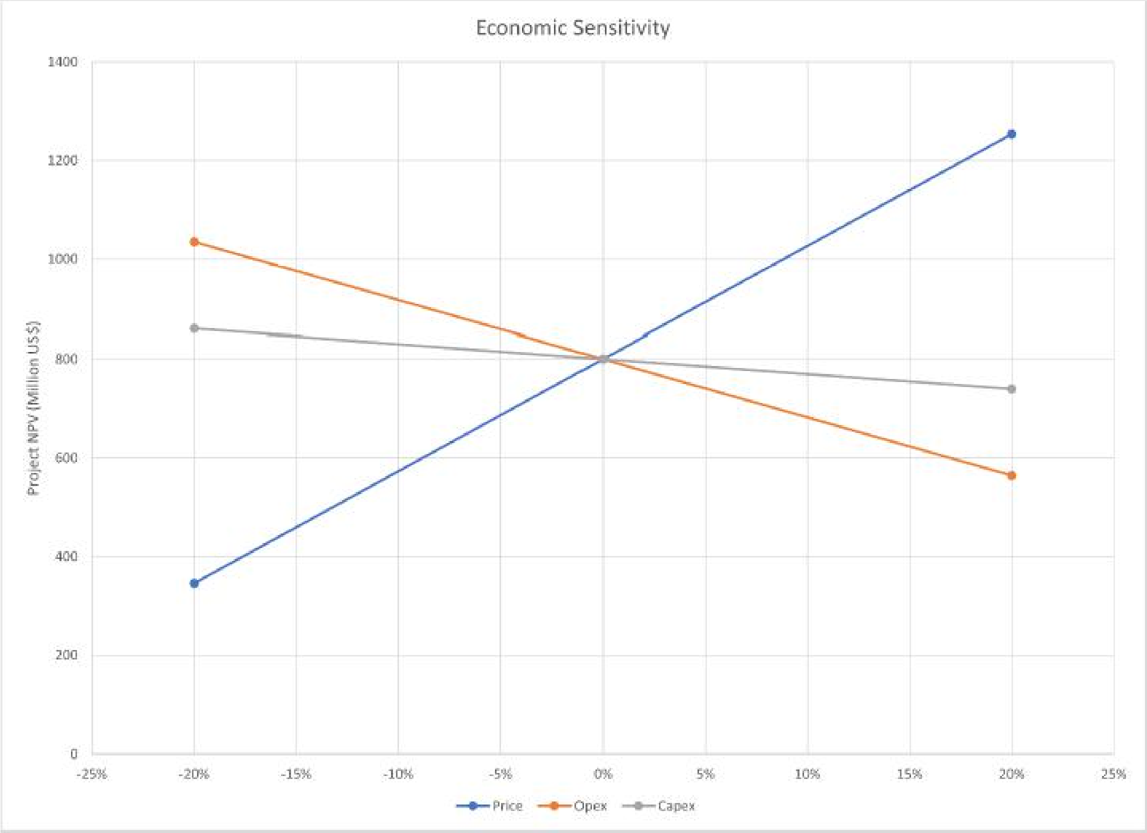
Table 19-5. Estimated Net Present Value (NPV) for the Period

NPV		**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**TOTAL**
REVENUE																					
Total Revenues (M US$)	US$M	-	-	167	244	297	377	458	453	419	441	468	438	461	461	461	461	461	461	461	**6,987**
COSTS																					
Common Costs (mining, leaching)	US$M	-	-	27	38	48	63	72	72	72	72	72	72	72	72	72	72	72	72	72	**1,109**
Iodine Production Costs	US$M	-	-	30	43	52	68	87	80	77	85	79	77	81	81	81	81	81	81	81	**1,249**
Nitrate Production Costs	US$M	-	-	28	42	51	64	75	78	71	72	83	76	80	80	80	80	80	80	80	**1,196**
TOTAL OPERATING COST	**US$M**	**-**	**-**	**85**	**123**	**152**	**195**	**234**	**230**	**219**	**229**	**234**	**225**	**233**	**233**	**233**	**233**	**233**	**233**	**233**	**3,554**
EBITDA	**US$M**	**-**	**-**	**81**	**121**	**145**	**182**	**224**	**223**	**200**	**212**	**234**	**213**	**228**	**228**	**228**	**228**	**228**	**228**	**228**	**3,433**
Depreciation	US$M	-	-	15	16	16	17	18	18	18	18	19	19	20	20	21	21	21	22	22	**321**
Interest Payments	US$M	-	-	10	9	7	6	5	4	3	1	-	-	-	-	-	-	-	-	-	**45**
Pre-Tax Gross Income	US$M	-	-	57	97	121	158	201	201	179	193	215	194	208	208	208	207	207	206	206	**3,066**
Taxes	28%	-	-	16	27	34	44	56	56	50	54	60	54	58	58	58	58	58	58	58	**859**
Operating Income	**US$M**	**-**	**-**	**41**	**70**	**87**	**114**	**145**	**145**	**129**	**139**	**155**	**140**	**150**	**150**	**149**	**149**	**149**	**149**	**148**	**2,208**
Add back depreciation	US$M	-	-	15	16	16	17	18	18	18	18	19	19	20	20	21	21	21	22	22	**321**
NET INCOME AFTER TAXES	US$M	-	-	56	85	103	131	162	163	147	157	174	159	170	170	170	170	170	170	170	**2,529**
Total CAPEX	US$M	150	144	8	8	12	25	9	4	4	4	9	5	10	10	7	8	12	7	5	**442**
Bank Loan	US$M	95	96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**190**
Loan Amortization	US$M	-	-	20	21	22	23	24	25	27	28	-	-	-	-	-	-	-	-	-	**190**
Working Capital	US$M	-	-	14	7	4	6	7	-0	-4	2	4	-4	2	-	-	-	-	-	-	**38**
Pre-Tax Cashflow	US$M	-55	-48	30	77	99	122	179	190	170	176	222	211	216	218	221	220	216	221	223	**2,908**
After-Tax Cashflow	US$M	-55	-48	14	50	66	77	122	133	120	123	161	157	157	160	163	162	158	164	165	**2,049**
Pre-Tax NPV	US$M	**1,013**																			
After-Tax NPV	US$M	**680**																			
Discount Rate	US$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.

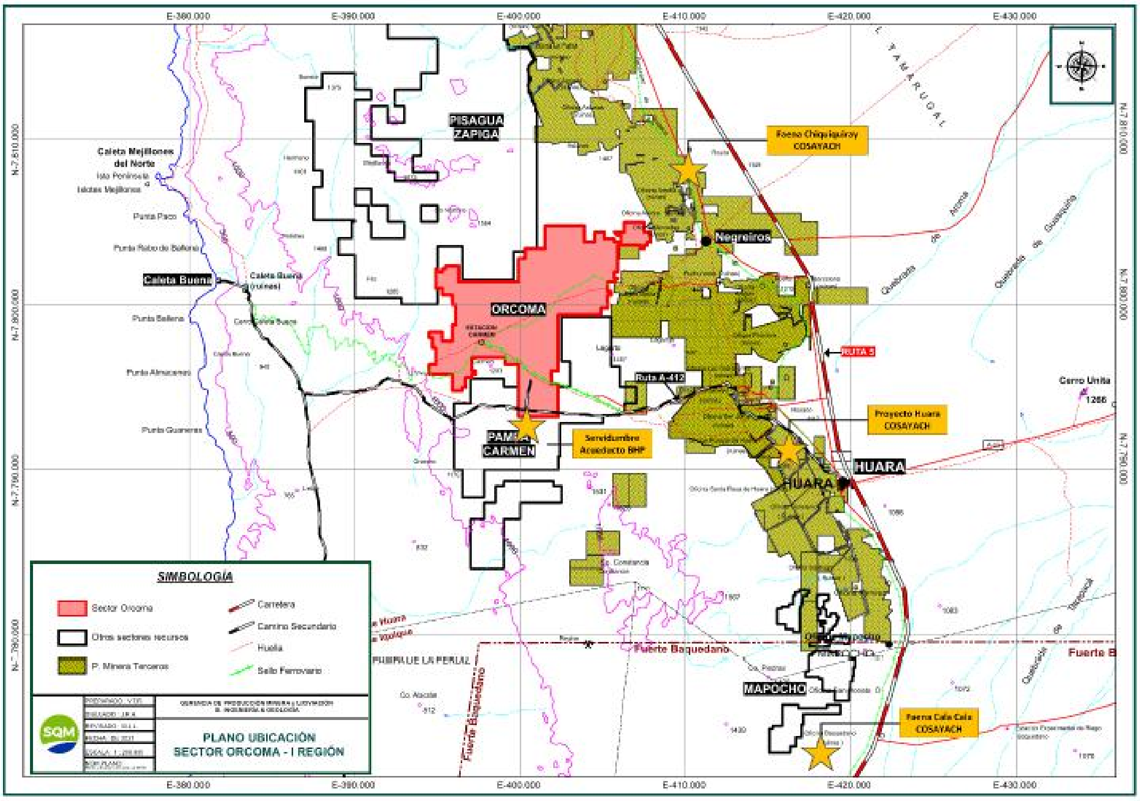
Within SQM-Pampa Orcoma's boundary, as presented in Figure 20 1, it is stated that:

- 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:

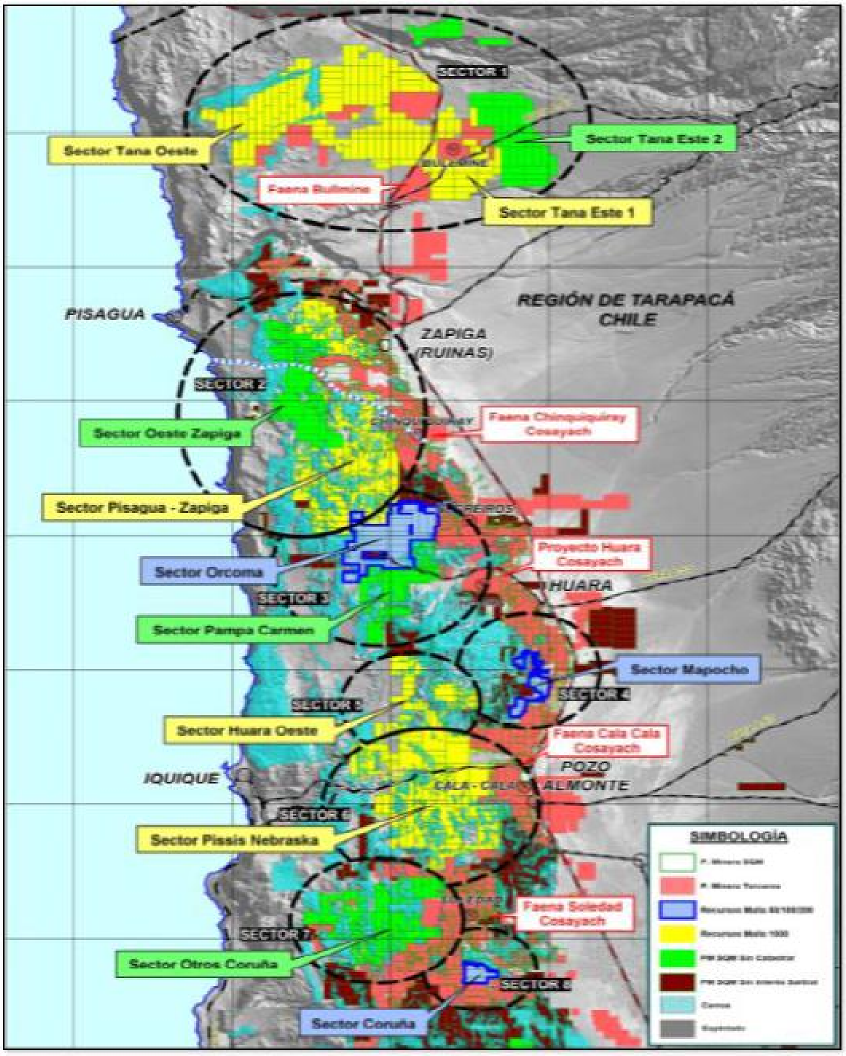
- Chiquiquiray mine adjacent to the northeast.
- Huara Project adjacent to the southeast.
- Cala Cala site adjacent to and south of Mapocho.

Figure 20-1. Pampa Orcoma Adjacent Properties.



Source: Plano_Ubicación_Orcoma_v2, SQM.

Figure 20-2. Pampa Orcoma Adjacent Properties.



Source: Plan Industrial Abril Orcoma - final (1).

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 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 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 400-x-400 m and 200-x-200 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.

22.1.4 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.

22.1.5 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.

22.1.6 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.

No specific study of bulk material density is available for Pampa Orcoma. Should this be different than assumed from operating experience at other locations and could result in a bias to the mineral resource estimate.

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 2023. 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 tonnes prill Iodine/year to 5,000 tonnes prill Iodine/year will not be obtained within the required timeframe.

22.3 Significant Opportunities

22.3.1 Mineral Resource Statement

The 100-m spacing drill hole grid currently in process will allow for a future recategorization of the resource as Measured (SQM(j), 2021). The diamond drilling campaign currently in process will provide a comparison of caliche depths and iodine and nitrate grades with respect to the 200-x-200 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.

- 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.

- 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.

- Maintain original and/or digitized records of collar surveys, geological, and geochemical data in a secure database.

- Infilling RC drill hole grids with 100-x-50 -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

- Estimate caliche density specifically for the Pampa Orcoma project area. This is currently based on operating experience at the Nueva Victoria operation and may improve the accuracy of the mineral resource estimate.

- Construct updated procedures that describe in sufficient detail the activities of capture, administration, and backup of the data.

- Update all the procedures, methodologies, and results in the annual reports.

- 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.

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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

APPENDIX

A Glossary

Term	Description
100T	The “100 truncated grid” at Pampa Orcoma, which comprises 865 drill holes at 100x50 m spacing, enabling the recategorizing of the resource estimate based on the 400-x-400 m and 200-x-200 m grids corresponding to the “PO” and “O” series drill holes respectively, in the south-eastern sector of the Pampa Orcoma project.
Blank	Blank Sample.
Blank Sample	Sample prepared during water sampling campaigns, each comprising an aliquot of analyte-free reagent water sent to the field which is handled identically to a regular sample. its purpose within the quality control process is to quantify the degree to which field samples might be contaminated or chemical altered by the sample collection equipment (pumps, tubes, bailers), sample preparation equipment (eg filtration equipment), sample storage & transport (bottles) or site conditions during sampling (eg windblown dust). Standard practice is to prepare blanks at around 10% of the field sampling points.
Caliche	Sediments bearing quantities of sodium nitrate of potential economic value.
Cuttings	Sediment or rock fragment samples obtained from drilling.
DDH	Diamond Drill Hole
Diamond Drill Hole	Diamond core hole drilled using a diamond coring bit which produces continuous core samples of the geologic materials drilled.
Duplicate	Duplicate Sample.
Duplicate	A sample collected concurrently under comparable conditions, with another sample. Used to assess the variability of laboratory analytical results.
Duplicate Sample	Replicate Sample where 2 samples are prepared.
Overburden	Soil, sterile sediments or waste rock overlaying an economic mineral deposit.
RC	Dual Tube Reverse Circulation (DTRC) drill holes, the RC drilling method uses air as the drilling fluid and produces cuttings.
Recategorization	Process by which the degree of uncertainty associated with the estimation of a mineral resource is reduced by drilling boreholes in the spaces between drill holes in an existing grid of drill holes, for example to densify a 200-x-200m drill hole grid to a 100x100m grid. By this process, the classification of the mineral resource may be improved from, for example, indicated to measured.
Recovery	Mass of caliche returned during RC drilling over a drilled interval of 0.5 m at a diameter of 5½", expressed as a percentage relative to a reference mass of 14 kg.
Replicate	Replicate Sample.
Replicate Sample	Samples prepared during water sampling campaigns. Replicate samples are multiple samples prepared in the field at the same location and time by the same person using the same sampling procedure and equipment. The smallest number of replicates is two, such a pair can be referred to as a **duplicate sample**. The purpose of collecting replicate samples is to evaluate the precision with which the concentration of each analyte is determined. The observed variance between replicates will be the sum of the environmental variance in the field, the sampling variance in the field and the analytical variance in the laboratory.
Stamps	Areas of 50 m x 50 m drill hole spacing, used to support densification to a 50 x 50 m grid of resource estimates that were originally based 100 m x 100 m or 100 m x 50 m drill hole grids.
Sterile sediments	Sediments with mineral grades below the cut-off grade.

Exhibit 96.4

TECHNICAL REPORT SUMMARY

OPERATION REPORT

NUEVA VICTORIA

Sociedad Química y Minera de Chile

Date: April, 2022

WSP-SQM0011-TRS-NUEVA VICTORIA-Rev0 Rev0

TECHNICAL REPORT SUMMARY

OPERATION REPORT

NUEVA VICTORIA

Sociedad Química y Minera de Chile

WSP-SQM0011-TRS-NUEVA VICTORIA-Rev0

April, 2022

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Sociedad Química y Minera de Chile (SQM) commissioned WSP Ambiental Chile (WSP) to prepare this Technical Report Summary (TRS) on Nueva Victoria in the Tarapacá Region of northern Chile. The disclosure of any information contained in this report is the sole responsibility of the recipient. The content of the TRS has been prepared based on the professional judgment of WSP from the information made available to WSP by SQM at the time of its compilation. Any use made by a third party of this TRS, including any decision made by a third party based on the TRS, is the sole responsibility of the third party. WSP is will not be held responsible for any damages incurred by third parties as a result of decisions taken or actions based on this TRS.

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1 EXECUTIVE SUMMARY

1.1 Property Summary and Ownership

The Nueva Victoria Property, situated 145 kilometers (km) southeast of the city of Iquique, covers an area of 75,802 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. 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 Urruticoechea family.

1.2 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 situated corresponds to Paleogene clastic sedimentary rocks deposited over a volcanic basement, associated with lavas of intermediate composition (mainly andesites - tuffs) representing Jurassic volcanism. In turn, the volcanic rocks overly a series of intrusive rocks 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 km in extension. The mineralization thicknesses are variable, with mantles of approximately 1.0 meter (m) to 6.0 m. As a result 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 ($NaNO_3$) - KNO_3 (potassium nitrate); hectorfloresite, lautarite, and bruggenite as iodates.

In 2021, there was a detailed exploration program of 4,100 Has in the Hermosa Oeste and Tente sector in Aire Oeste. Currently, drilling totals 90,527 reverse circulation (RC) drill holes (360,115). The majority of the drill holes were vertical. Drilling is carried out with wide-grid in the first reconnaissance stage (1000 x 1000; 800 x 800; 400 x 400); to later reduce this spacing to define the resources in their different categories.

1.3 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.

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. Areas with a drill hole grid of 50-x-50 m and up to 100-x-100 m were estimated in a three-dimensional- (3D) block model using the Ordinary Kriging (OK) 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 hole grids greater than 100-x-100 m, a gross economic evaluation at the database level was carried out that selected the area with economic and operational potential to be extracted.

Mineral Resources were classified using the drill hole exploration grid. Zones with an exploration grid of 50-x-50 m up to 100-x-100 m were classified as Measured. For Indicated Mineral Resources, the zone should have a 200-x-200-m drill hole grid. To define Inferred Mineral 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, all Measured and Indicated Mineral Resources have been converted into Mineral Reserves; as a result, only Inferred Mineral Resources are reported in this Technical Report Summary (TRS). Note that because the caliche deposit is at the surface, all Measured and Indicated Mineral Resources have been converted into Mineral Reserves.

Table 1-1. Mineral Resource Estimate, Exclusive of Mineral Reserves, effective December 31, 2021

	Inferred Resource		
Nueva Victoria	**Tonnage (Mt)**	**Iodine (ppm)**	**Nitrate (%)**
Hermosa Sur	31.1	430	5.5
Tente en el Aire	2.4	441	4.7
Total	33.4	431	5.4

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. All Measured and Indicated Mineral Resources have 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 tonnes, parts per million, and weight percent respectively.
(e) The Mineral Resource estimate considers an iodine cut-off grade of 300 ppm, based on accumulated cut-off iodine grades and operational average grades, as well as caliche thickness ≥ 2.0 m and overburden thickness ≤ 3.0 m. The iodine cut-off grade considers the cost and medium- and long-term price forecasts of generating iodine as discussed in Sections 11, 16 and 19 of this TRS.
(f) Donald Hulse is the QP responsible for the Mineral Resources.

Density was assigned to all materials with a default value of 2.1 (tonnes per cubic meter (t/m^3), this value is based on several analysis made by SQM in Nueva Victoria and other operations. Resource Estimate considers a cut-off grade of Iodine of 300 ppm, this value takes into account 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 35,000 USD/tonne the same as that used to estimate Mineral Reserves.

The Qualified Person (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 TRS.

1.4 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, 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 mining and recovery factors, production rate and schedule, mining equipment productivity, commodity market and prices and projected operating and capital costs.

The Measured Mineral Resources defined by prospecting grid RGM100T -~70-x-70 m- and RGM50 -50-x-50 m-; and evaluated through the use of 3D blocks and kriging are considered to represent a high level of geological confidence are converted to Proven Mineral Reserves with unit conversion coefficients for tonnage and grades (iodine and nitrates, see Table 12-2).

The Indicated Mineral Resources, defined by prospecting grids RGM100 -100-x-100 m, RGM200 -200-x-200-m, and evaluated through the use of a script executed on the drill database (geometric method) are considered to be at a medium level of geological confidence and converted to Probable Mineral Reserves. Conversion factors used are less than one for iodine (0.90) and nitrate (0.85) grades.

Mineral Reserves are based on an Iodine cut-off grade of 300 ppm, iodine price of USD35/kg, nitrate price of USD295/t. 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 Mineral Reserves at Nueva Victoria are estimated to be 268.1 million tonnes (Mt) with an estimated average iodine grade of 436 ppm and 5.2% nitrate.

Probable Mineral Reserves at the Nueva Victoria site are estimated to be 649.3 Mt with an estimated average iodine grade of 414 ppm and 4.8% nitrate.

Mineral Reserves are stated as in-situ ore.

Table 1-2. Mineral Reserves at the Nueva Victoria Mine (Effective 31 December 2021)

	PROVEN RESERVES	PROBABLE RESERVES	TOTAL RESERVES
Tonnage (Mt)	268.1	649.3	917.4
Iodine Grade (ppm)	436	414	420
Nitrate Grade (%)	5.2	4.8	4.9
Iodine (kt)	116.8	268.9	385.7
Nitrate (kt)	14,021	30,926	44,947

Notes:

(a) Mineral Reserves are based on Measured and Indicated Mineral Resources at an operating cutoff of 300 ppm iodine. Operating constraints of caliche thickness ≥ 2.0 m; overburden thickness ≤3.0 m; and waste / caliche ratio ≤ 1.5 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 stated as in-situ ore (caliche) as the point of reference.

(e) The units “Mt”, “kt”, “ppm” and % refer to million tonnes, kilotonnes, parts per million, and weight percent respectively.

(f) Mineral Reserves are based on an Iodine price of USD35/kg and a Nitrate price of USD295/t. Mineral Reserves are also based on economic viability as demonstrated in an after-tax discounted cashflow (see Section 19)..

(g) Donald Hulse 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.

1.5 Mine Design and Scheduling

At Nueva Victoria, the total amount of Caliche extraction in 2021 was 41.400 million tonnes (Mt). Caliche production for the life-of-mine (LOM) from 2022 through 2040 ranges between 44 Mt per year to 58.80 Mt per year for a total ore production of 917.4 Mt with an average iodine grade of 420 ppm and a nitrate grade of 4.9%.

The mining procedure at Nueva Victoria involves the following processes:

- Removal of the surface layer and overburden (between 0.50 m to 1.5 m thick).

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

- 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 t to 150 t).
- 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 (m²)

  The physical stability analysis performed by SQM indicates that these heaps are stab;e 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 400 days 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 ≤ 3.0 m.
- Barren / Mineral Ratio < 1.5.
- Iodine (300 ppm) cut-off grade.
- Unit sales Price for prilled Iodine of 35,000 US$/tonne and a unit total cost of 27,500 US$/tonne (mining, leaching, seawater pipeline and plant processing).

Approximately 76% of the caliche will be extracted using traditional methods of drill & blast while the remaining 24% will be extracted using CMs.

In the mining processes, SQM considers an efficiency of 92% (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 (72% for iodine and 75% for nitrates that are average values-), a total production of 257.1 kt of iodine and 30,462 kt of nitrate salts is expected for this period (2022 to 2040) from lixiviation process to treatment plants.

1.6 Metallurgy and Mineral Processing

1.6.1 Metallurgical Testing Summary

The testwork 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.

1.6.2 Mining and Mineral Processing Summary

The Nueva Victoria Operation comprises the sectors of Nueva Victoria, Iris and Sur Viejo. The production process begins with mining of "caliche" ore. The ore is heap-leached to generate 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 then processed to obtain pelleted ("prilled") iodine. The iodide-depleted brine which exits the iodide plant is referred to as brine Feble (BF) by SQM, literally feeble brine in the sense of depleted, weakened. A proportion 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 mine (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) where they are refined to produce commercial sodium nitrate and potassium nitrate.

The surface area authorized for mining at Nueva Victoria is 408.5 square kilometers (km²), this will increase to a total of 890 km², when the TEA expansion is approved. 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 million tonnes per year (Mtpy), with an additional 6.48 Mtpy at Iris. The overall mining rate at Nueva Victoria and Iris will increase to a total of 71.48 Mtpy with the incorporation of the TEA expansion.

1.7 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 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 Q4 2021 US$. Total capital costs are estimated to be about USD933 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 by SQM. These included mining, leaching, iodine production, and nitrate production. Other capital costs include working capital and closure costs. Annual total operating costs varied from USD 9.00/t caliche to USD 12.2/t of caliche, with an average total operating cost of USD 11.3/t of caliche over the life-of-mine.

1.8 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.

All costs were assumed to be at Q4 2021 US$.

For the economic analysis, a Discounted Cashflow (DCF) model was developed. An iodine sales price of USD 35,000/t and a nitrate price of US$295/t was used in the discounted cashflow based on information provided by SQM. The imputed nitrate sales price of USD 295/t was estimated based on an average sales price of USD 680/t for finished fertilizer products sold at Coya Sur, less USD 275/t for production costs at Coya Sur and the remaining margin distributed amongst the various operations which supply nitrates and potassium to the Coya Sur facilities.

QP is of the opinion that these prices reasonably reflect current market prices and are reasonable to use as sales prices for the purpose of 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 1.6 billion. The Net Present Value for this study is most sensitive to operating costs and sales prices of both iodine and nitrates.

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 SQM.

1.9 Conclusions and Recommendations

Mr. Donald Hulse QP of Mineral Resources and Mineral Reserves, concludes that the work done in the preparation of this TRS includes adequate detail 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:

- Improvements are required for the QA/QC program to align with industry best practice and facilitate more meaningful QC.
- Maintain original and/or digitized records of collar surveys, geological, and geochemical data in a secure database.
- 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.
- 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 Report Summary (TRS) was prepared by WSP Consulting Chile (WSP) for Sociedad Química y Minera de Chile (SQM), in accordance with the requirements of Regulation S-K, Subpart 1300 of the Securities Exchange Commission of the United States (SEC), hereafter referred to as S-K 1300.

2.1 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, 2021.

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, 2021.

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

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

2.2 Source of Data and Information

This TRS is based on information provided to WSP by 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
GU	geological unit
g/cc	grams per centimeter
g/mL	grams per milliliter
g/tonne	grams per tonne
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

Acronym/Abbv.	Definition
km	kilometer
k_v	vertical seismic coefficient
kN/m^3	kilonewton per cubic meter
km^2	square kilometer
kPa	kiloPascal
kt	kilotonne
ktpd	thousand tonnes per day
ktpy	kilotonne per year
kUSD	thousand USD
kV	kilovolt
kVa	kilovolt-amperes
L/h-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/tonne	cubic meter per tonne
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 tonne
Mtpy	million tonnes per year
MW	megawatt

Acronym/Abbv.	Definition
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
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 onlyne 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	of Regulation S-K, Subpart 1300 of the Securities Exchange Commission of the United States
SM	salt matrix

Acronym/Abbv.	Definition
SPM	sedimentable particulate matter
Sr	relief value, or maximum elevation difference in an area of 1 km²
SS	soluble salt
SX	solvent extraction
t	tonne
TR	Irrigation rate
TAS	sewage treatment plant
TEA project	Tente en el Aire project
tpy	tonnes per year
t/m^3	tonnes per cubic meter
the Project or Orcoma Project	Pampa Orcoma Project
tpd	tonnes 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/tonne	United States Dollars per tonne
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 QP are listed in Table 2-2.

Table 2-2. Summary of Site Visits Made by QPs to Nueva Victoria in Support of TRS Preparation

Qualified Person (QP)	Expertise	Date of Visit	Detail of Visit
Gino Slanzi Guerra	Metallurgy and Mineral Processing	22 Nov 2021	Inspection of the iodide/iodine plants, mine site and mine leaching sectors, and visit to laboratories and the Iris pilot plant.
Alvaro Henriquez	Geology	06 Dic 2021	Nueva Victoria Mine and facilities
Donald Hulse	Mining	06 Dic 2021	Nueva Victoria Mine and facilities

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

- 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 through mining and heap leaching to the finished prilled iodine (spherical pellet) product.
- Reviewed and collated data and information with SQM personnel for inclusion in the TRS.

2.4 Previous Reports on Project

This is the first version of a TRS of the SQM Nueva Victoria Property.

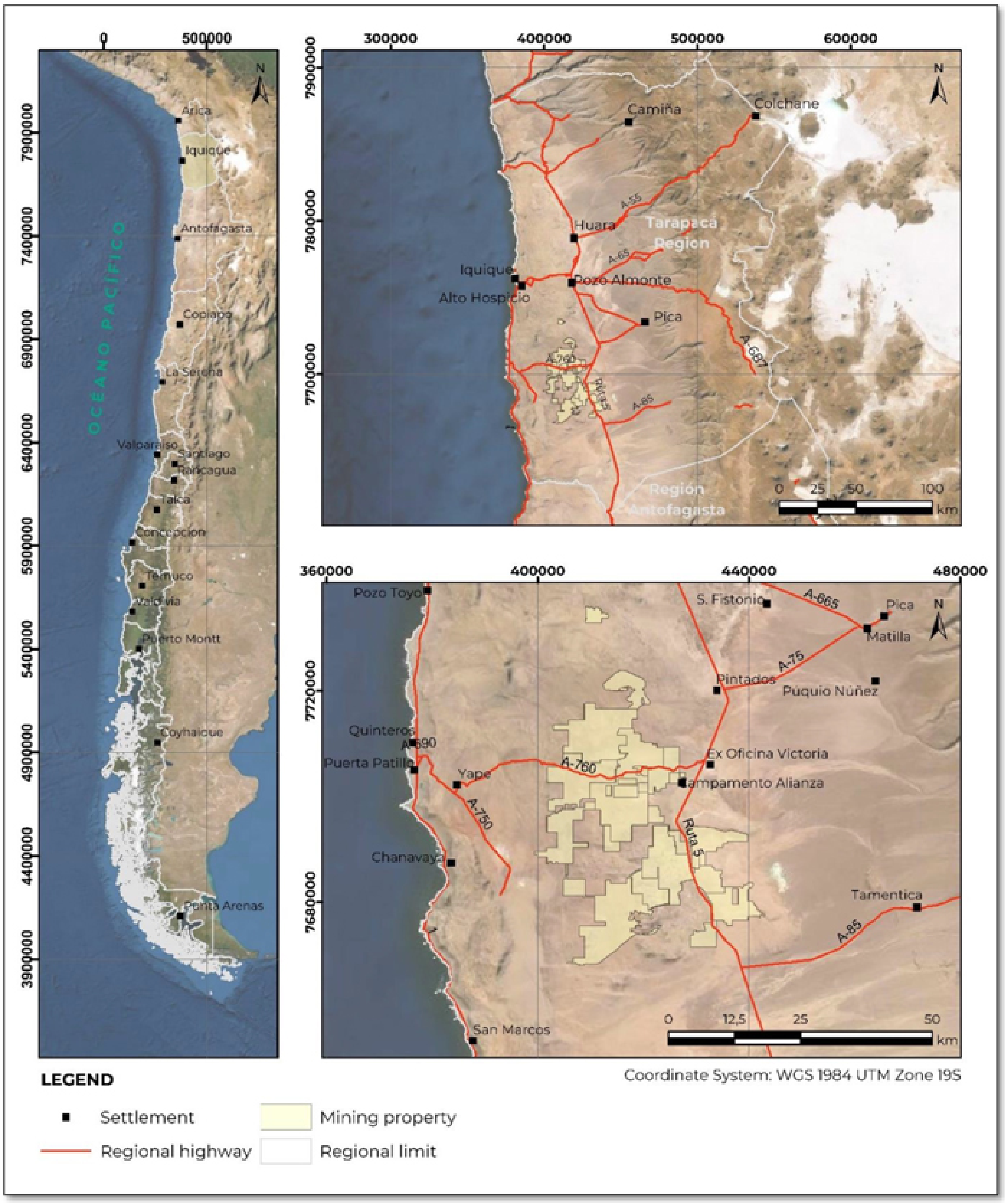
3 DESCRIPTION AND LOCATION

3.1 Location

The Nueva Victoria Property is located in the Commune of Pozo Almonte, in the Province of Tamarugal, within the Region of Tarapacá of northern Chile (Figure 3-1). 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



3.2 Mineral Titles, Claims, Rights, Leases and Options

SQM currently has 4 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, María Elena, Pedro de Valdivia and Pampa Blanca properties. All properties cover a combined area of approximately 289,781 ha, and has been make prospecting with a grid resolution of 400-x-400 m, or finer.

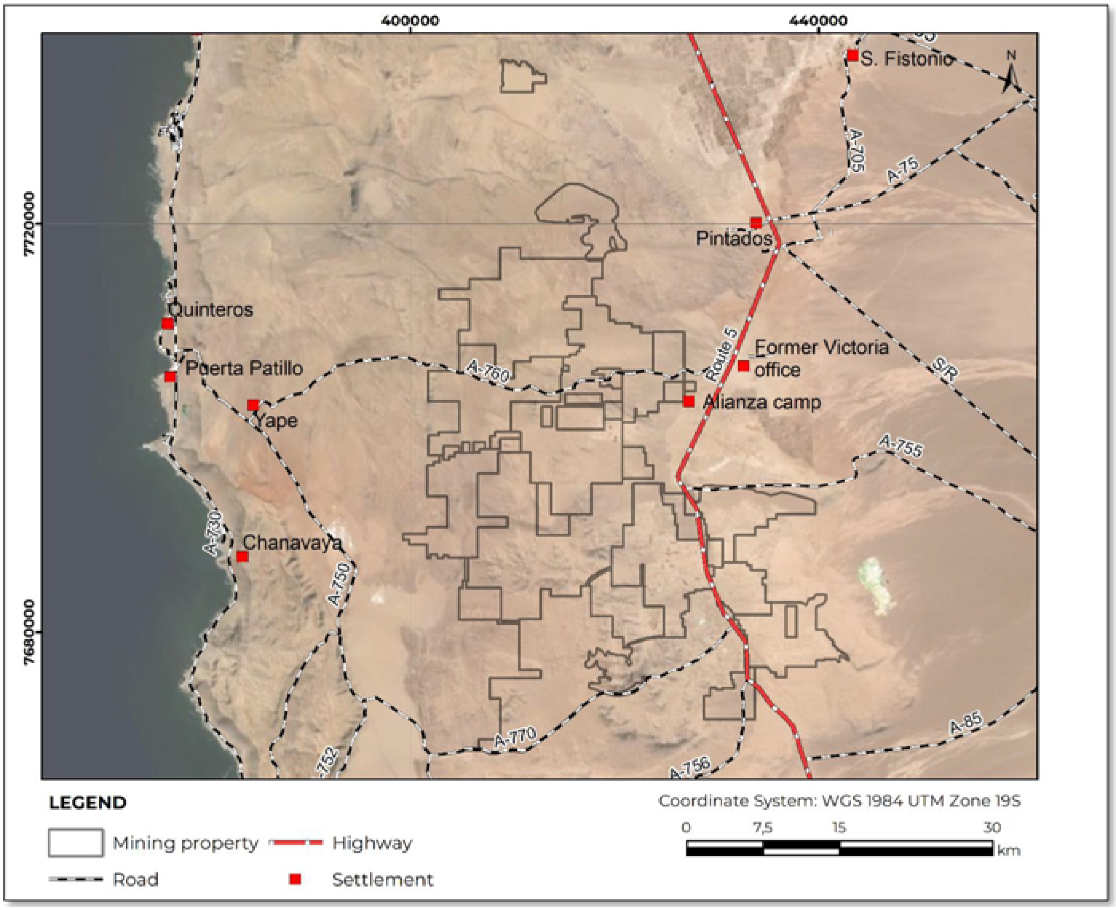
The Nueva Victoria Property covers an area of approximately 75,802 ha.

3.3 Mineral Rights

SQM owns mineral exploration rights over 1,565,781 ha of land in the I and II Regions of northern Chile and is currently exploiting about 1% of this area (as of Dec 2021).

Detailed information on concessions is not available to date.

Figure 3-2. Location of Nueva Victoria Project



3.4 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.

3.5 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 being 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.

3.6 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.

4.1 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 (ARVI 2016, 2018).

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

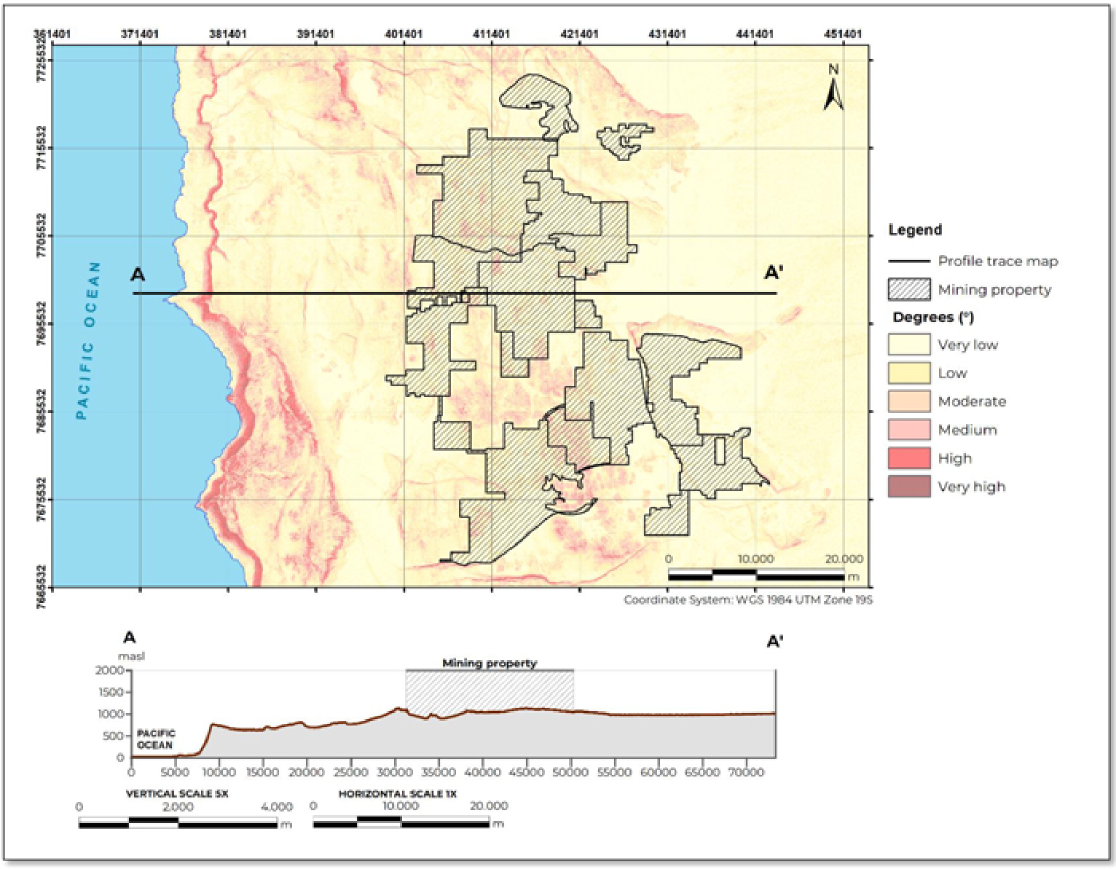
Slope category	From	To
Very low	0°	4.3°
Low	4.3°	9.94°
Moderate	9.94°	16.71°
Medium	16.71°	26.57°
High	26.58°	
Very high	Slopes greater than 38.66°	

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.

4.2 Vegetation

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

Figure 4-1. Slope Parameter Map Sr and Elevation Profile Trace BB"



4.3 Access to the Property

As detailed in Section 3.1 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 (IATA airport code IQQ) is as follows:

1. Drive 28 km north on Ruta 1 [classified as motorway on Open Street Map (OSM)) from IQQ 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 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 (171 km).

4.4 Climate and Length of Operating Season

Nueva Victoria is in the Intermediate Basin (Central Depression) of the hyperarid 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 m 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.

4.5 Infrastructure

In the Nueva Victoria mining area and, the following facilities and infrastructure can be found:

The main facilities at Nueva Victoria are as follows:

- Caliche mining areas.
- Industrial water supply.

- Heap leaching operation.
- Iodide plants (Nueva Victoria and Iris properties).
- Industrial water supply.
- 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, took over the operation, and in 1968 a merger of Compañía Salitrera Anglo Lautaro S.A. ("Anglo Lautaro") and CORFO Chile's state-owned 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.

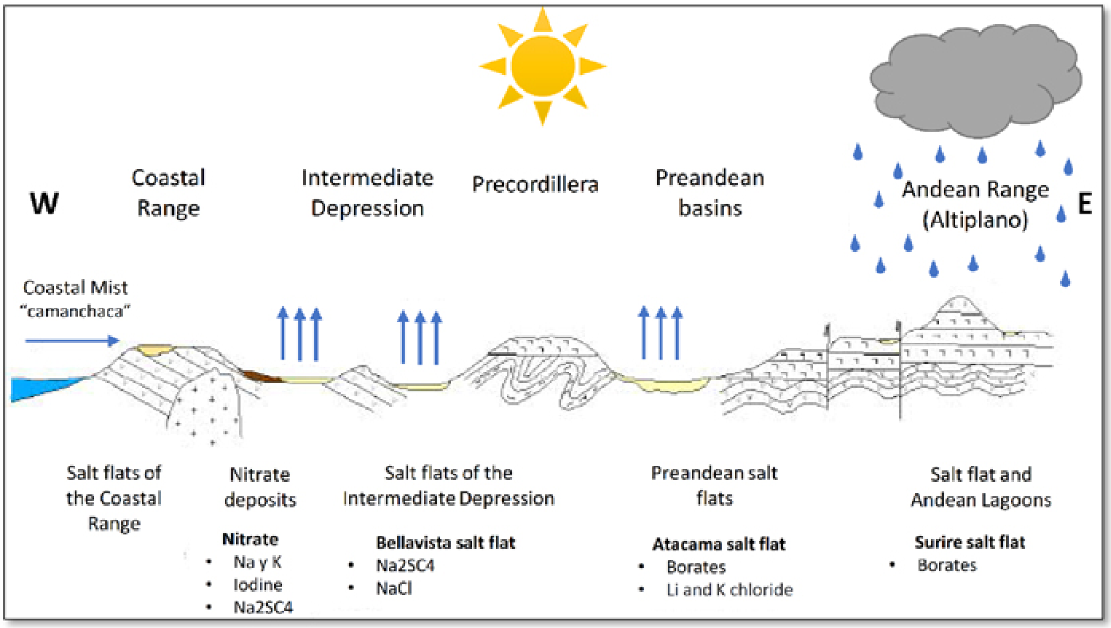
6 GEOLOGICAL SETTING, MINERALIZATION AND DEPOSIT

6.1 Regional Geological Setting

In Chile, the nitrate-iodine deposits are located 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-sulfates, 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 gabbens) where the Cerro Rojo Formation and Punta Barranco Formation were continentally deposited. These Mesozoic units are intruded by Lower Cretaceous subvolcanic intrusives 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 intrusives 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.

6.2 Local Geology

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

6.2.1 Intrusive Igneous Rocks

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

6.2.2 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.

6.2.3 Stratified Sedimentary and Volcaniclastic Rocks

This category comprises Mesozoic to Cenozoic sedimentary & 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.

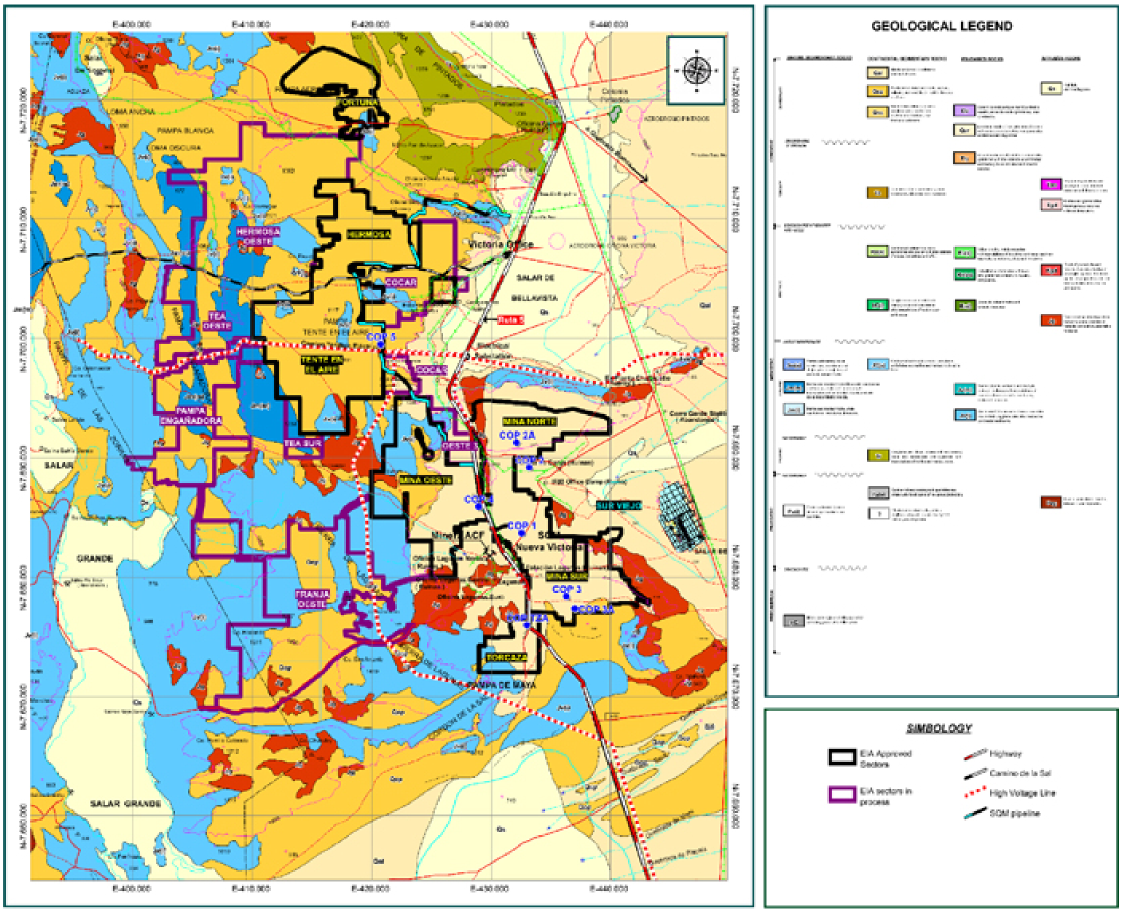
- Continental clastic sedimentary rocks of Triassic age comprising conglomerates, sandstones & quartzites with intercalations of marine sedimentary rocks. Denoted as Tr on the geological map.

- 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 geological map.

Figure 6-2. Geological Map at Nueva Victoria. Internal Document-SQM



6.3 Property Geology

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 minerals of interest, i.e., iodine and nitrate. Each of the units is described below:

6.3.1 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.

6.3.2 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.

6.3.3 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 m 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 also form saline aggregates due to saline efflorescence, (the deposition of salts from the evaporation of water from the capillary fringe of shallow water tables).

6.3.4 Unit D

Underlies Unit C. It comprises dark brown matrix-supported polymictic breccias. The thickness of this units varies between 1 m to 5 m. The clasts are angular, tending towards subrounded 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, intrusives 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.

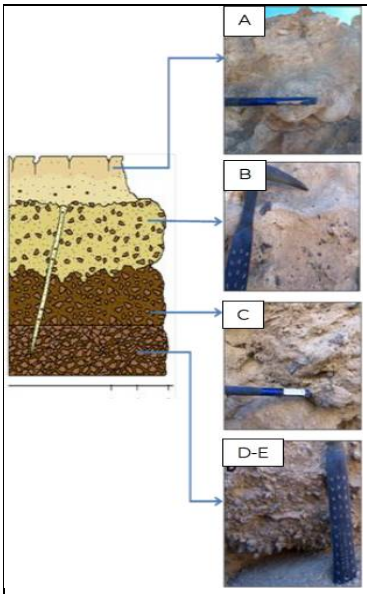
6.3.5 Unit E

This unit is similar to Unit D, except for the sedimentary fabric and structure. It comprises dark brown clast-supported polymictic conglomerates. The clasts are subrounded, 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.

6.3.6 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



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.

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.

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.

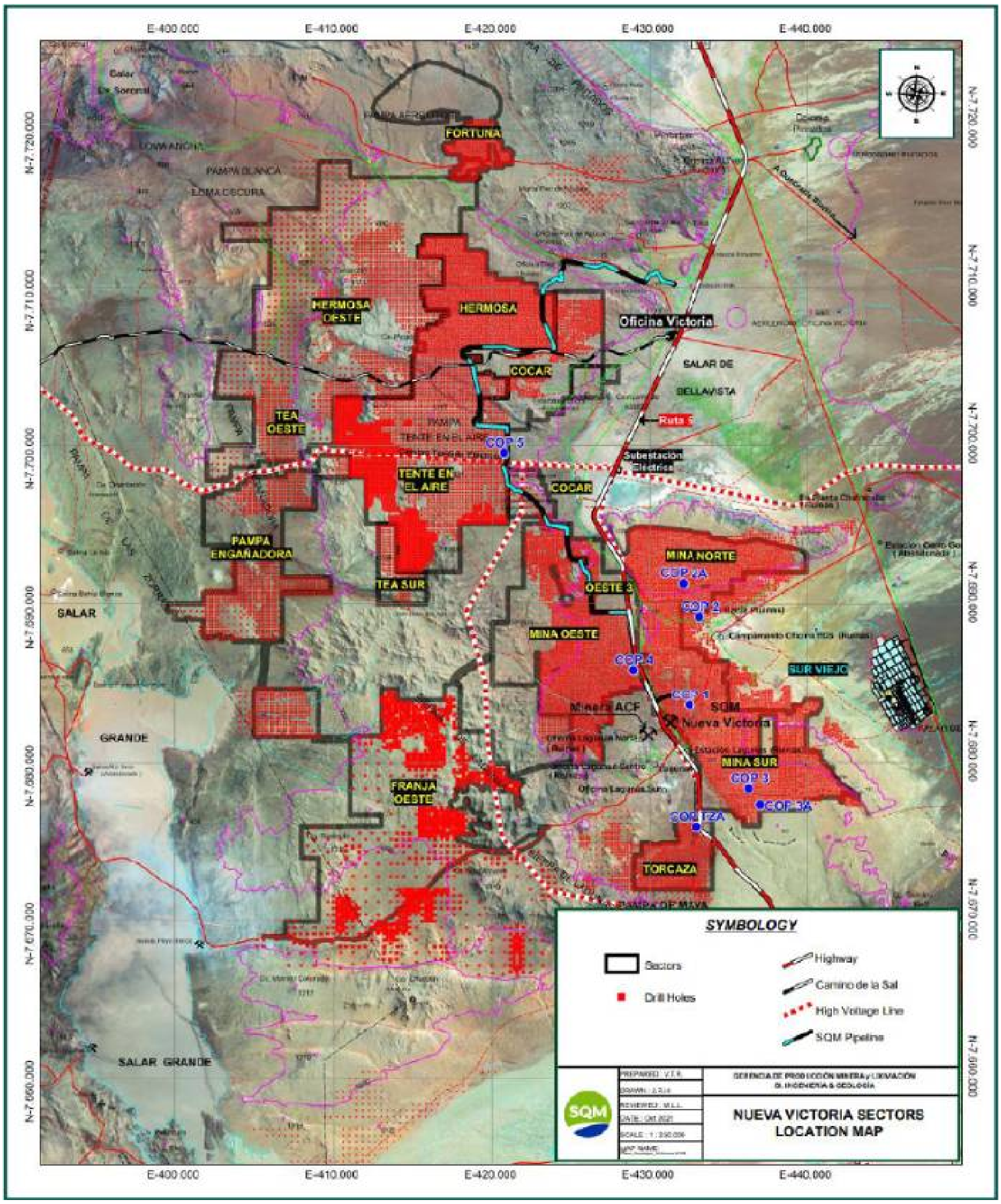
Level of fine to medium-grained breccias. As in the case of Unit C, this unit hosts economic mineralization. The thickness of the unit varies between 1.0 - 3.0 m.

Source: Internal document-SQM.

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, intrusives, and tuffs. In the TEA and Hermosa sectors, salt crusts can be observed encasing sandstones, as well as a 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 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



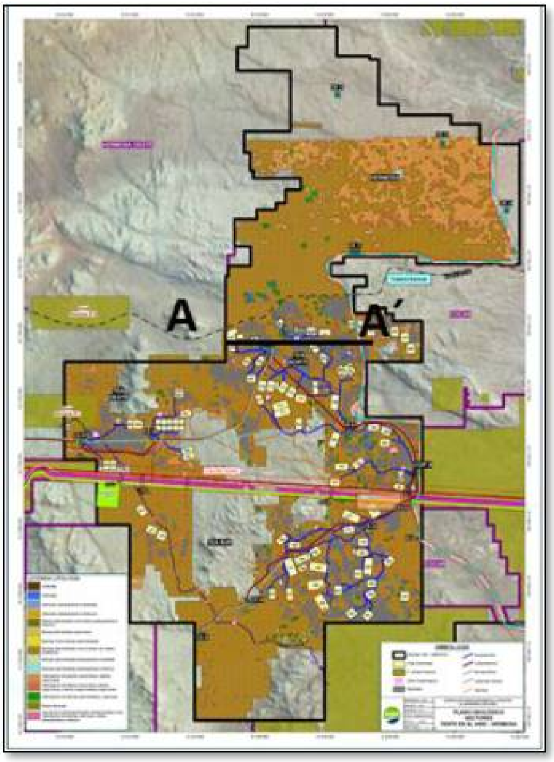
6.3.7 Tente en el Aire (TEA)

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).

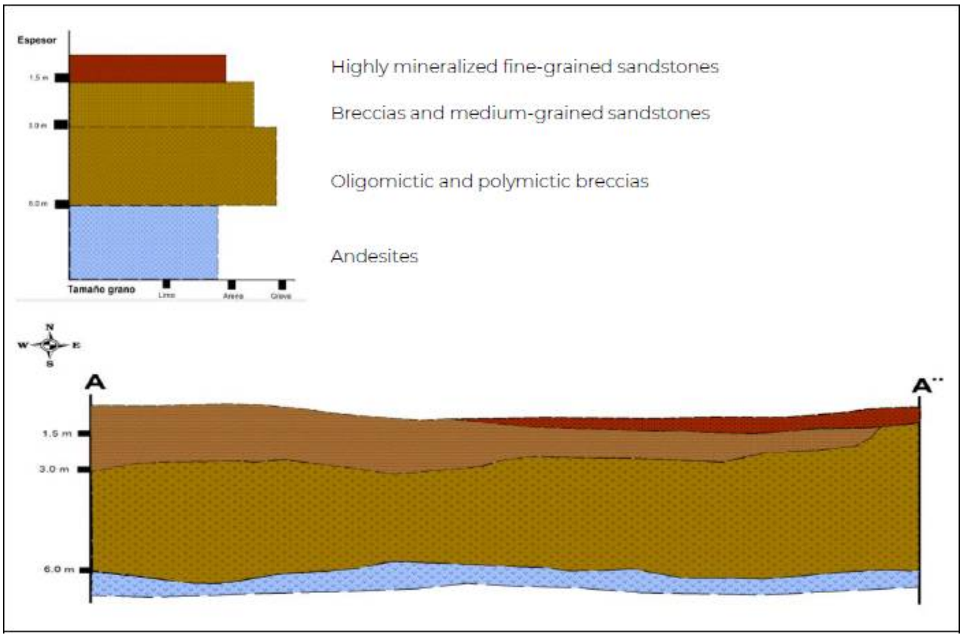
The occurrence of mineralization corresponds to mineralized mantles (caliche) which typically vary in thickness in the range 3.0 m- 3.5 m. 70% of TEA is covered by high-nitrate content, competent caliche, cemented by a high content of soluble salts. The remaining 30% of TEA is covered by reduced nitrate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

Nitrate mineralization in TEA caliche is in the range 5.5 - 6.5% $NaN0_3$) with iodine is in the range (400 - 430 ppm I_2).

Figure 6-5. Representative Stratigraphic Column and Schematic Cross-section of TEA Deposit



Source: Internal document-SQM

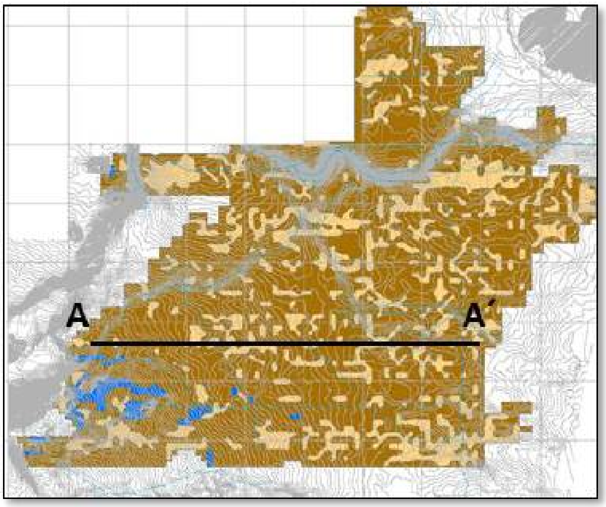


6.3.8 Torcaza

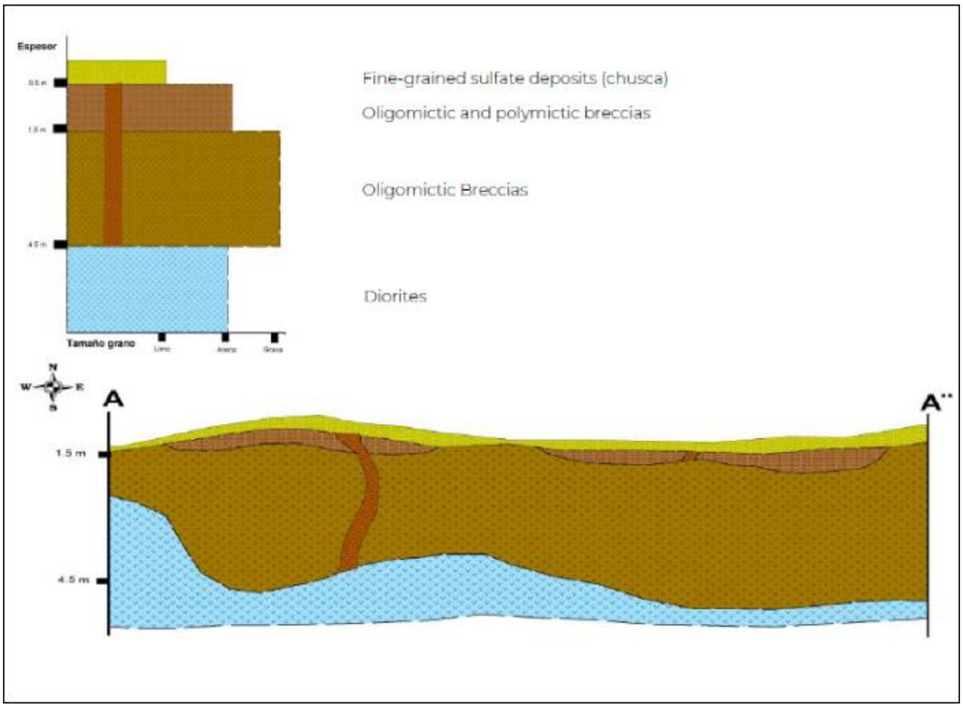
The Torcaza deposit area comprises an open pampa in the southeast, limited by volcanic outcrops to the west and by fluvial deposits to the east. Its geology comprises a sequence of fine-grained sandstones and medium-grained breccias, with a tendency to an increase in clast sizes with depth. The mineralized 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 400 - 430 ppm.

Figure 6-6. Stratigraphic Column and Schematic Cross-section of Torcaza Sector



Source: Internal document-SQM



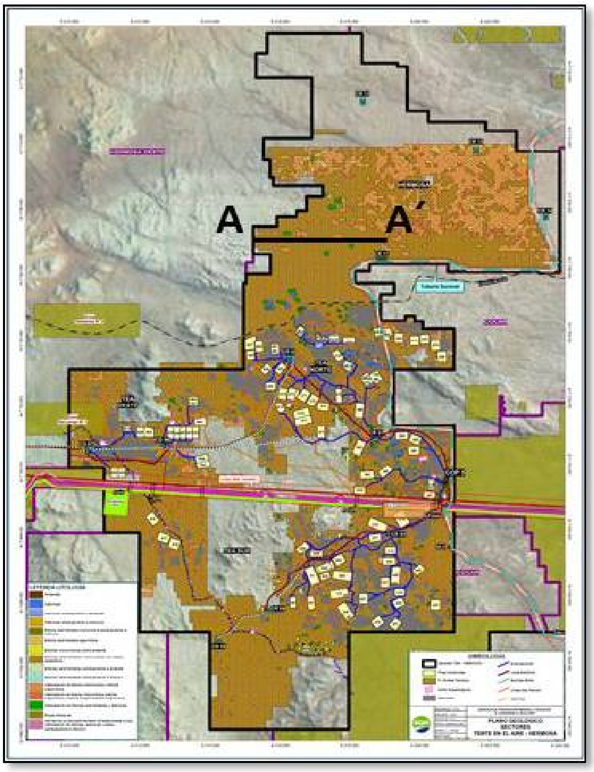
6.3.9 Hermosa

The Hermosa deposit area comprises a closed basin crossed by a system of NW-SE faults. It is an 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).

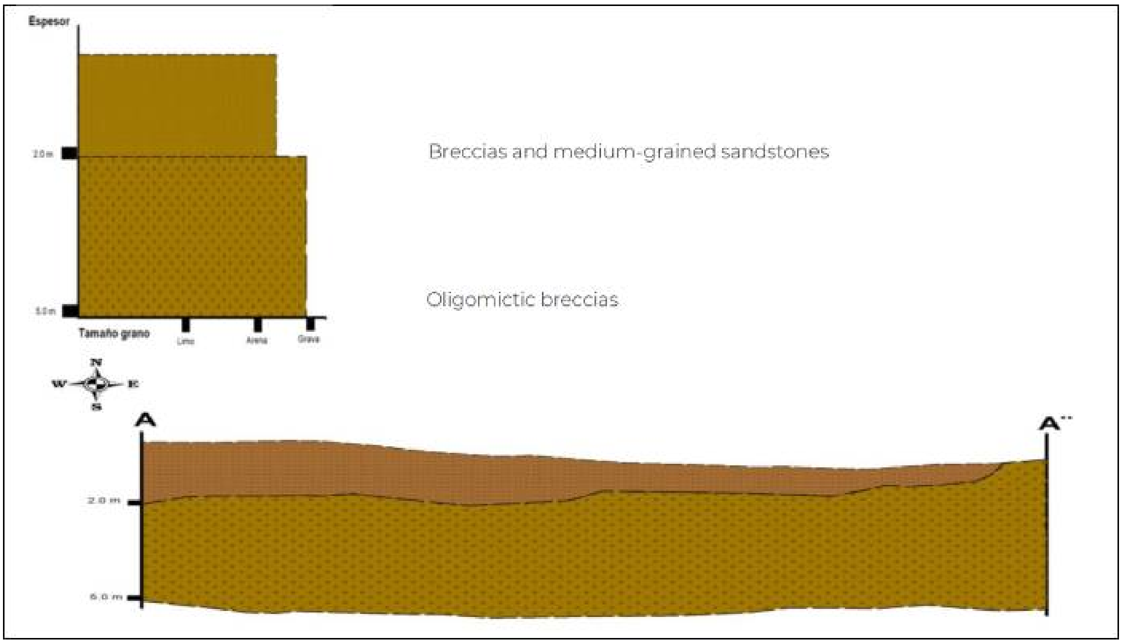
The mineralized mantles (caliche) at Hermosa typically vary in thickness from 3.5 – 4.0 m. 90% of Hermosa is covered by high-nitrate content, competent caliche, cemented by a high content of soluble salts. The remaining 10% of Hermosa is covered by reduced-nitrate leached caliche of lower geomechanically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

Nitrate mineralization in Hermosa caliche is in the range 5.5 - 6.0% $NaN0_3$, with iodine grade in the range (400 - 450 ppm I_2).

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



Source: Internal Document-SQM.



6.3.10 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).

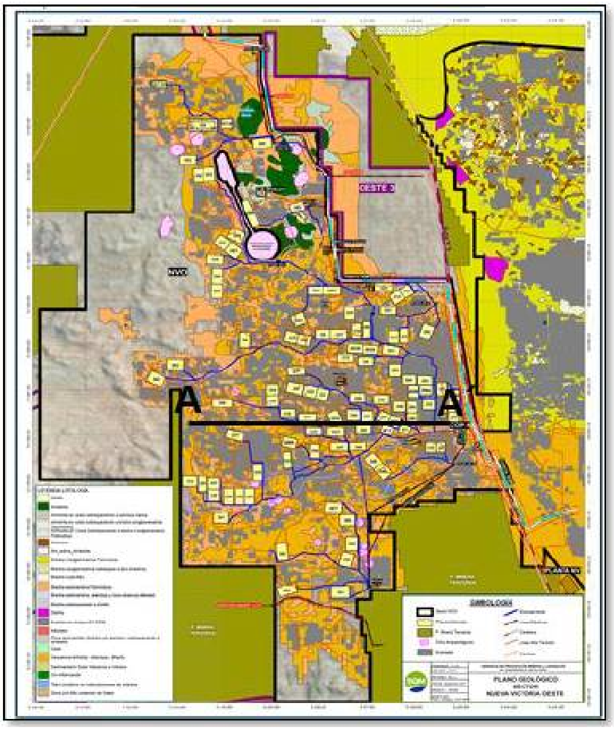
Similar to the Torcaza deposit area, the West Mine deposit area comprises an open pampa in the southeast, limited by volcanic outcrops to the west and by fluvial deposits to the east. Its geology comprises a sequence of fine-grained sandstones and medium-grained breccias, with a tendency to an increase 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 1 m.

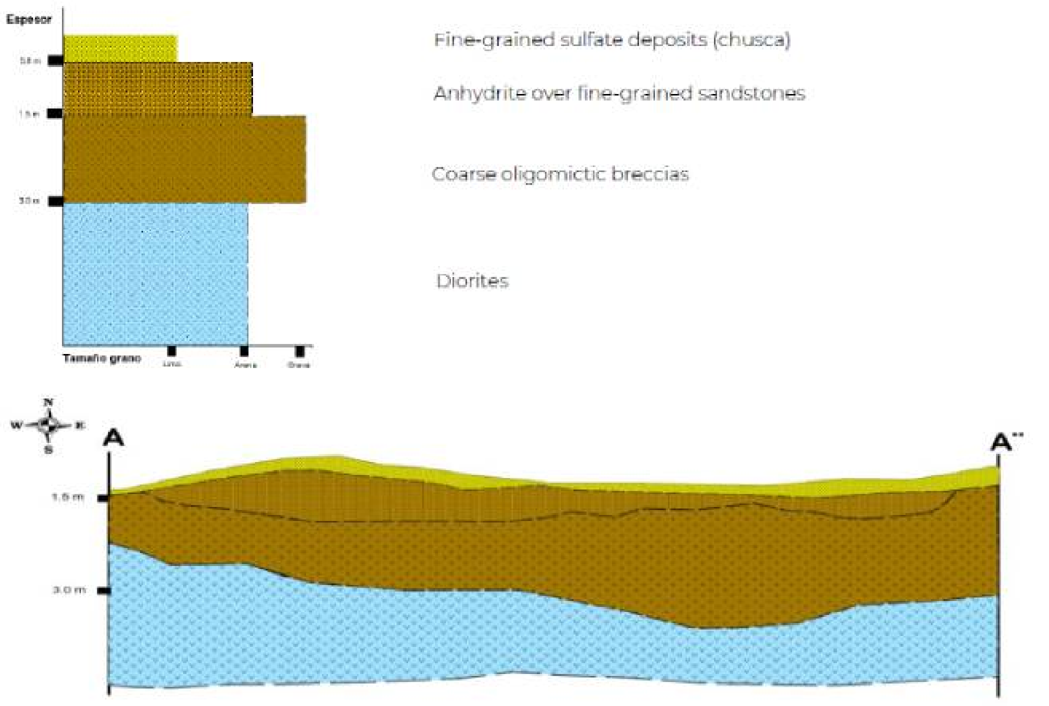
The mineralized mantles of caliche are a little thinner than in TEA and Hermosa, generally attaining a thickness in the range 2.0 - 2.5 m. The caliche has been subject to leaching which has reduced its nitrate content and geomechanical competence.

The nitrate grade at West Mine is in the range 3.5 – 4.5 % $NaN0_3$ and the iodine grade is in the range of 400 - 450 ppm.

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



Source: Internal document-SQM



6.3.11 North Mine

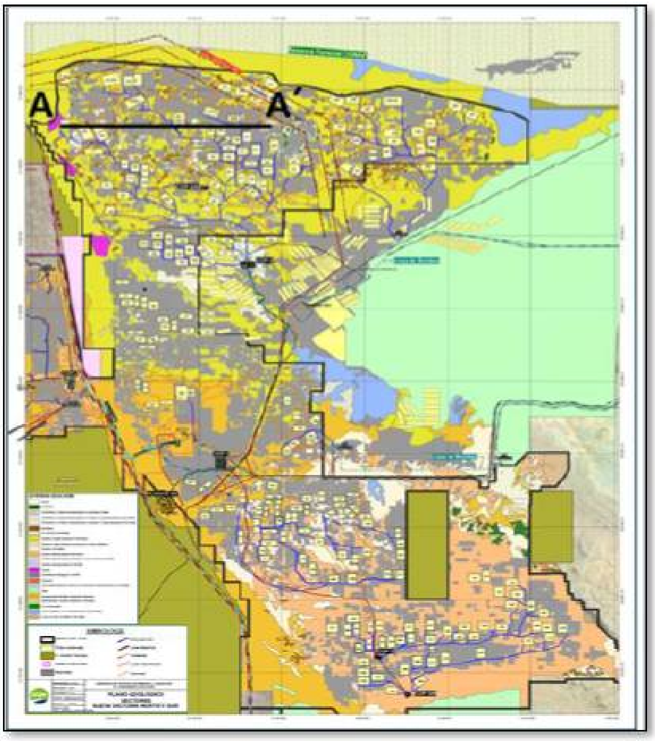
The North Mine deposit area corresponds to a raised block, bounded to the east by the Sur Viejo salt flat.

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 geomechanical 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 6-9. Stratigraphic Column and Schematic Cross-section of North Mine Sector



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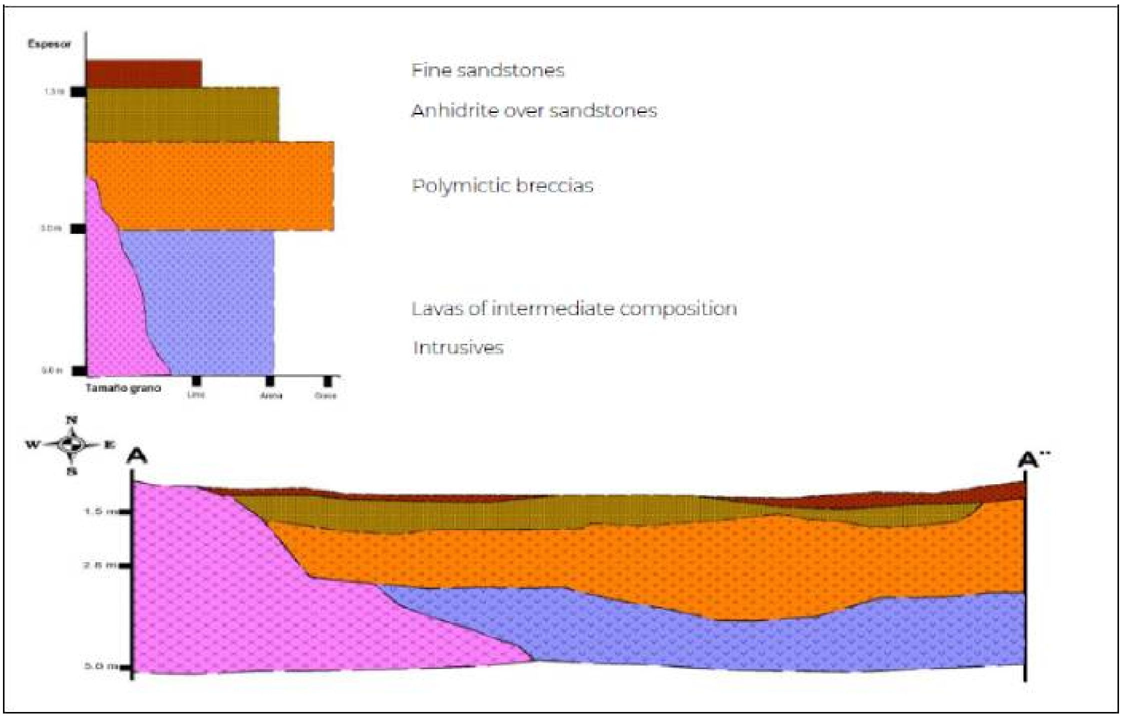


6.3.12 South Mine

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 m. Their geomechanical 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 ppm to 500 ppm.

6.4 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 area. 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	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 (79%)	X
	Darapskite (Darapskita)	$Na_3(SO_4)(NO_3)$.H2O	X				X (6%)	
	Saltpetre (Nitrato potasico)	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
	Fuenzalidaite (Fuenzalidaita)	$K_6(Na, K)_4Na_6Mg_{10}(SO_4)_{12}(IO_3)_{12}.12H_2O$					X (8%)	
	Brüggenite (Brueggenita)	$Ca(IO_3)2.H_2O$					X (25%)	
Chlorides	Halite (Halita)	NaCI	X	X	X	X	X (82%)	X
	Sylvite (Silvita)	KCI	X					
	Potassium-rich halite (Halita Potasica)	(K, Na)CI	X					
	Anhydrite (Anhidrita)	$CaSO_4$	X	X	X		X (76%)	
Sulfates	Glauberite (Glauberita)	$Na_2Ca(SO_4)_2$	X	X	X	X	X (21%)	X
	Loeweite, Löweite (Loeweita)	$Na_{12}Mg_7(SO_4)_{13}.15H_2O$	X	X			X (13%)	
	Polyhalite (Polihalita)	$K_2Ca_2Mg(SO_4)_4.2H_2O$	X	X	X	X	X (81%)	X
	Kieserite (Kieserita)	$MgSO_4.H_2O$	X				X (55%)	
	Astrakanit, Blödite (Astrakanita)	$Na_2Mg(SO_4)_2.4H_2O$	X	X	X	X	X (78%)	X

Group	Mineral (Spanish name in brackets)	Formula	South Mine (n = 21)	West Mine (n = 6)	North Mine (n = 21)	North Mine Gravels (n = 2)	TEA (n = 226)	TEA Gravels (n = 3)
	Humberstonite (Humberstonita)	$K_3Na_7Mg_2(SO_4)_6(NO_3)_2.6H_2O$	X		X	X	X (8%)	
	Hexahydrite (Hexahidrita)	$MgSO_4.6H_2O$	X			X	X (55%)	
	Epsomite (Epsomita)	$MgSO_4.7H_2O$					X (4%)	
	Gypsum (Yeso)	$CaSO_4.2H_2O$	X		X	X	X (15%)	X
	D'Ansite (D'ansita)	$Na_{21}Mg(SO_4)10Cl_3$					X (0.4%)	
	Bassanite (Bassanita)	$2(CaSO_4).H_2O$	X					
	Mirabilite (Mirabilita)	$Na_2SO_4.10H_20)$						X
	Cesanite (Cesanita)	$Ca_2Na_3(OH)(SO_4)_3$						X
	Thenardite (Thenardita)	Na_2SO_4	X					
	Pentahydrite (Pentahidrita)	$MgSO_4.5H_2O$	X					
	Vanthoffite (Vanthoffita)	$Na_6Mg(SO_4)_4$	X					
Silicates	Silicate minerals generally		X	X	X	X	X	X

Source: Internal document-SQM

6.5 Deposit Types

6.5.1 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 the 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 paleosystem).

Current thinking is that the mineral salts of the majority of 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.

6.5.2 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. As a result 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.

6.5.3 Continuous Mantles

Laterally continuous mineralization hosted in sandstones and breccias; presenting caliche thicknesses generally in the range of 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.

6.5.4 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.

6.5.5 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 (eg 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.

6.5.6 Other Economic Mineralization

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

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

Economic mineralization may also manifest itself in the following ways:

1. Cutting the caliche mantles as fracture infills (sand dikes).
2. Veins of 0.5 to 1.0 m thickness associated with sediment - lava contact surfaces.
3. As veins of 0.5 to 1.0 m thickness in volcanic rocks.
4. 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 m to 4 m, with barren material (overburden) ranging from 0 m to 2 m at the top.

7 EXPLORATION

Nueva Victoria is an active mine operation. Ongoing exploration is conducted by SQM with the 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.

7.1 Surface Samples

SQM does not collect surface samples.

7.2 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 m; 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.

7.3 Drilling Methods and Results

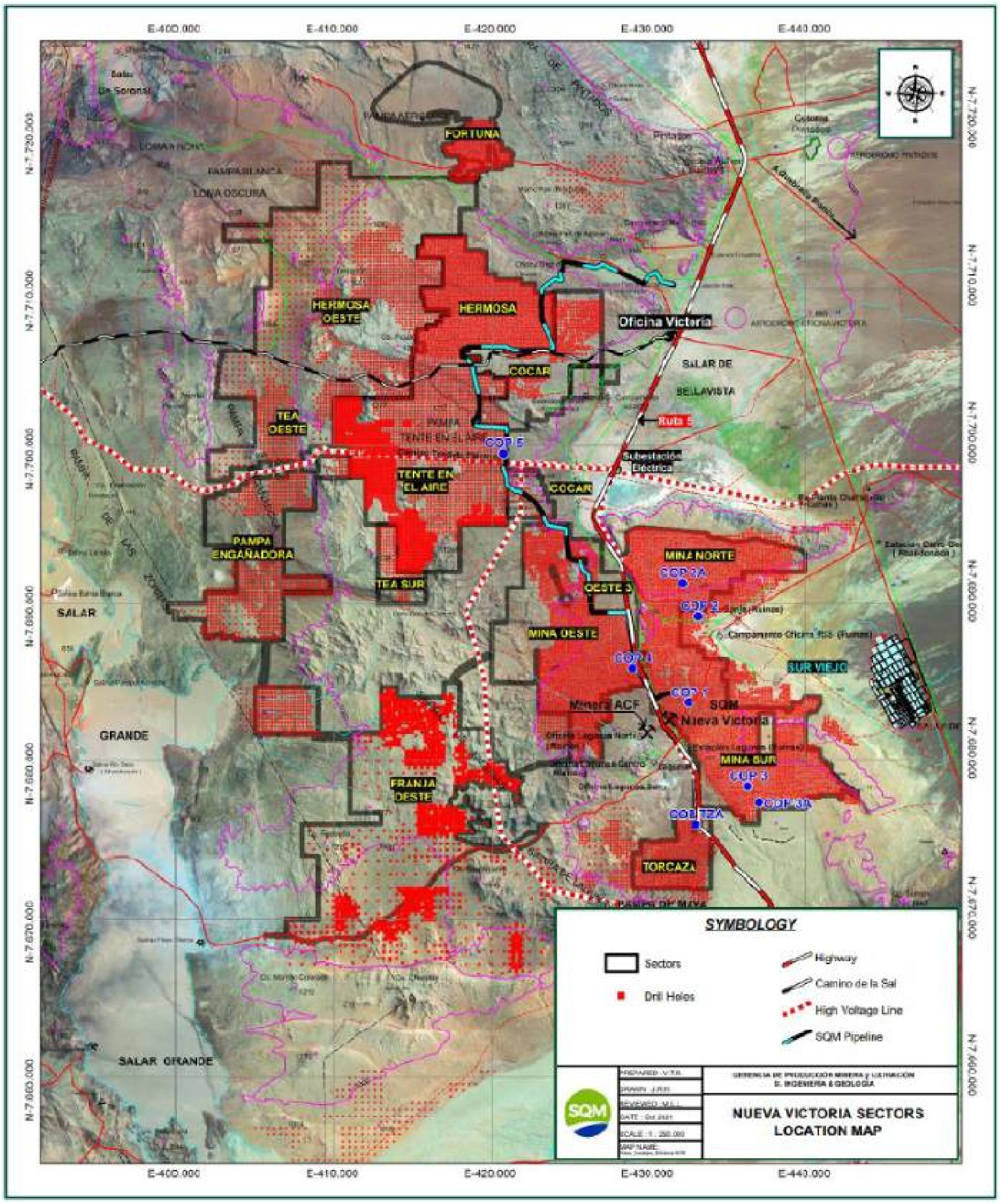
The Nueva Victoria geologic and drill hole database was provided to WSP for review and included 90,527 holes that represented 360,115 m of drilling. Table 7-1 summarizes the drilling by propoerty. Figure 7-2 shows the drill hole locations. As for the type of drilling used, it corresponds to RC holes, with a maximum depth of 7 m. All of 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 the SQM 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 Sur	Hermosa	100 - 100T	8,066	40,330	87
	Tente en el Aire (TEA)	Hermosa	100 - 100T - 200	7,313	36,565	89
	Hermosa Oeste	TEA	200 - 400	1,212	7,272	82
	Coruña	Hermosa	100	1,038	6,228	No data
	TEA Oeste	TEA	200 - 400	560	3,360	85
	TEA Sur (Oeste)	TEA	200	170	1,020	84
	Cocar	TEA	100 - 200	1,015	5,075	No data
	Pampa Engañadora	TEA	200 - 400	1,225	7,350	82
	Franja Oeste	TEA	200 - 800	1,430	7,150	80
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
	Torcaza	Torcaza	50 - 100 - 200	4,400	22,000	88.1
				91,565	**366,343**	

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

Figure 7-2. Drill Hole Location Map



Source: provided by SQM

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. The various prospecting grids are discussed in the sections below.

7.3.1 Grid > 400 m

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

7.3.2 400-m Grid

Once the hypothetical 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 400-m 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. In other cases when there is no reasonable level of confidence the 400-x-400-m grid will be defined as an exploration target.

7.3.3 200-m grid

Subsequently, the potential sectors are redefined, and the 200-x-200 m prospecting grid is carried out, thus defining with a reasonable level of confidence the dimensions, thicknesses, tonnages and grades of the mineralized bodies as well as the continuity of the mineralization, continuing to complement the geology of the sector and the definition of geological units. This area is used to estimate Inferred Mineral Resources.

7.3.4 Grid 100 m and 100 Locked

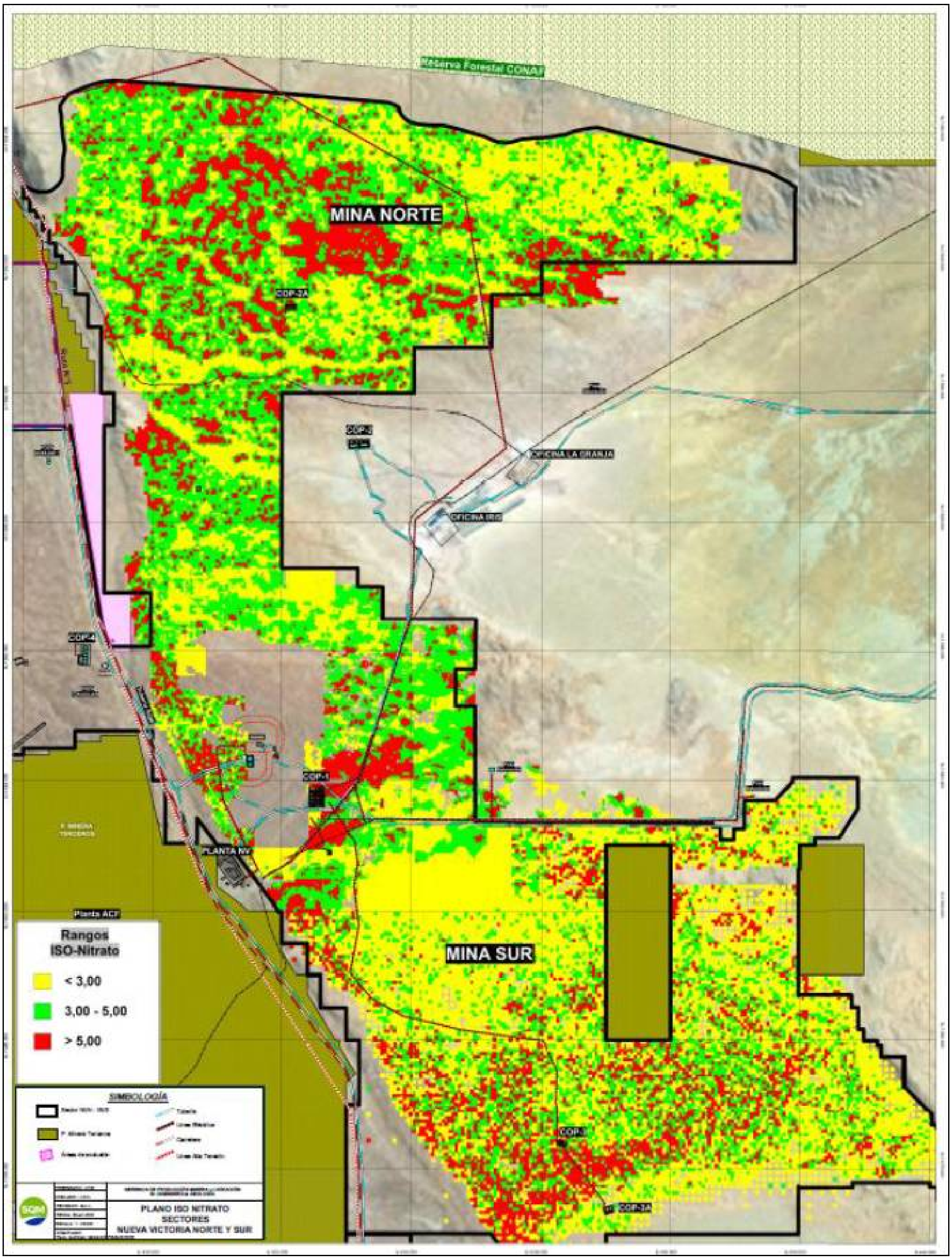
Subsequently, the prospecting grid 100-x-100 m, or 100 locked, which, in some cases, allows to delimit, with a significant level of confidence, the dimensions, thickness, tonnage, and grades of the mineralized bodies as well as the continuity of the mineralization. At this stage, detailed geology is 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 estimate indicated Mineral Resources.

7.3.5 50-m Grid

The 50-x-50-m prospecting grid allows for delimiting with a significant level of confidence (amount of information associated to the drilling grid) the dimensions, thickness, 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.

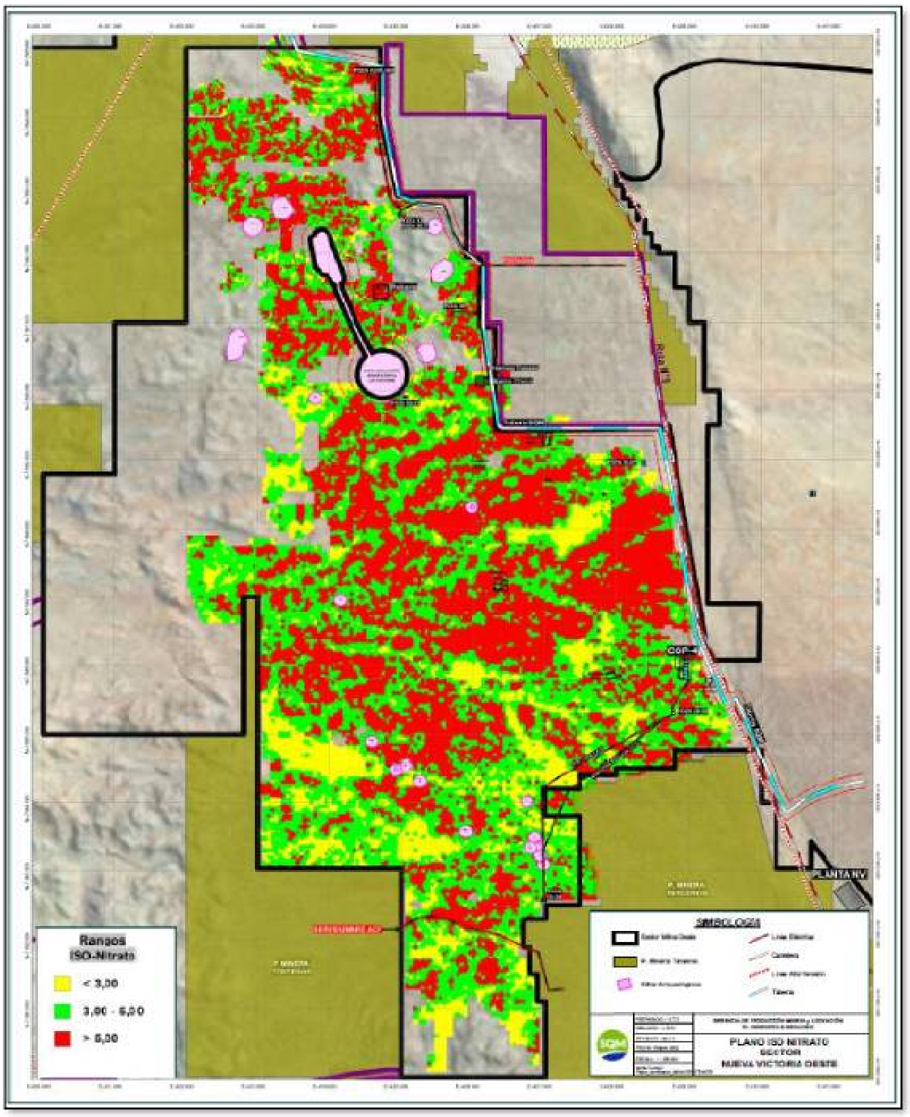
The results of the drilling campaigns in the sector of North Mine and South Mine can be seen in Figure 7-3, where it is highlighted in red the sectors with nitrates greater than 5.0%, in green the nitrates between 3.0% - 5.0% and in yellow the nitrates less than 3.0%. The mineralized bodies at Mina Norte 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 Mines



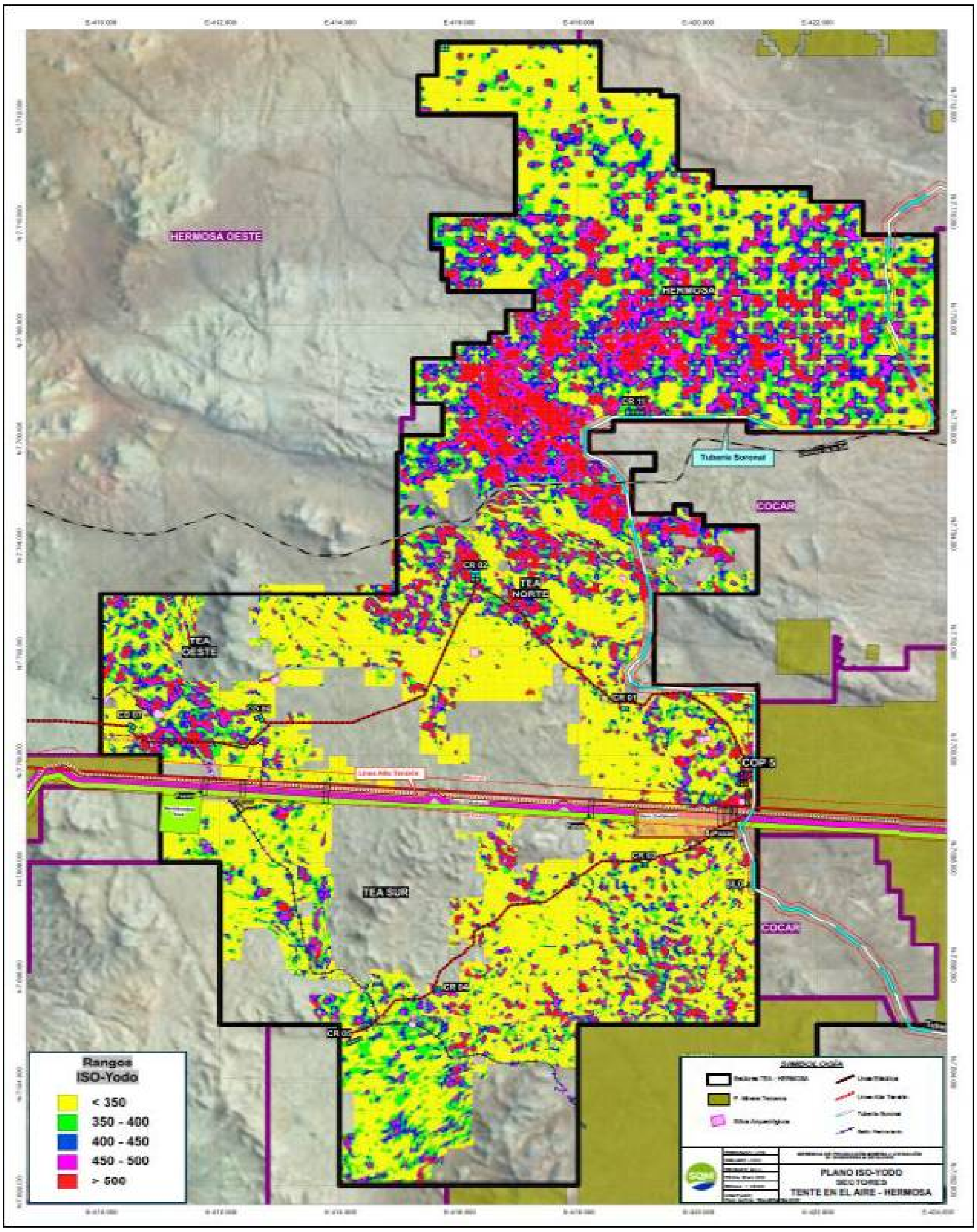
The results of the drilling campaigns in the West Mine sector are shown in Figure 7-4. As shown, the red highlight represent sectors with nitrates greater than 5.0%. The green highlight represents the nitrates between 3.0% - 5.0%, and the yellow highlight denotes the nitrates less than 3.0%. The mineralized 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



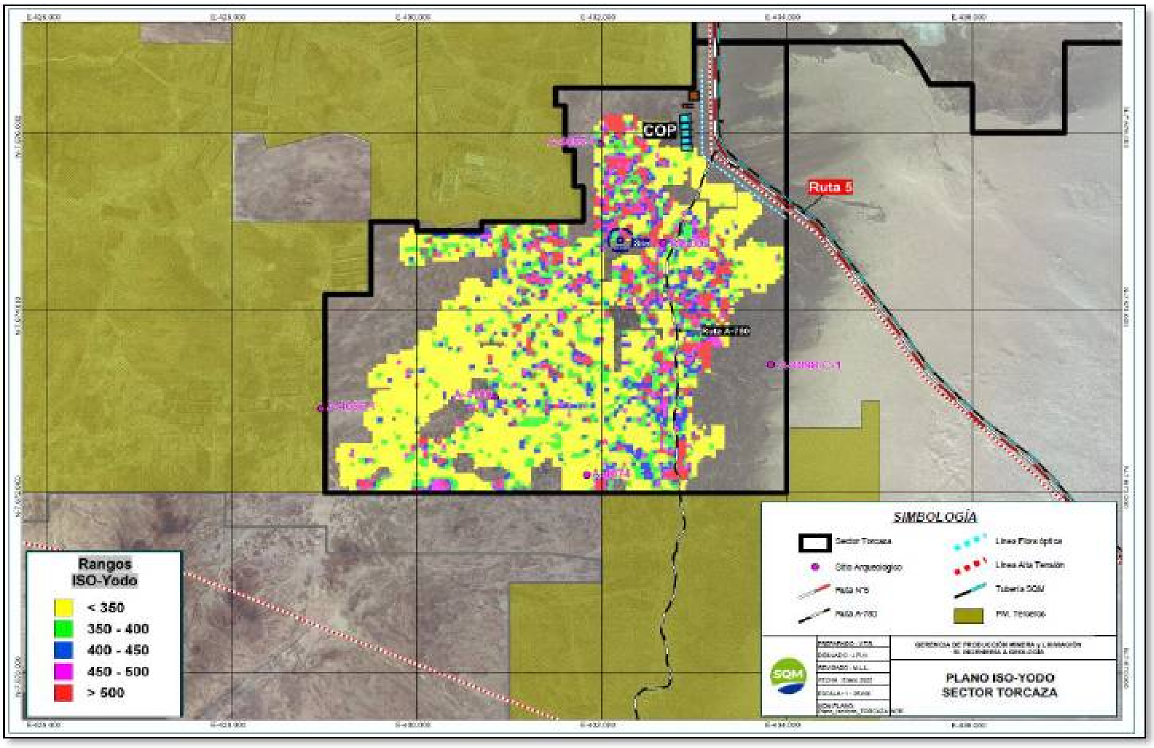
The results of the drilling campaigns, in the TEA and Hermosa sectors, are shown in Figure 7-5. Sectors with nitrates greater than 5.0% are highlighted in red, nitrates between 3.0% - 5.0% in green, and nitrates less than 3.0% in yellow. The mineralized bodies in TEA and Hermosa show greater continuity 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 in the 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 in the Torcaza Sector



7.3.6 2021 Campaigns

SQM has an ongoing program of exploration, recategorization, and resource evaluation in the areas surrounding the Nueva Victoria mine currently in operation. SQM has performed reconnaissance drilling at 400-m spacing or lower, in 18.5% of the area covered by its mining properties over the areas with caliche interest (Table 7-2 and Table 7-3).

In 2021, a Mineral Resource recategorization project was carried out in the TEA sector and its surroundings, to have exploitable Mineral Reserves for the development of the Five-Year Plan. For this purpose, 2,400 RC drill holes representing 12,000 m were carried out, at an estimated cost of 115.7 USD per m; obtaining total salt analysis sample by sample. With this information, the Torcaza, TEA Central and West Mine sectors will be recategorized, expecting to obtain resources for 14 Mt.

Table 7-2. M Drilled in Pampa Hermosa

Project /Area	Holes Drilled	Total Meters
Hermosa	4,880	22,000

Table 7-3. Pampa Hermosa Average $NaNO_3$ and I_2

Project /Area	Holes Drilled	Average $NaNO_3$ (%)	Average I_2 (ppm)
Hermosa	4,880	6.2	430

7.3.7 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 Sector

Sector	EIA	Drill Grid	N° of Drill Holes	Total Meters	Recovery %
Fortuna	Hermosa	100	1,021	5,105	No data
Hermosa	Hermosa	100 - 100T	8,066	40,330	87
TEA	Hermosa	100 - 100T - 200	7,313	36,565	89
Hermosa Oeste	TEA	200 - 400	1,212	7,272	82
TEA Oeste	TEA	200 - 400	560	3,360	85
TEA Sur	TEA	200	170	1,020	84
Cocar	TEA	100 - 200	1,015	5,075	No data
Pampa Engañadora	TEA	200 - 400	1,225	7,350	82
Oeste 3	TEA	50 - 100	485	2,183	84
Franja Oeste	TEA	200 - 800	1,430	7,150	80
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
Torcaza	Torcaza	50 - 100 - 200	4,400	22,000	88.1
Total			90,527	360,115	

7.3.8 Exploration Drill Hole Logging

For all the samples drill hole logging was carried out by external personnel, which was done in the field. Since 2015 ARVI Mining Limitada 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:

1. Measurement of the “destace” and drill hole using a tool graduated in cm.
2. Mapping of cutting (RC) and/or drill hole cores (DDH), defining their color, lithology, type and intensity of alteration, and/or mineralization.
3. Determination of geomechanical units: Leached, smooth, rough, and intercalations.

The information was recorded physically in a predefined format by printed forms and/or the data was digitized on a tablet and/or computer, using the data validation and control system for drill hole logging, through a macro in Microsoft Excel. A validation of the digitalization was performed one day a week, exchanging the information collected physically for a crossed digitization.

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 technological devices.
- 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.

7.3.9 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 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 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 by external personnel from the STG company.

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.

7.3.10 Qualified Person’s Statement on Exploration Drilling

The Qualified Person believes that the selection of sampling grids of gradually decreasing spacing as Mineral Resource 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

8.1 Site Sample Preparation Methods and Security

Analytical samples informing Nueva Victoria Mineral Resources were prepared and assayed at the Iris plan and Internal Laboratory located at Nueva Victoria mine site.

All sampling was completed by the external operators. The QP was not directly involved during the exploration drilling programs or sample selection. 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 the purpose of estimating Mineral Resources.

8.1.1 RC Drilling

The RC drilling was 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 "Perforaciones 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 (Figure 8-1 A and B).

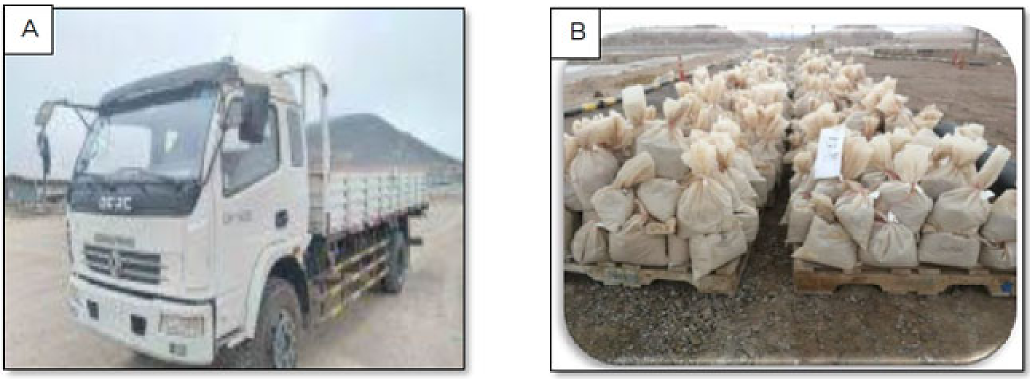
Once set up, drilling commenced (Figure 8-1 C). At the beginning of each drill hole, the drilling point was cleaned or uncovered, eliminating the soft overburden, or chusca, with a backhoe.

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 sample 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, that has no international certification. Sample preparation includes (Figure 8-3):

- Division of the sample in a cone splitter into 2 parts; one portion was retained for analyses while the other was discarded. The analysis sample 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 gram (g) sample passing a number 8 mesh (-#8).
- Division of the sample in a Riffle cutter of 12 slots of ½-inch 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.
- Sample pulp homogenization and splitting into analytical samples.
- 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 (sample) (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 internal Caliche Iodine Laboratory.

Figure 8-3. Sample Preparation Flow Diagram

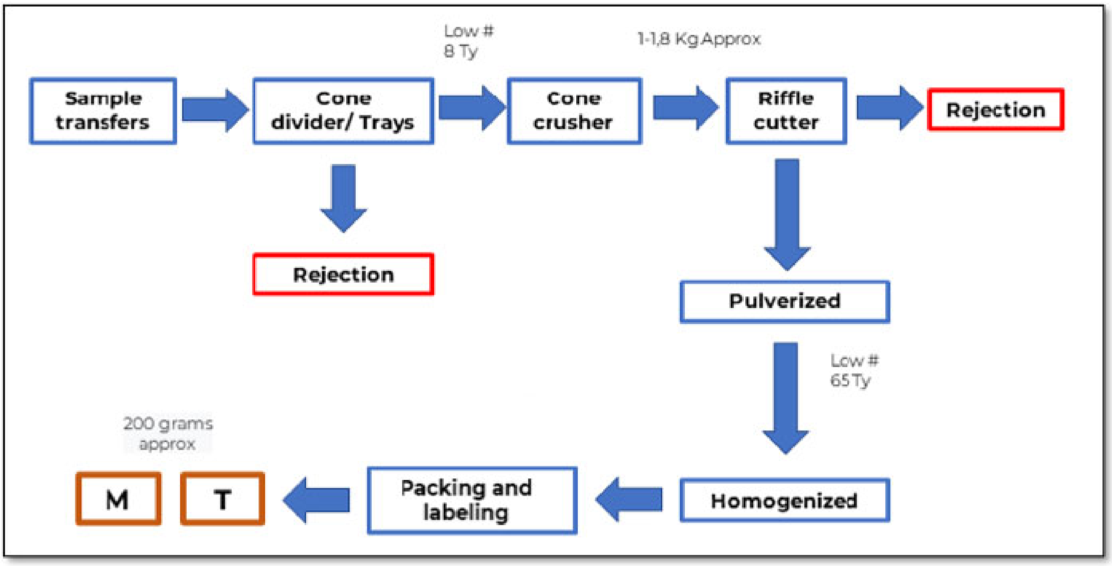


Figure 8-4. A) Sample Division B) Cone Crusher C) Riffle Cutter D) Sample Pulverizing E) Packaging

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 0.001 g/L, the result was expressed in g/L of $NaNO_3$. Iodine analysis was performed by Redox volumetry. 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 8-5):

Iodine:

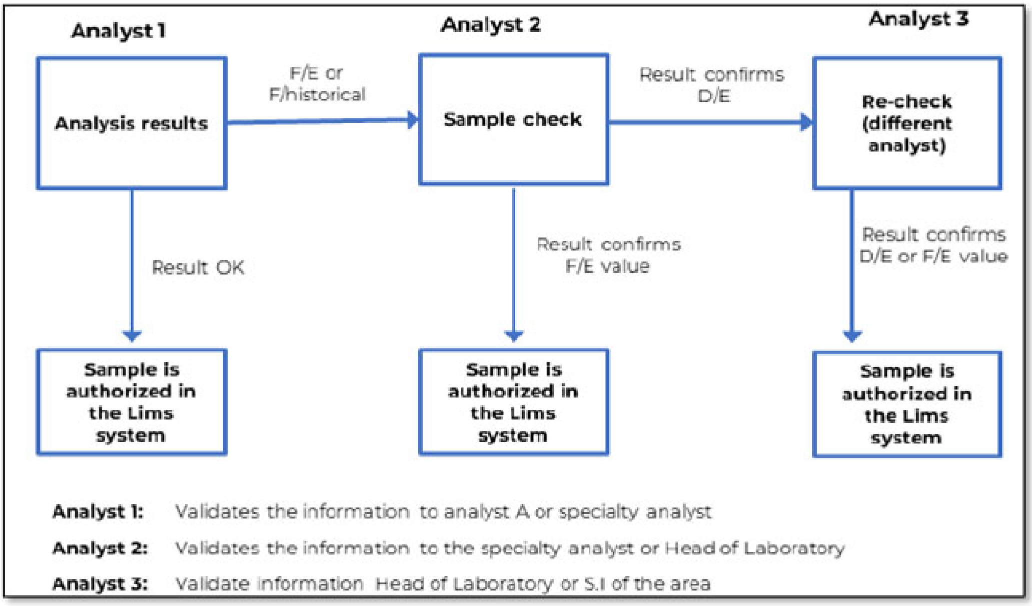
- Prepare a reference standard.
- Measure the reference standard and the reagent blank to ensure the quality of the reagents used.
- Verify that the results are within the 2-sigma range of the standard control chart. control of the standard.

Nitrate:

Analyze at the beginning of the sample set a standard solution.

- Every 5 samples a QC of 8g/L prepared with a solution of 1mg/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, 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).

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.

Pre 2017

No information exists about the analytical quality control procedures at Nueva Victoria, prior to 2017.

2017 to 2020

The results of the QA/QC program for the TEA from 2017 to 2019 and Hermosa sectors from 2019 to 2020 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 Hermosa and TEA Sectors

		Control Type			Variable	
Sector	**Year**	**Coarse Duplicate**	**Standard**	**Duplicates**	**Nitrate**	**Iodine**
TEA Oeste	2017	297		297	x	x
TEA Oeste Sur	2018	492	630	1,815	x	x
Pampa Hermosa	2019 - 2020			555	x	x

a) TEA 2017

For the 2017 campaign, 297 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	297	297		
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

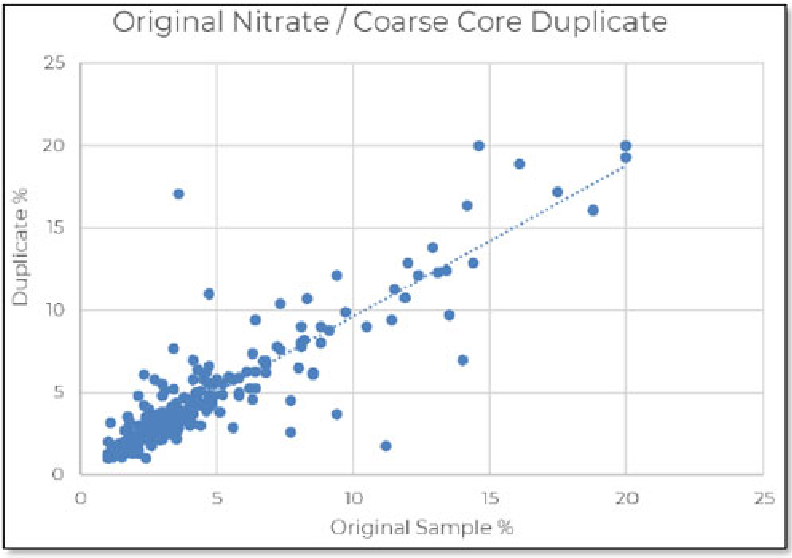
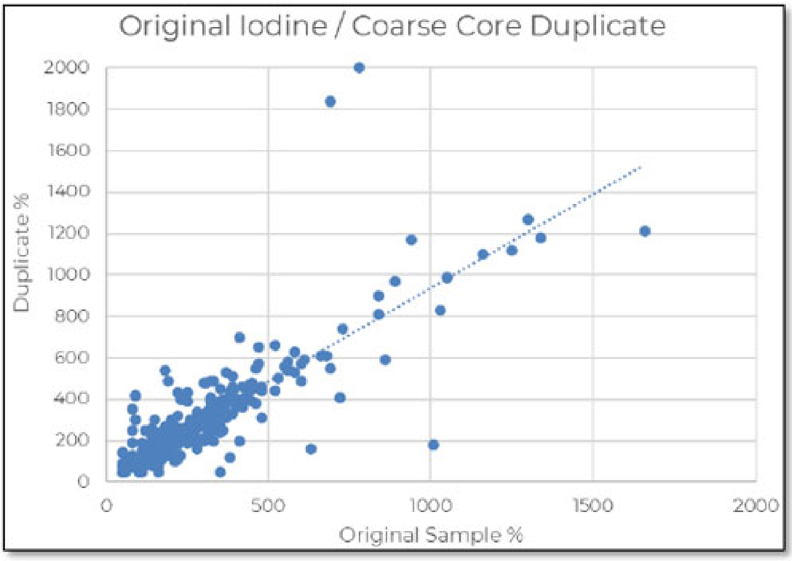


Table 8-3. Coarse Duplicates for Iodine-TEA 2017

Statisticians	Nitrate grade %		Difference	Rel Error
	Original	Check	Original-Check	
Number	297	297		
Mean	285.1	285.0	-0.067	6.03
Stand. Deviation	229.86	213.83	103.94	
% Difference	99.98			
TestT	0.99			
Minimum	50.0	50.0		
Percentile 25	140.0	130.0		
Median	220.0	230.0		
Percentile 75	360.0	390.0		
Maximum	1,660.0	1,270.0		
Correlation index		0.89		

Figure 8-7. Plots for Iodine - Coarse Duplicates- TEA 2017



b) TEA 2018 -2019

For the 2018 to 2019 campaign, controls for coarse duplicates, fine duplicates, and standards were inserted.

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

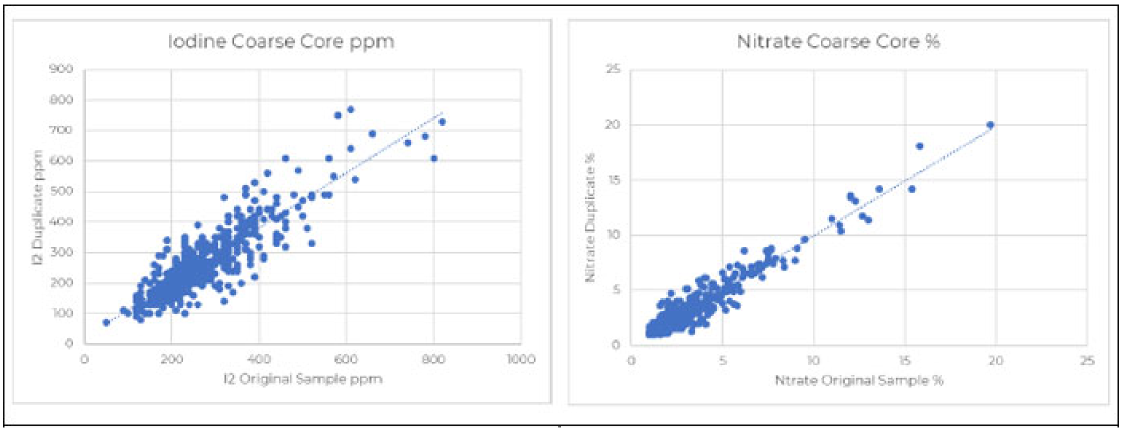
Statisticians			
Iodine ppm	**Original**	**Duplicate**	**Difference**
Data Number	492	492	
Average	277.1	269.5	7.6
Median	260.0	250.0	10.0
Variance	10,967.7	11,821.3	2,986.4
Max	820.0	770.0	190.0
Min	50.0	70.0	-170.0

Test Student	-0.001
Corr. Coefficient	0.87

Statisticians			
Nitrate %	**Original**	**Duplicate**	**Difference**
Data 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 Student	-0.277
Corr. Coefficient	0.96

Figure 8-8. Plots for Iodine and Nitrate - Coarse Duplicates- TEA 2018-2019



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
Feb-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
Feb-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 a 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

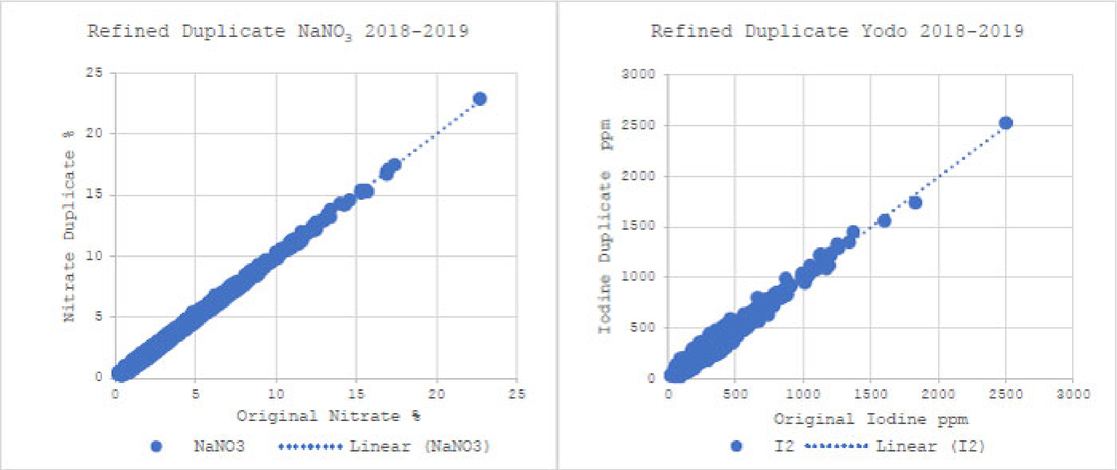
Nitrate %	Original	Duplicate	Difference
Data Number	1,835	1,815	
Average	3.38	3.38	-0.01
Median	2.50	2.50	0.00
Variance	6.75	6.78	0.03
Max	22.70	22.90	0.50
Min	0.20	0.20	-0.60

Iodine ppm	Original	Duplicate	Difference
Data Number	1,865	1,865	
Average	290	290	0
Median	260.00	250.00	0.00
Variance	33,106	33,968	1,141
Max	2,500	2,530	130
Min	20	20	-140

Test Student	-0.062
Correlation Coef.	1.00

Test Student	-0.411
Correlation Coef.	0.98

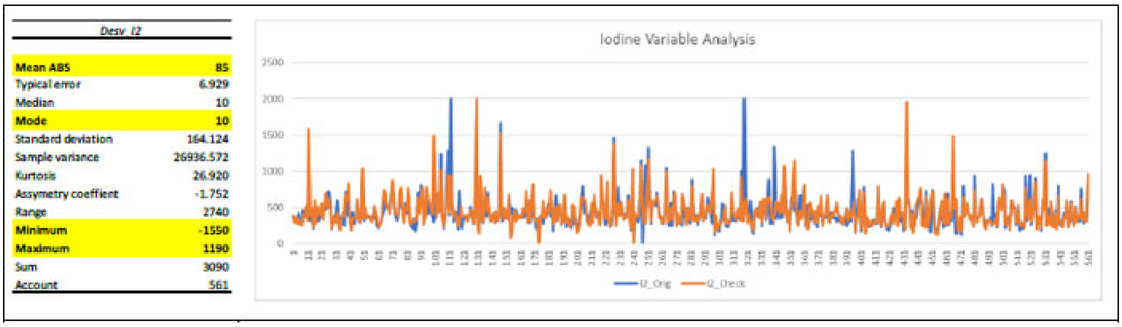
Figure 8-9. Plots for Iodine and Nitrate - Fine Duplicates- TEA 2018-2019



c) Hermosa 2019

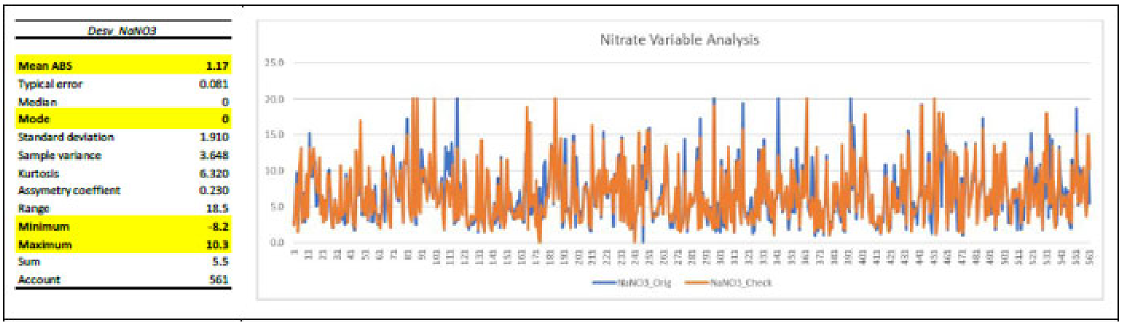
For the 2019 campaign in the Hermosa sector, fine duplicates were inserted, as shown in the tables and graphs in the Figure 8-10 and Figure 8-11, where the ranges of variation of the analyses with respect to the refined cores have a very good performance for nitrate and for iodine, showing no biases and with very good original duplicate correlation.

Figure 8-10. Fine Duplicates Iodine - Hermosa 2019



Desv_I2	
Mean ABS	**85**
Typical error	6.929
Median	10
Mode	**10**
Standard deviation	164.124
Sample variance	26936.572
Kurtosis	26.920
Assymetry coeffient	-1.752
Range	2740
Minimum	**-1550**
Maximum	**1190**
Sum	3090
Account	561

Figure 8-11. Fine Duplicates Nitrate - Hermosa 2019



Desv_NaNO3	
Mean ABS	**1.17**
Typical error	0.081
Median	0
Mode	**0**
Standard deviation	1.910
Sample variance	3.648
Kurtosis	6.320
Assymetry coeffient	0.230
Range	18.5
Minimum	**-8.2**
Maximum	**10.3**
Sum	5.5
Account	561

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.

In the drilling stage, before drilling begins, the drill rod was marked with chalk 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 and tied. The Supervisor was in charge of 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.

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 delivers a memo to the person in charge of the sample plant, indicating the number of samples and the number of samples without recovery, if any.

- 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 non-metallic 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 data and date (Figure 8-12) are then transferred to the storage place at Testigoteca (core Warehouse) Iris and Testigoteca TEA located at Nueva Victoria (Figure 8-13), either transitory, or final, before being sent to the laboratory.

Figure 8-12. A) Samples Storage B) Samples Labeling

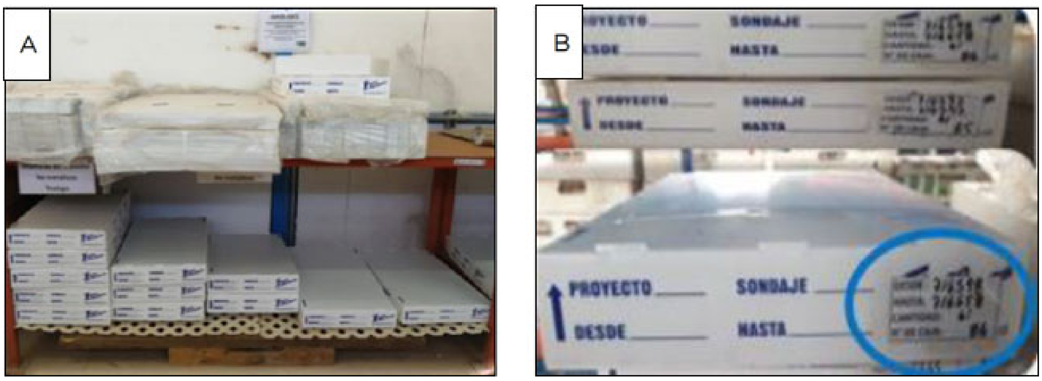


Figure 8-13. Iris Warehouse at Nueva Victoria

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, automatically triggering an e-mail to the users and only to those who are authorized to send the information.

8.4 Opinion of Adequacy

In the QP's opinion, sample preparation, sample security, and analytical procedures used by SQM in Nueva Victoria, 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 Procedures

Verification by the QP focuses on drilling, sample collection, handling and QC procedures, geological mapping of drill cores and cuttings, and analytical and QA 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.

9.2 Data Management

Using the drillings, the recognition of the deposit is carried out in depth and to this is used prospecting grids 400x400 m, 200-x-200 m, 100-x-100 m, 100T, and 50-x-50 m. For the wide grids (> 100-x-100 m), the evaluation used consists of the generation of polygons that allow including the preliminary records of tonnage and grade of mineralized bodies.

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 horrid control samples in the 400x400 m mesh, 200-x-200 m for Pampa Hermosa and 100 T for TEA and TEA Sur. This QA/QC consists of the analysis of $NaNO_3$ and Iodine concentrations in duplicate vs. original (or primary) samples.

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 safety.

9.4 Quality Control Procedures

The QP reviewed quality control procedures that consider the analysis of duplicate samples, of adequate rates of repetition for this type of control. Standard/pattern samples are also obtained, but do not have a specified procedure for frequency of sampling. Procedures mention internal standard samples of which frequency of sampling is indicated; however, criteria for selection of the sample are not specified.

9.5 Precision Evaluation

The QP reviewed results of iodine and nitrate grades from duplicate sampling in the 400x400 m, 200-x-200 m, and the 100T drill hole grids. Duplicate samples' relative errors are within acceptable margins with a high correlation index with corresponding original samples (Informe 20 F, 2021).

9.6 Accuracy Evaluation

A QA/QC analysis of the 2018 campaign is carried out in the TEA Sur project for standard/pattern samples, which were performed and analyzed by the laboratory. The results obtained show that the variation of the analysis 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).

9.7 Qualified Person's Opinion of Data Adequacy

The results of the chemical and geotechnical analyzes from the samples available from 400-x-400-m and 200-x-200-m grids define with a reasonable level of confidence the dimensions, potencies, tonnages, and Caliche grades, as well as the continuity of the mineralization, permitting the Resource to be Inferred. As for the 100-x-100-m and 100T grids, these define the geology in greater detail, allowing to complement the definition of geological units on the surface, as well as allowing sectors to be defined to carry out geometallurgical testing. For its part, the 50-x-50-m grid allows for greater precision in answering these questions. In conclusion, the methodologies used to estimate geological resources and reserves, present in Nueva Victoria project are adequate.

10 MINERAL PROCESSING AND METALLURGICAL TESTING

Since 2009, research has been developed through laboratory tests to continuously improve yield estimations and element recovery for 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 to be processed at Nueva Victoria's plant.

It should be noted that, before Nueva Victoria started operations in 2002, SQM 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, in order to determine its technical feasibility, impacts on metallurgical recovery and performance equivalence. A pilot plant at the plant site demonstrated the 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 to ensure that deleterious elements can be kept below the established limits.

More than a decade of research on multiple systems has provided a foundation for the 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.

10.1 Historical Development of Metallurgical Tests

In 2009, the heap & ponds management department created a working group that 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 testwork program was presented at the Pilot Plant facility located at the Iris sector. Its main objective was 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 were divided into specializations and the objectives of each activity and the methodology followed are summarized in Table 10-1.

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 testwork 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 preliminary cleaning stages to the oxidation The first stage consists of filtering the solution with a filtering aid, which allows trapping and removal of the solid particles that remain in suspension. The second stage, sequential to the first one, also corresponds to a filtration with activated carbon, material that allows the extraction of the organic impurities contained in the iodide solution. Additionally, 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.

10.2 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 mantos" 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 10% of the recovery in ROM heaps.

In order develop these tests, two different CM teams have acquired and evaluated:

- Rolling system availability.
- Cutting system design.
- Sensitivity to rock conditions.
- Productivity variability.
- Consumption and replacement of components.

The 2022 mining plan aims to treat 18% of mineral caliche by CM in order 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.

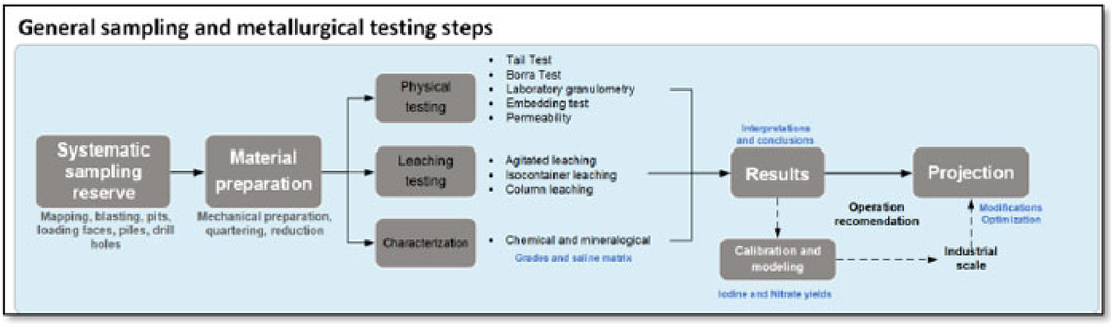
In the following sections, a description of sample preparation and characterization procedures, for metallurgical tests, and process and product monitoring/control activities of the operations through chemical analysis is given.

10.2.1 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-200T mesh 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 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.

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 Tests at Nueva Victoria

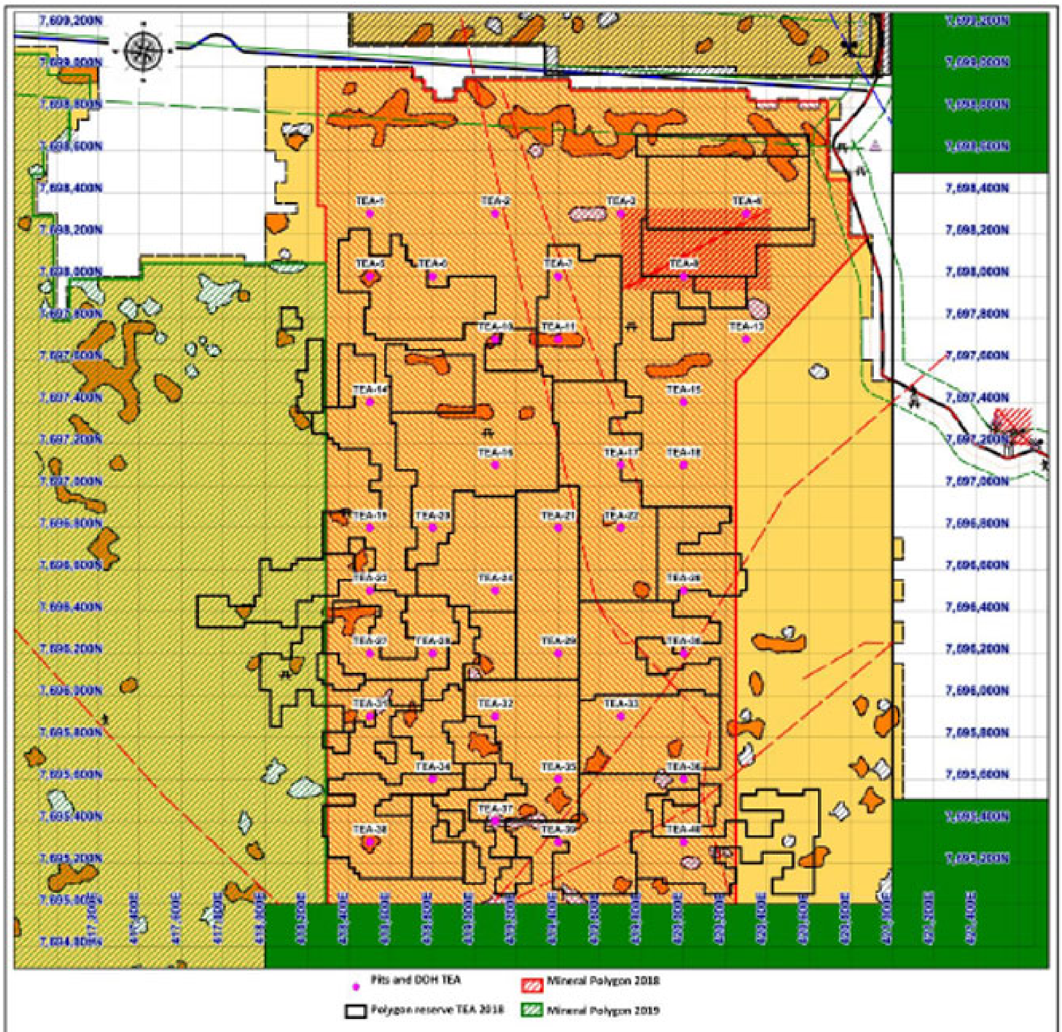


As for the development of metallurgical, characterization, leaching and physical properties tests, these are developed by teams of specialized professionals with extensive experience in the mining-geo-metallurgical field. The work program in metallurgical tests contemplates that the samples are sent 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 TEA 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 TEA Sector for Metallurgical Testing



10.2.2 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
NaCl	(%)	Volumetric
Na	(%)	Direct Aspiration-AA/ICP 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, polyhalite and glauberite, and less soluble minerals, have calcium sulfate associations.
- From a chemical-salt point of view, this deposit is favourable 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.

10.2.3 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.

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.

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.

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.

10.2.4 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 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 10-3. 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	Compaction	%Fines	#-200	Alpha
TEA	0.024	7.37	29.47	10.89	2.72
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 microfines 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.

10.2.5 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.

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:

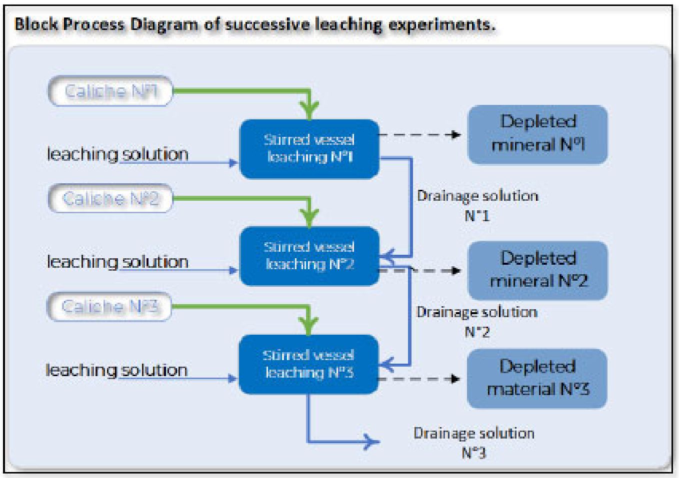
- Ambient conditions.
- Caliche sample particle size 100% mesh -65# mesh.
- Caliche mass 500 g.
- L/S ratio 2:1.
- Leaching time 2 h.
- Three contact leaching including use of drainage solution.

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 leachings 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 10-4.

Figure 10-4. Successive Leach Test Development Procedure



The extraction of each analyte and minerals per contact is analyzed. These results reported by the laboratory 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, that an average salt matrix of 63.7% soluble salts and iodine has a yield of 56.4%.

Table 10-5. Chemical Characterization of Samples Obtained from TEA and Successive Leach Test Results

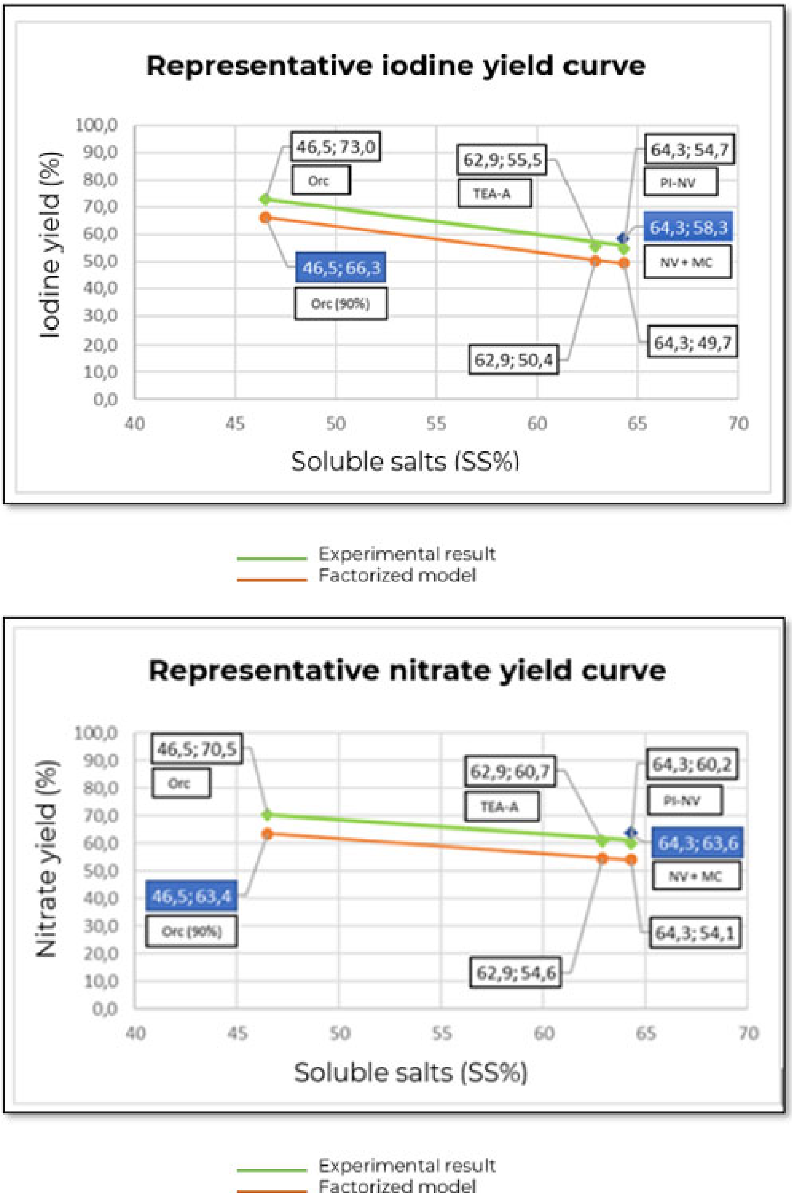
TEA sectors	Iodine (ppm)	Nitrate (%)	Soluble salts	Iodine yield
Hermosa	408	6.7	66.5	53.4
TEA norte	428	5.8	63.5	56.6
TEA Sur	412	4.7	51.1	69.9
TEA Oeste	407	5.4	61.9	58.3
Average	412	6.1	63.7	56.4

The following graphs, included in Figure 10-5, 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 10-5. Nitrate and Iodine Yield Obtained by Successive Agitated Leaching Test



10.2.6 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 (agua feble ácida, 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

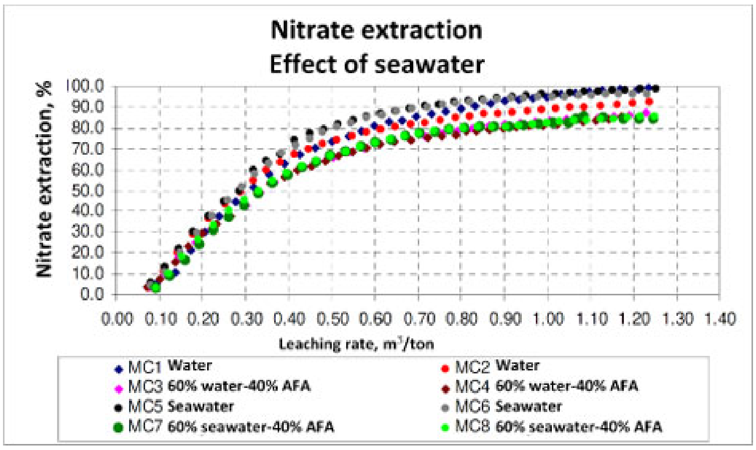
Parámeter	**Detall**
Mass	3,031.3 g
Granulometry	1" - ¾" - ½" - ¼" - ¼" - 20" mesh
Test Duration	7 days
Total impregnation	19 hours
Regime watering/rest	1 hour to watering /2 hours to rest 1 hour to watering /2 hours to rest 1 hour to watering /2 hours to rest 1 hour to watering h/1 h hours to rest 1 hour to watering h/1 h hours to rest 2 hour to watering h/1 h hours to rest 2 hour to watering h/1 h hours to rest
Continuous irrigation	5 days and 20 hours

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.

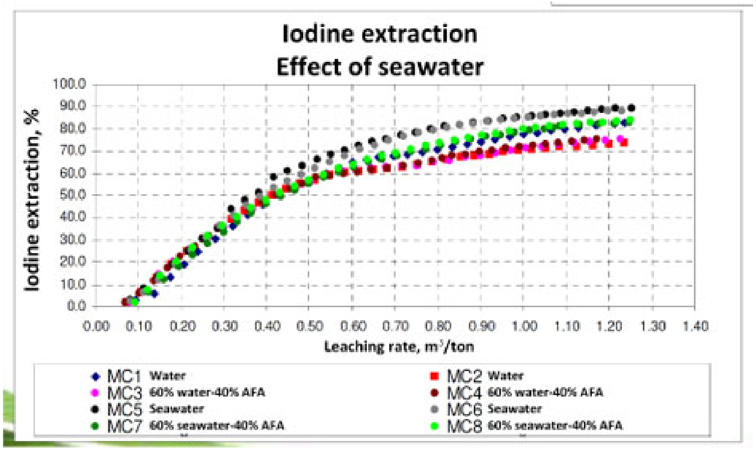
Regarding nitrate and iodine extraction, a higher NO_3 extraction, in Figure 10-6, is observed when leaching with seawater as well as a higher IO_3 extraction is observed when leaching with seawater (MC5- 5 and MC 6 curves versus MC1 and MC 2 curves).

In addition 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, it is clear that 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 similar to that of iodine.

Figure 10-6. Results of Nitrate and Iodine Extraction by Seawater Leaching



a) Nitrate extraction with seawater



b) Iodine extraction with seawater

Source: Provided by SQM- Reporte-Efecto Agua de Mar 231208

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.

10.2.7 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

Parameter	Method
Iodine solutions	
Iodine grade	Volumetric redox
Nitrate grade	UV-Vis
pH	Potentiometric
Acidity	Volumetric acid-base
Alkalinity	Volumetric acid-base
H_3BO_3	Volumetric or ICP Finish
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
NaCl	Volumetric
Na	Direct Aspiration-AA/ICP or ICP Finish

Parameter	Method
Iodine Prill	
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.

10.3 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 checks 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 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.

10.4 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. Summary List of Laboratories 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).

10.5 Testing and Relevant Results

10.5.1 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.
- 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:

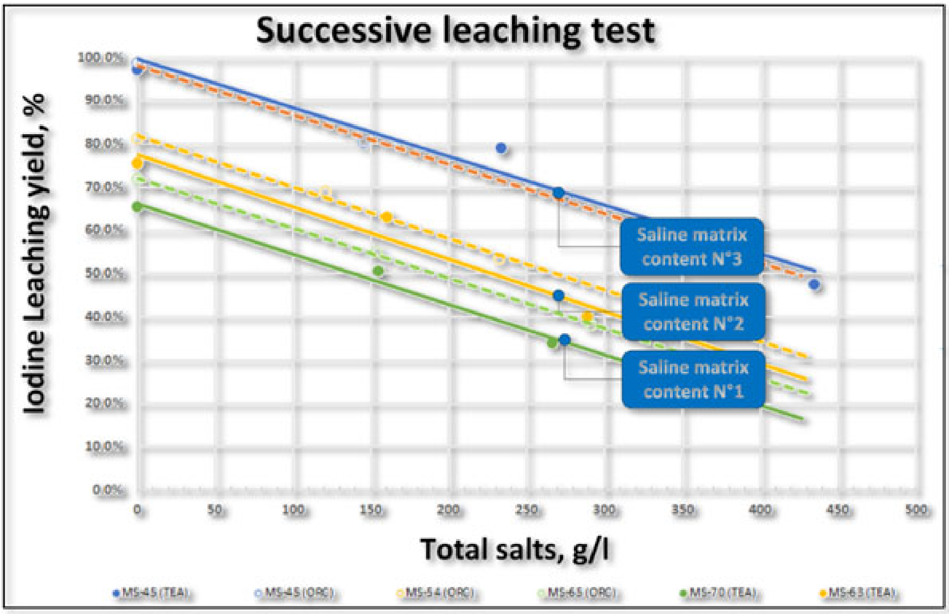
$$\boldsymbol{Iodine\ yield = A * \left[total\ salts\ \left(\frac{g}{l}\right)\right] + B_n}\ ;$$

$$where:\ B_n = f(\%soluble\ salts)\ and\ A = constant$$

$$\boldsymbol{Nitrate\ yield = C + D * \left[total\ salts\ \left(\frac{g}{l}\right)\right] + F_n};$$

$$where:\ F_n = g\ (\%soluble\ salts\ \%Nitrate)\ and\ C, D = constants$$

Figure 10-7. Iodine Recovery as a Function of Total Salts Content



Note: Test work with samples from two different resource sectors to be exploited by the company.

The graph of Figure 10-7 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 degree of nitrate, unit consumption and the salt matrix. Relationships that allow estimating the yield at industrial scale.

10.5.2 Irrigation Strategy Selection

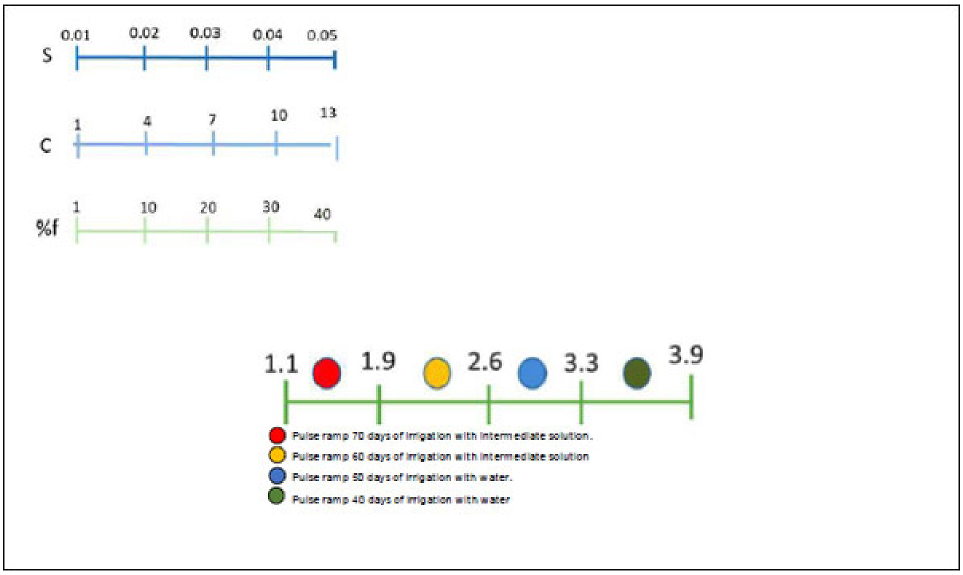
In terms of physical properties, the metallurgical analysis allows to determine caliche classification as unstable, very unstable, stable and very stable, which gives rise to an irrigation strategy in the impregnation stage. As a result, a parameter impact ranking is established in caliche classification, 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 10-8):

- 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 10-8. Parameter Scales and Irrigation Strategy in the Impregnation Stage



10.5.3 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.

For example, for Pile 476, 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 476, determined by the diamond drilling campaign by polygon is shown in the Table 10-9 in which some differences can be observed.

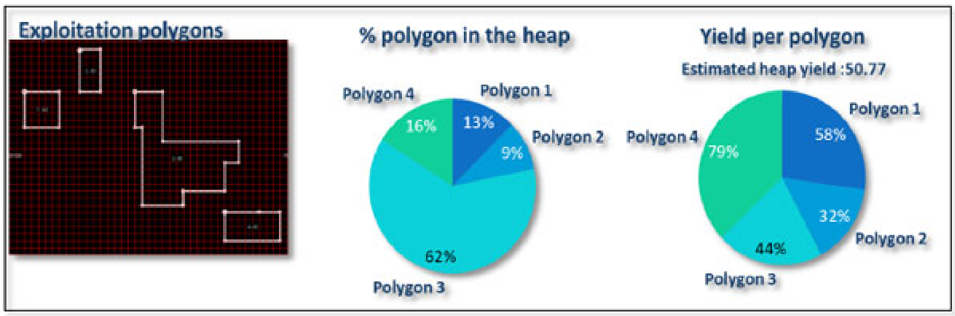
Table 10-9. Comparison of the Composition Determined for the 476 Heap Leaching Pile in Operation at Nueva Victoria

Real vs. diamond salts matrix

Type	Iodine grade (ppm)	Nitrate grade (%)	Na_2SO_4	Ca	Mg	K	$KCIO_4$	NaCI	Na	H_3BO_3	Saline Matrix
Sample	411	4.71	19.6	2.32	1.09	0.83	0.68	12.96	7.39	0.31	64.4
Real	422	5.40	19.6	1.98	1.25	0.81	0.68	12.62	7.04	0.27	60.1

Through the established methodology, composition and physical properties, the resulting 476 pile yield estimate is 50.77%. The estimation scheme is as shown in Figure 10-9 .

Figure 10-9. Heap Yield Characterization and 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.

Figure 10-10. Nitrate and Iodine Yield Estimation and Industrial Correlation for the Period 2008-2020

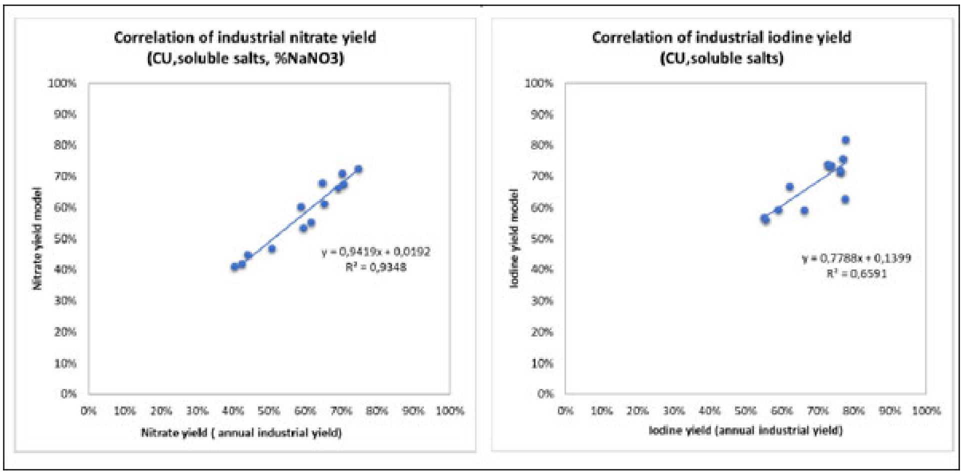


Table 10-10 summarizes the annual yield for iodine and nitrate for the period 2008-2020.

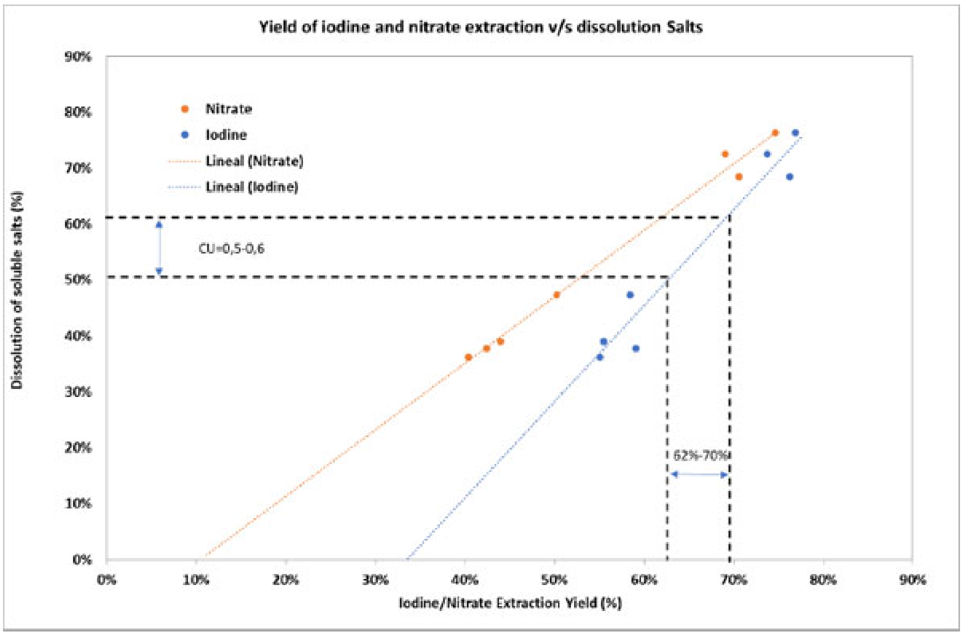
Table 10-10. Comparison of Industrial Yield with the Values Predicted by the Model

Nitrate and iodine yield correlation

Parameter	**Unit**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Iodine grade	ppm	476	470	460	457	465	461	466	459	456	456	460	459	460
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%
CU water (unit consumption)	m^3/tonne	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
Caliche (SS)														
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%
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%
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%
Nitrate yield correlation	%	61.4%	60.4%	71.0%	55.4%	47.0%	53.6%	68.0%	66.4%	72.6%	67.6%	41.9%	41.1%	45.1%

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/tonne, resulting in yields of 73-77%. This is graphically reflected in Figure 10-11, which correlates the degree of salt dissolution and the yield achieved:

Figure 10-11. 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.

10.5.4 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:

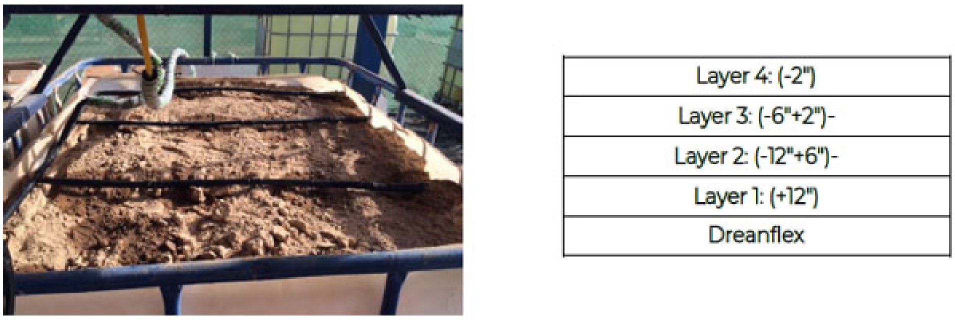
- Isocontainer leaching.
- Simulation of isocontainer.
- Parameter scaling from isocontainer to heap.
- Correlation pit-stack from the loading polygons.
- Weighting" of simulation parameters: grades, granulometry, drainage curve, iodine adjustment factor.
- Pile simulation according to the weighted parameters.

The company's piling campaigns have been:

- Isocontainer 2015, for piles 2016.
- 2016-2017 pilot campaigns
- 2017-2018 pilot campaign

The isocontainers 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 10-12.

Figure 10-12. Loaded Isocontainer and Distribution of Material by Particle Size



Layer 4: (-2")
Layer 3: (-6"+2")-
Layer 2: (-12"+6")-
Layer 1: (+12")
Dreanflex

a) Isocontainer test.

b) Iso container 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. Conditions for Leaching Experiments in Isocontainers

Parameter	Specification
Mass	1500 kg
Granulometry	+12”-(-12”+6”)- (-6”+2”)- (-2”)
Test Duration	25,8 days
Impregnation	0.05 m^3/tonne--1 l/h/m^2
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 shafttrial 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/tonne.

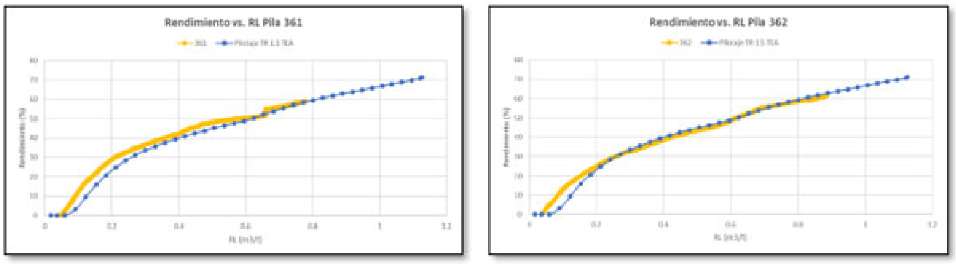
For the last pilot campaign carried out, the working conditions of the test were the following four:

- Pilot Trial pits (calicatas) TEA Norte, CU 0.53 m^3/tonne, TR 2 L/h-m^2, Leaching Ratio (RL) 0,9 m^3/tonne.
- Pilot Trial pits (calicatas) TEA Sur, CU 0.53 m^3/tonne, TR 2 L/h-m^2, RL 0.9 m^3/tonne.
- Trial pits (calicatas) TEA Sur, CU 0.53 m^3/tonne, TR 1,5 L/h-m^2, RL 0.9 m^3/tonne.
- Trial pits (calicatas) NVO, CU 0.53 m^3/tonne, TR 1.5 L/h-m^2, RL 0.9 m3/tonne.

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-m2 conditions, obtain an average I2 extraction of 69% and 65%, respectively. The TEA-South ponds treated at TR 1.5 l/h-m2 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 10-13, 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 10-13. Pile Curve 361 and 362 vs. Average Pilot Curve for TR 1.5 L/h-m3 TEA Pilot Campaign



a) Iodine yield contrast curve of 361 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 m3/tonne, which will have a negative impact on actual vs projected yield. Likewise, TR increasing from values of 1.5 to 2 L/h-m2, 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.

10.6 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.

10.7 Qualified Person´s Opinion

10.7.1 Physical and chemical characterization

Mineralogical and chemical characterization results, as well as physical and granulometric characterization of the mineral to be treated are obtained from the tests performed. This allows continuous evaluation of different processing routes, both in the initial conceptual stages of the project and during established processes. This ensures that the process is valid and current, while continuing to review optimal alternatives to recover valuable elements based on the nature of the resource. Additionally, analytical methodologies determine deleterious elements to establish control mechanisms in operations to ensure a certain product quality.

10.7.2 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.

10.7.3 Innovation and Development

The company has a research and development team that has demonstrated important advances regarding development of new processes and products in order 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

11.1 Key Assumptions, Parameters and Methods

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 estimation process was 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 70-x-70 m (RGM100T) were estimated with a full 3D block model using kriging, which contains variables, such as iodine, nitrate, soluble salts, geology, geotechnics, topography, etc. For Nueva Victoria, only the sectors of Mina Norte, TEA_E, TEA_HS, and TEA W have an available block model.

- Indicated Mineral Resources: Sectors with a drill hole spacing grid of 100-x-100 m, 200-x-200 m and do not have a block model, and the resource evaluation is done at the drill hole database level. A script is run with operational and economic parameters, such as cut-off grade, cover thickness, mantle thickness, waste mineral ratio, etc. The outputs are the intervals with a positive evaluation in each drill hole, which are then transformed to tonnage by multiplying by the nominal drill hole spacing grid of the sector (200-x-200 m, for example), and density. Sectors in which the scripting approach was performed includes Fortuna, Coruña, Hermosa Oeste, Pampa Engañadora, TEA Oest, Franja Oeste, and Cocar

- Inferred Mineral Resources are sectors with 400-x-400-m grid or above.

11.1.1 Sample Database

The 2021, Nueva Victoria Model included the estimate of iodine and nitrate, and in the case of smaller grids (50-x-50 m and 70-x-70 m), soluble salts.

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	0.10	21.2	5.28	3.79	14.33	0.72	4.50
Nitrate	67,153	3.00	2,272.0	376.28	320.31	102,599.60	0.85	9.15

11.1.2 Geological Domains and Modeling

For the estimation of each block within a geological unit (GU), only the composite grades found in that domain are used (hard contact between GUs). The main GUs are:

- Overburden, Cover (GU 1).
- Mineralized mantle, Caliche (GU 2).
- Underlying (GU 3).

11.1.3 Assay Compositing

Given that all the samples 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 individual samples 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 established detection limits (upper limit) in the determined grades of Iodine and Nitrates in the analyzed samples (2,000 ppm Iodine and 20% Nitrates). The distribution of grades for both Iodine and Nitrate 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

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 drill holes measuring the specific gravity in Nueva Victoria. Table 11-2 shows the analyzed drill holes, the specific gravity and the geological unit (GU), these results justified the historical value used by SQM.

Table 11-2. Specific Gravity Samples in Nueva Victoria

Drill Hole	Specific Gravity (g/cc)	GU
567L	2.15	3
1941L	2.22	3
117L	2.28	3
2316L	1.84	6
1684L	2.14	3
2695L	2.23	3
CL-10	2.25	4
AI-06	2.07	3
1032L	2.23	3
MB-18-4	2.12	3
MB-12_29	1.96	2
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 70-x-70 m (RGM100T) were estimated with a full 3D block model using kriging for the interpolation of iodine and nitrate. In Nueva Victoria, only Mina Norte, TEA_E, TEA_HS, and TEA_W, have an available block model.

Block Model Parameters and Domaining

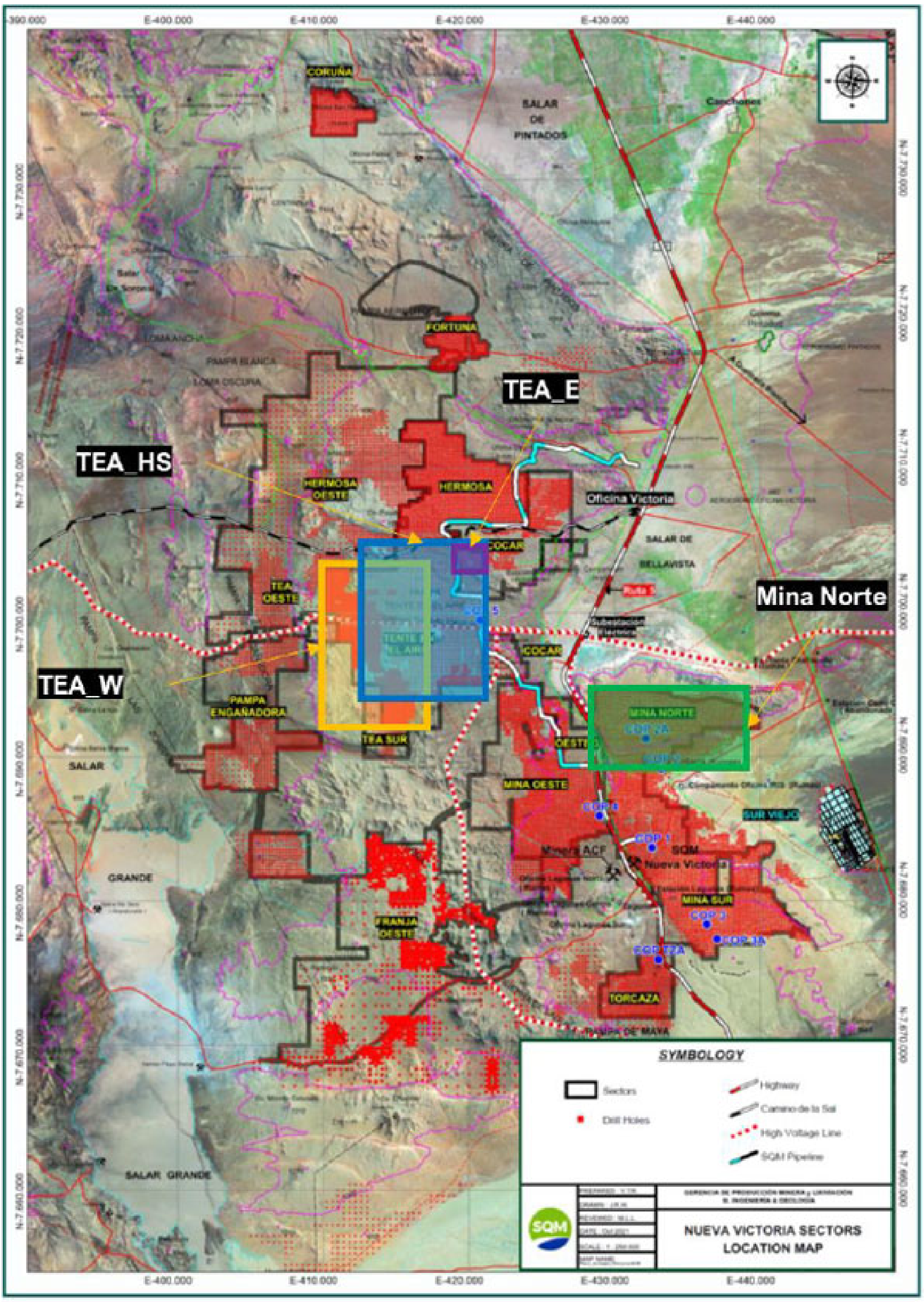
Table 11-3 shows the definition for the block model built in Datamine®. The block size is 25-x-25-x-0.5 m in all sectors.

Table 11-3. Block Model Dimensions

Sector	Parameters	East	North	Elevation
Mina Norte	Origin (m)	428,450	7,689,449	954
	Range (m)	10,650	5,350	149
	Block Size	25.0	25.0	0.5
	Number of blocks	426	214	297
TEA_E	Origin	418,925	7,703,000	1,118
	Range	2,100	1,650	95
	Block Size	25.0	25.0	0.5
	Number of blocks	84	66	189
TEA_HS	Origin	412,500	7,694,200	1,017
	Range	8,525	10,850	173
	Block Size	25.0	25.0	0.5
	Number of blocks	341	434	345
TEA_W	Origin	409,950	7,692,050	990
	Range	7,125	11,450	204
	Block Size	25.0	25.0	0.5
	Number of blocks	285	458	407

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 TEA 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 (they did not share samples).

Variography

Experimental variograms were constructed using all the drill hole samples independent of the GU. 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.

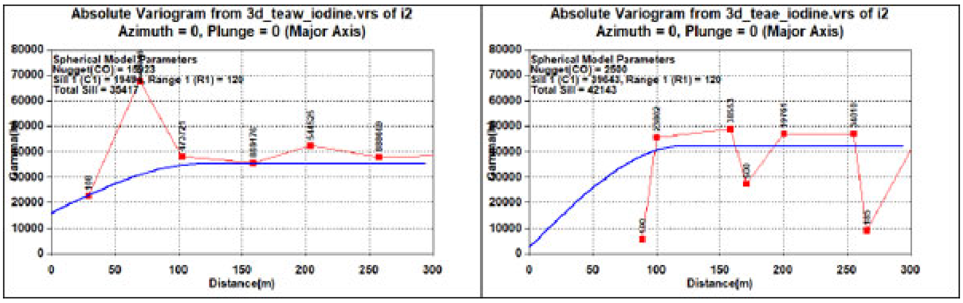
Table 11-4. Variogram models for Iodine in Each Sector

		Rotation			Nugget Effect	Range 1			Sill 1
Zone	**Variable**	**Z**	**Y**	**X**		**x**	**y**	**z**	
MINA NORTE	Iodine/Nitrate	0	0	0	6,964	80.0	80.0	0.5	39,643
TEA_E	Iodine/Nitrate	0	0	0	2,500	120.0	120.0	0.5	38,372
TEA_HS	Iodine/Nitrate	45	0	0	18,929	150.0	100.0	0.5	79,464
TEA_W	Iodine/Nitrate	0	0	0	15,923	120.0	120.0	0.5	19,494

The nugget effect varies between 5% and 80% 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 estimated blocks using a drill hole grid of 50-x-50 m, or 70-x-70 m (block model evaluation).

The QP performed an independent analysis to confirm the variogram models used by SQM, Figure 11-2 shows the experimental variogram calculated in this analysis (red line) and the variogram model used by SQM (blue line) for TEA_W (left) and TEA_E (right). In general, the independent analysis 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



Interpolation and Extrapolation Parameters

The estimation of Iodine and Nitrate grades for Nueva Victoria has been conducted using Ordinary Kriging (OK) in one pass for each GU. 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 the removed sample. In the case of stationary processes, it would allow to diagnose whether the variogram model and other search parameters adequately describes the spatial dependence of the data.

The block model is intercepted with the geological model to flag the Gus used in the estimation process.

The OK plan included the following criteria and restrictions:

- No capping used in the estimation process.
- Hard contacts have been implemented between all GU.
- No octant restrictions have been used for any GU.
- No samples per drill hole restrictions have been implemented for any GU.

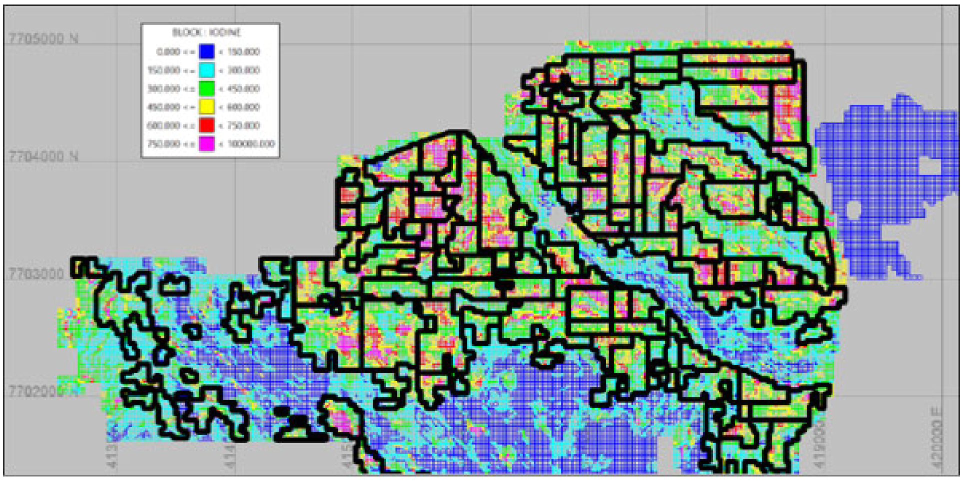
Table 11-5 summarizes the orientation, radii of searches implemented and the scheme of samples selection for each GU and sector. Search ellipsoid radii were chosen based on the variogram ranges.

Table 11-5. Sample Selection for Each Sector

		Rotation			Range 1			Samples	
Sector	**Variable**	**Z**	**Y**	**X**	**x**	**y**	**z**	**Minimum**	**Maximum**
MINA NORTE	Iodine/Nitrate	0	0	0	80	80	0.75	3	20
TEA_E	Iodine/Nitrate	0	0	0	120	120	0.75	1	20
TEA_HS	Iodine/Nitrate	45	0	0	150	100	0.75	3	20
TEA_W	Iodine/Nitrate	0	0	0	120	120	0.75	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 according to a 300-ppm cut-off grade 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 TEA_HS. The black line defines polygons above the cut-off 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 Resources



Source: TEA_HS

Block Model Validation

A validation of the block model was carried out to assess the performance of the OK and the conformity of input values. The block model validation considers:

- Statistical comparison between estimated blocks and samples grades
- Global and local comparison between estimated blocks and samples through each direction (East, North and elevation)
- Visual validation to check if the lock model matches the sample data

11.1.6.1 Global Statistics

The QP carried out a statistical validation between sample grades and estimated blocks. Global statistics of mean grades for 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 sample 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

	# Data		Minimum		Maximum		Mean		Difference	Std. Dev.	
Sector	**Blocks**	**NN**	**Blocks**	**NN**	**Blocks**	**NN**	**Blocks**	**NN**		**Blocks**	**NN**
Mina Norte	437,603	437,603	50.0	50.0	1770.0	2000.0	362.7	354.3	**2.4%**	157.6	235.5
TEA_E	32,574	32,574	102.0	90.0	1626.0	2000.0	382.0	377.1	**1.3%**	152.2	225.3
TEA_HS	801,787	801,787	1.0	50.0	1941.0	2000.0	299.1	310.3	**-3.6%**	190.4	266.9
TEA_W	450,024	450,023	50.0	50.0	1640.0	2000.0	308.6	312.2	**-1.1%**	123.3	205.0

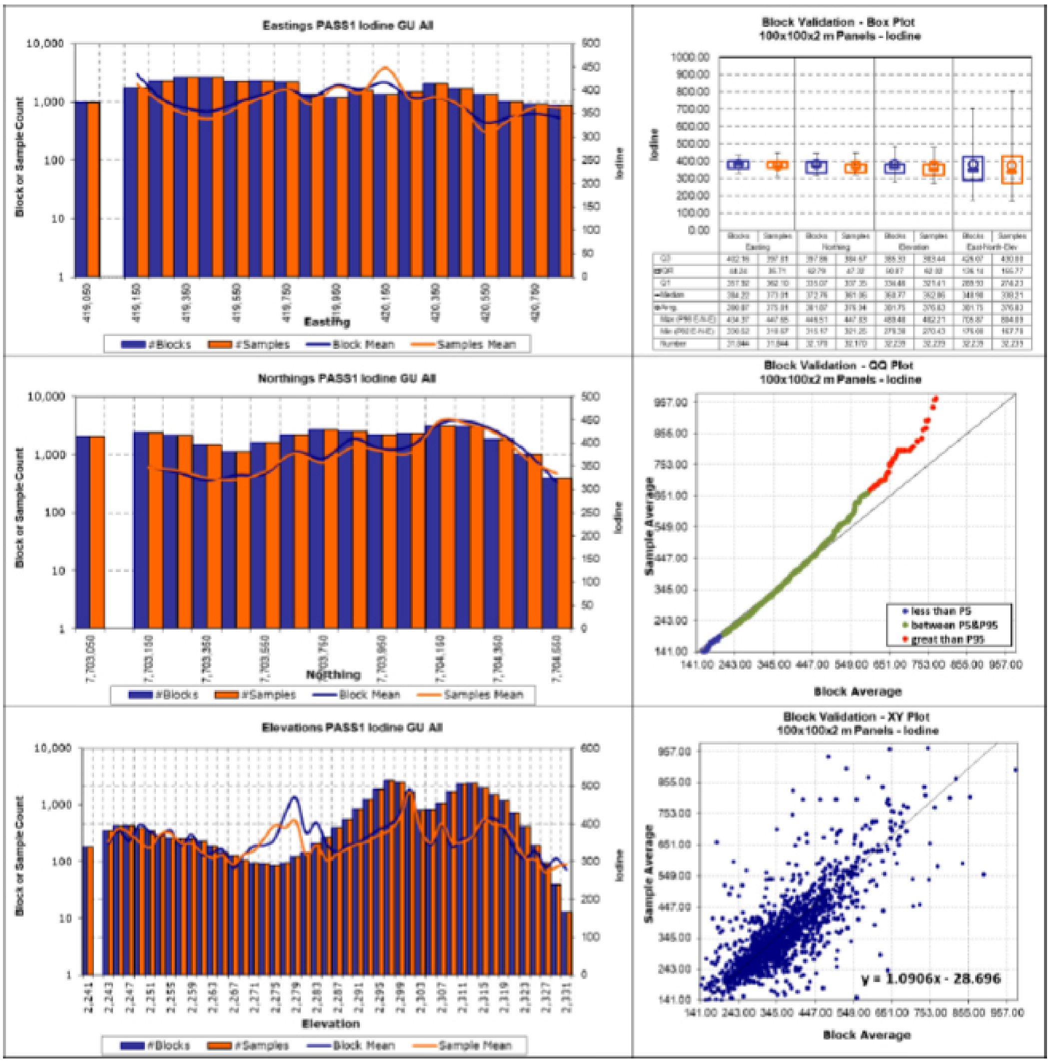
Table 11-7. Global Statistics Comparison for Nitrate

	# Data		Minimum		Maximum		Mean		Difference	Std. Dev.	
Sector	**Blocks**	**NN**	**Blocks**	**NN.**	**Blocks**	**NN**	**Blocks**	**NN.**		**Blocks**	**NN**
Mina Norte	437,603	437,603	1.0	1.0	19.5	20.0	3.7	3.6	**1.9%**	2.1	3.1
TEA_E	32,574	32,574	1.0	1.0	20.0	20.0	5.5	5.4	**2.4%**	2.5	3.6
TEA_HS	780,648	780,648	1.0	1.0	20.0	20.0	5.8	5.8	**1.2%**	3.0	4.4
TEA_W	450,024	450,023	1.0	1.0	20.0	20.0	3.7	3.6	**0.9%**	1.8	2.9

11.1.6.2 Swath Plots

To evaluate how robust block grades are in relation to data, a semi-local comparison using swath plots was completed. Generating swath plots entail averaging blocks and samples separately in regular 100 m (east) x 100 m (north) x 2 m (elevation) panels and then comparing the mean grade in each sample and block panel through each axis. Figure 11-4 to Figure 11-7 provides a summary of swath plots for each variable for TEA_E and TEA_W. 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_E



Eastings PASS1 Iodine GU All

Block Validation - Box Plot
100x100x2 m Panels - Iodine

Northings PASS1 Iodine GU All

Block Validation - QQ Plot
100x100x2 m Panels - Iodine

Elevations PASS1 Iodine GU All

Block Validation - XY Plot
100x100x2 m Panels - Iodine

Figure 11-5. Swath Plots for Nitrate – TEA_E

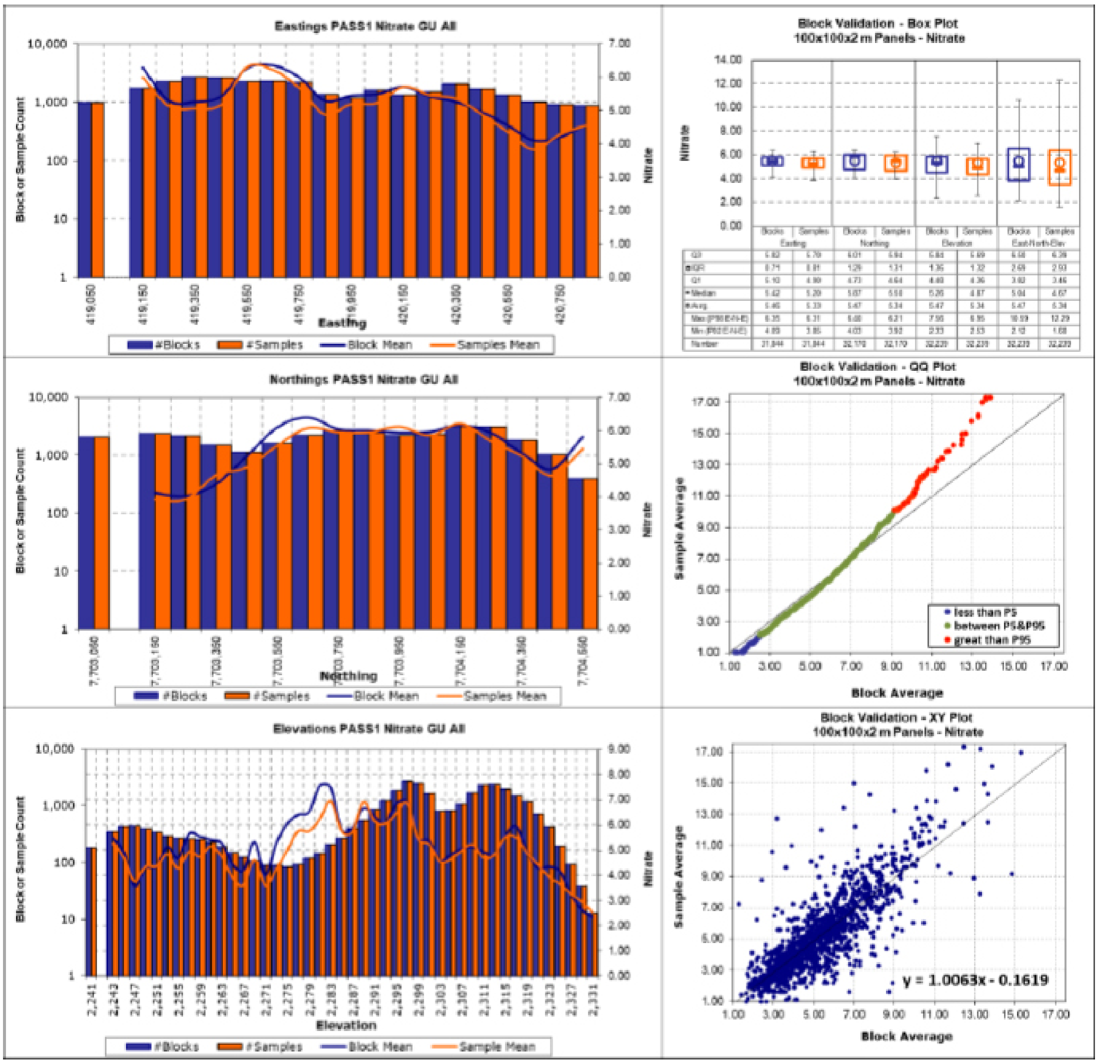


Figure 11-6. Swath Plots for Iodine – TEA_W

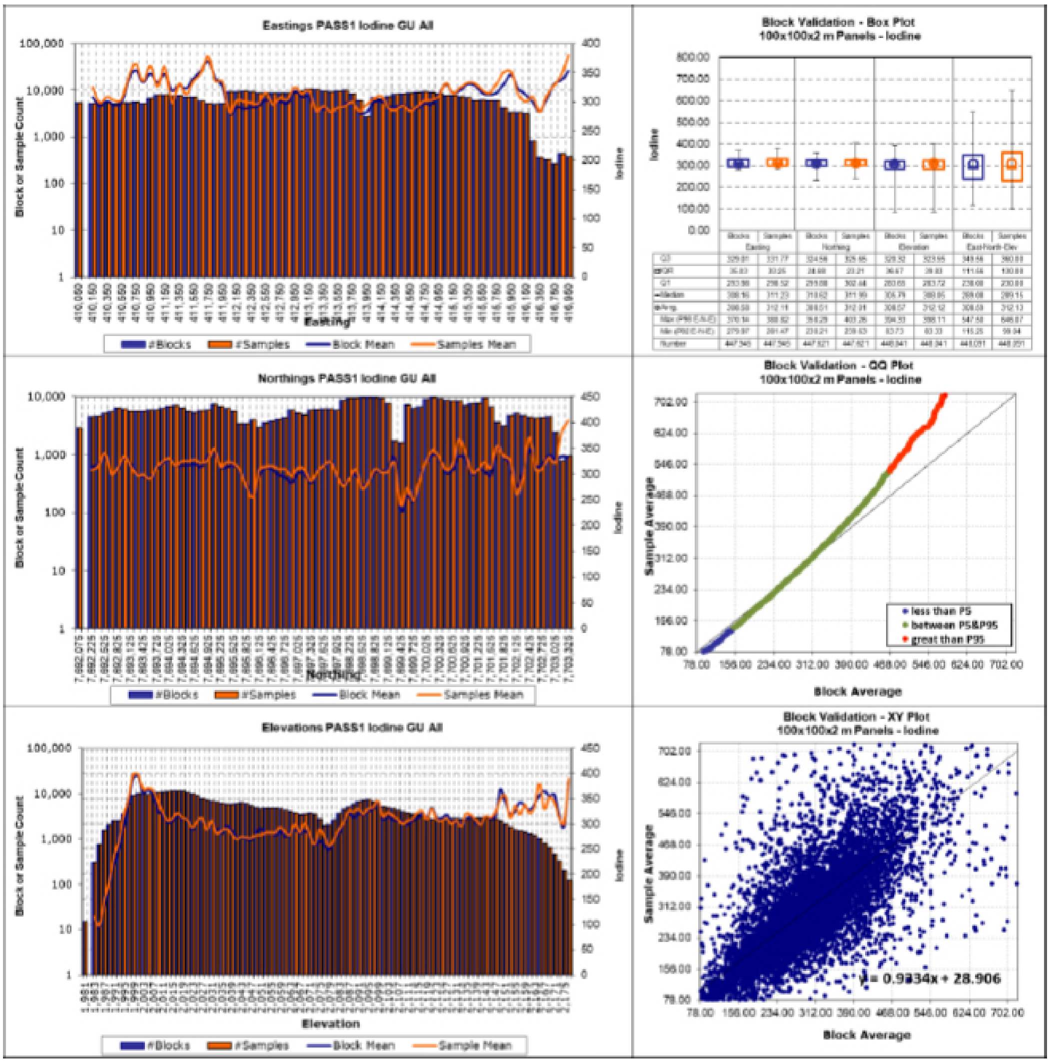
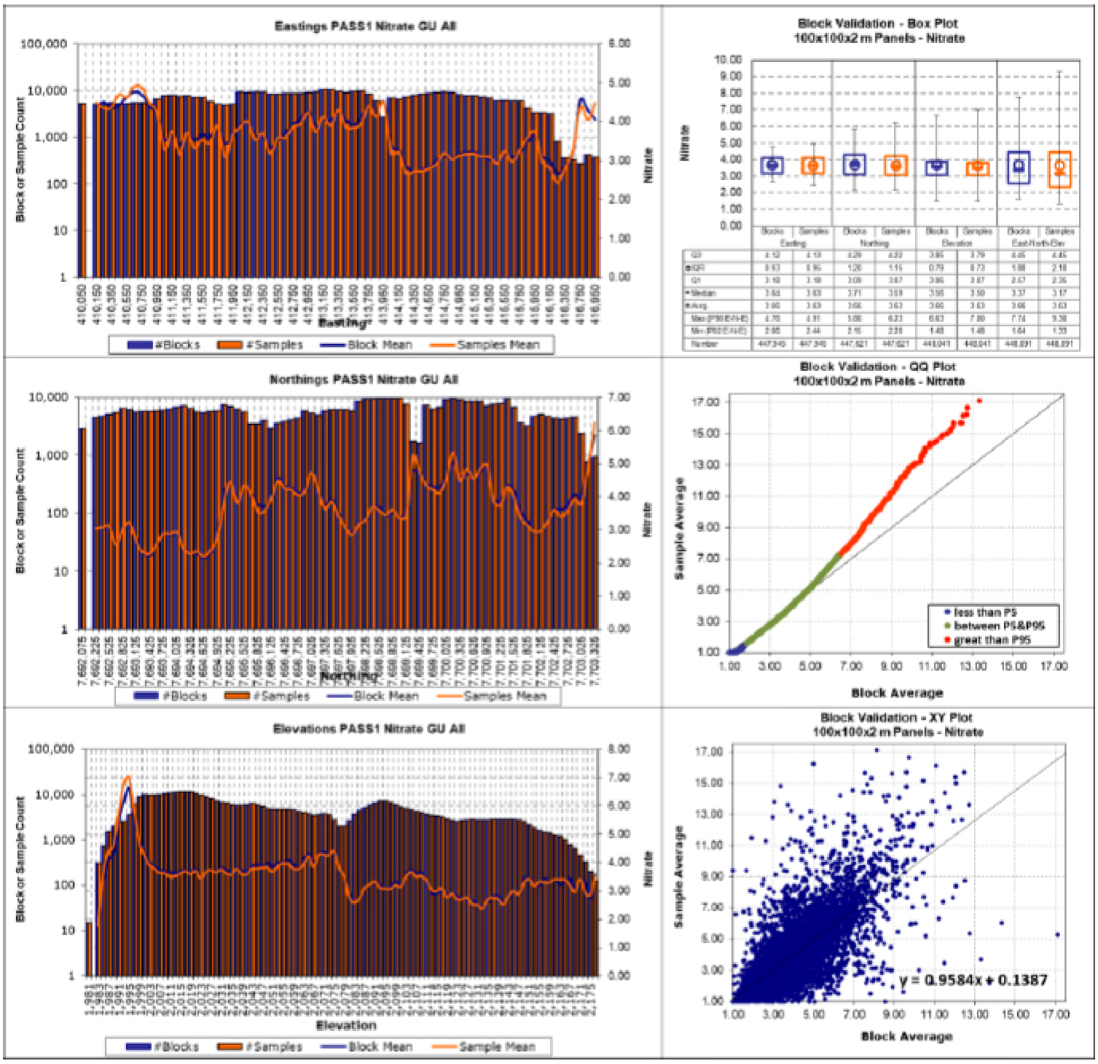


Figure 11-7. Swath Plots for Nitrate – TEA_W



11.1.6.3 Visual Validation

To visually validate the iodine and Nitrate estimation, the QP completed a review of a set of cross-sectional and plan views. The validation shows a suitable representation of samples in blocks. Locally, the blocks match the estimation samples both in cross-section and plant views. In general, there is an adequate match between composite data and block model data for Iodine and Nitrate grades. High grade areas are suitably represented, and high-grade samples exhibit suitable control.

Figure 11-8 and Figure 11-9 present a series of horizontal plan views with the estimated model and the samples for Iodine and Nitrate in TEA_E and TEA_W.

Figure 11-8. Visual Validation of Iodine (left) and Nitrate (right) Estimation, Plan View – TEA_E

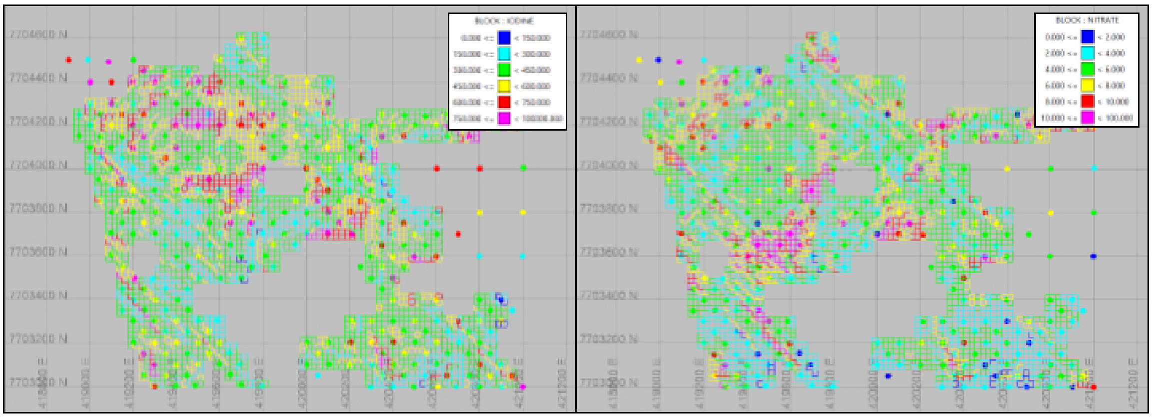
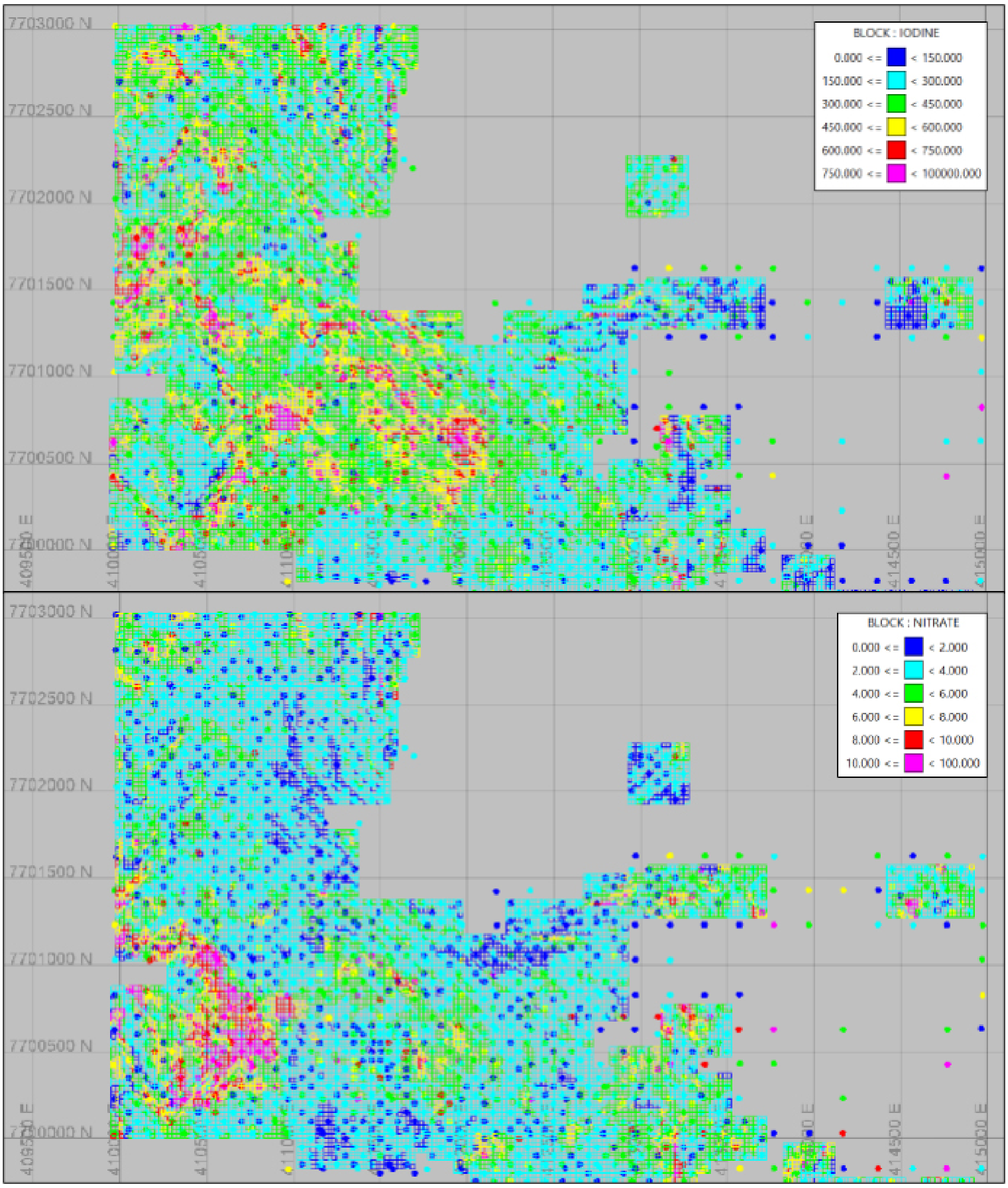


Figure 11-9. Visual Validation of Iodine (left) and Nitrate (right) Estimation, Plan View – TEA_W



Reconciliation

During the period between June 1999 and December 2002, SQM compared the block model estimation with the material in 18 heap leach piles in Pampa Blanca. Comparing the grade determined by SQM in the block model versus Cesmec mass balance head grade of the pile. 16 piles were considered acceptable for Nitrate (error less than 15 %) and 15 piles good for Iodine (error less than 20 %), validating in this way the geological model and the grade estimation through geostatistics techniques. Table 11-8 shows this comparison for the 18 selected piles in Pampa Blanca. A similar approach was used in Maria Elena in 2003, the results of this analysis are shown in Table 11-9.

Table 11-8. Comparison between Block Model Grade and the Grade Measured from Different Piles, Pampa Blanca

	Nitrate (%)			Iodine (ppm)		
Pile	**Block Model**	**Pile**	**Error**	**Block Model**	**Pile**	**Error**
24	8.1	7.3	11.0	464	436	6.4
25	7.9	7.6	3.9	488	443	10.2
26	7.1	6.6	7.6	477	439	8.7
27	7.9	7.4	6.8	538	439	22.6
28	7.6	7.3	4.1	467	403	15.9
29	8.3	7.0	18.6	529	508	4.1
31	7.9	7.7	2.6	368	346	6.4
33	7.3	6.9	5.8	466	417	11.8
41	7.1	5.4	31.5	570	425	34.1
44	7.3	7.3	0.0	487	434	12.2
45	6.7	6.7	0.0	393	371	5.9
46	7.4	7.2	2.8	443	394	12.4
47	7.2	6.8	5.9	418	401	4.2
48	7.3	7.7	-5.2	411	456	-9.9
49	7.1	7.0	1.4	412	414	-0.5
50	7.4	6.6	12.1	415	392	5.9
51	6.9	6.0	15.0	395	357	10.6
52	7.1	6.9	2.9	440	352	25.0
Average	**7.4**	**7.0**	**6.5**	**455**	**413**	**10.2**

Table 11-9. Comparison between Block Model Grade and the Grade Measured from Different Piles, Maria Elena

		Nitrate (%)			Iodine (ppm)		
Pile	**Tonnage**	**Block Model**	**Pile**	**Error**	**Block Model**	**Pile**	**Error**
8	7,745	8.2	7.6	7.9	602.0	472	27.5
9	9,241	8.0	7.9	1.3	434.0	525	-17.3
10	8,449	9.6	8.8	9.1	574.0	551	4.2
1	11,529	8.4	8.7	-3.4	437.0	487	-10.3
2	9,417	8.2	8.7	-5.7	413.0	429	-3.7
3	10,913	8.9	8.2	8.5	549.0	537	2.2
4	10,737	8.6	9.8	-12.2	521.0	538	-3.2
5	11,705	9.0	8.6	4.7	365.0	506	-27.9
6	10,385	7.5	8.0	-6.3	442.0	481	-8.1
7	10,649	8.1	7.3	11.0	446.0	436	2.3
Average		**8.5**	**8.4**	**0.8**	**472.8**	**496.3**	**-4.7**

11.1.7 Database-Level 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 rest of the sectors with a drill hole spacing grid equal, or greater, than 100-x-100 m, the Mineral Resource evaluation was performed at the database level. Table 11-10 shows the parameters used to define drill hole intervals with economic potential in each in Nueva Victoria.

Table 11-10. Economic and Operational Parameters Used to Define Economic Intervals for each Drill Hole in Nueva Victoria

Parameter	Value
Mantle thickness	More than 2 m
Cover thickness	Less than 3 m
Waste/Mineral Ratio	Less than 1.5
Iodine Cut-off grade	300 ppm

These parameters are the inputs of a script that calculates for each drill hole the intervals with economic potential which then are converted to tonnage using the nominal drill hole spacing grid (200-x-200 m for example) and density (2.1 g/cc).

Table 11-11 shows an example calculation for a drill hole in from the Hermosa Sector. The evaluation starts at the top of the drill hole, considering a 300-ppm iodine cut-off grade. In this case, only the first four intervals were selected (2-m thickness of the interval with economic potential). Details of this are presented in Section 19 (Economic Analysis). This analysis includes all operating costs, recoveries, and downstream costs to Coya Sur.

Table 11-11. Example of the Database Evaluation in Hermosa, Nueva Victoria

Hole-Id	From (m)	To (m)	Nitrate (%)	Iodine (ppm)	Cover (m)	Selected
HAF'-66	0.0	0.5	2.5	250	0.12	Yes
HAF'-66	0.5	1.0	10.0	200	0.12	Yes
HAF'-66	1.0	1.5	3.5	160	0.12	Yes
HAF'-66	1.5	2.0	8.1	690	0.12	Yes
HAF'-66	2.0	2.5	4.0	170	0.12	No
HAF'-66	2.5	3.0	3.6	260	0.12	No
HAF'-66	3.0	3.5	2.8	340	0.12	No
HAF'-66	3.5	4.0	2.4	160	0.12	No
HAF'-66	4.0	4.5	2.7	100	0.12	No
HAF'-66	4.5	5.0	1.8	170	0.12	No
HAF'-66	5.0	5.5	5.0	120	0.12	No
HAF'-66	5.5	6.0	12.6	400	0.12	No

Then this interval is transformed in tonnage using the nominal spacing grid (100-x-100 m) and the density (2.1 g/cc).

$$Tonnage = 2.0\ m\ x\ 100\ m\ x\ 100\ m\ x\ 2.1\ \frac{tonne}{m^3} = 42{,}000\ tonne$$

After the script selected all the economic intervals 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.

11.2 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 11-12, summarizes the Mineral Resource estimate, exclusive of reserves, for iodine and nitrate in Nueva Victoria. Note that because the caliche deposit is at the surface, all measured and indicated resources has been converted into mineral reserves.

Table 11-12. Mineral Resource Estimate, Exclusive of Mineral Reserves, as December 31, 2021

	Inferred		
Nueva Victoria	**Tonnage (Mt)**	**Iodine (ppm)**	**Nitrate (%)**
Hermosa Sur	31.1	430	5.5
Tente en el Aire	2.4	441	4.7
Total	33.4	431	5.4

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. All Measured and Indicated Mineral Resources have 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 tonnes, parts per million, and weight percent respectively.

(e) The Mineral Resource estimate considers an iodine cut-off grade of 300 ppm, based on accumulated cut-off iodine grades and operational average grades, as well as caliche thickness ≥ 2.0 m and overburden thickness ≤ 3.0 m. The iodine cut-off grade considers the cost and medium- and long-term price forecasts of generating iodine as discussed in Sections 11, 16 and 19 of this TRS.

(f) Donald Hulse is the QP responsible for the Mineral Resources.

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 classification defined by SQM is based on drill hole spacing grid:

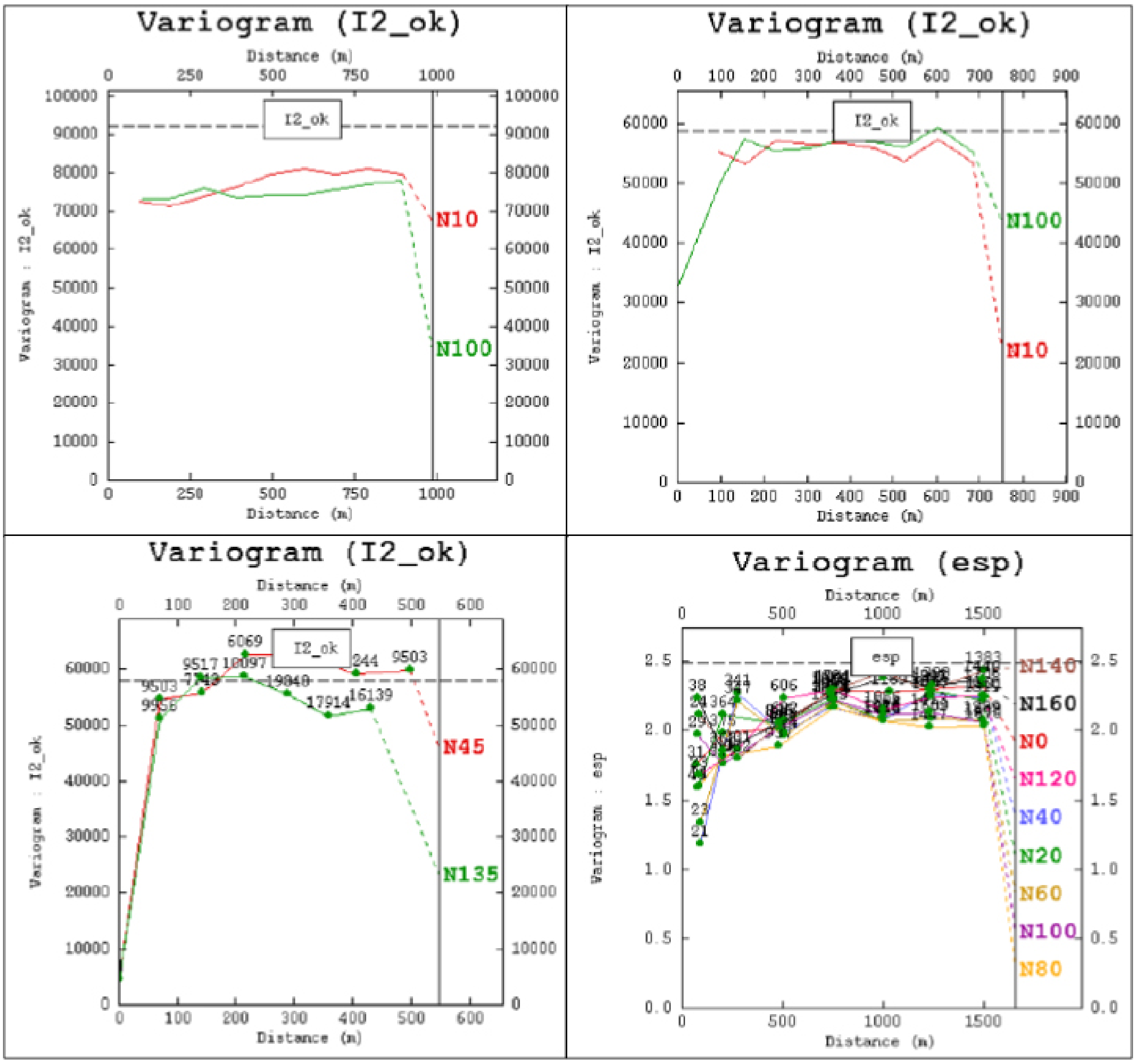
- Measured Resources were defined using the prospecting grids of 50-x-50 m and 70-x-70 m, which allows to delimit with a significant level of confidence the dimensions, mantle thickness and grades of the mineralized bodies as well as the continuity of the mineralization. Variability and uncertainty studies carried out by SQM show a relative estimation error of 4.5 and 5.5 % for both grids, respectively.

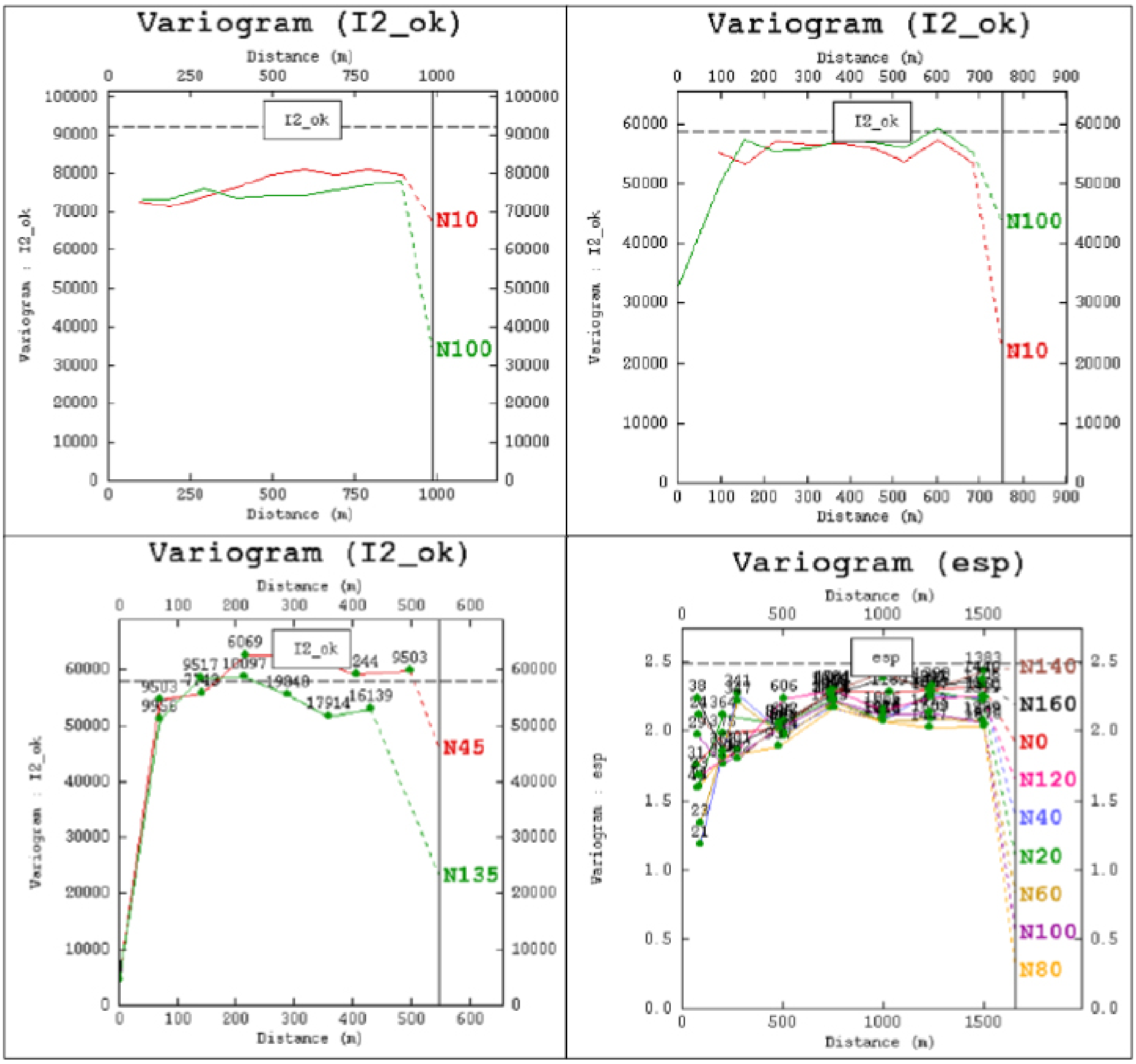
- Indicated Resources were defined using the prospecting grids of 100 x 100 m and 200-x-200 m, which allows to delimit with a reasonable level of confidence the dimensions, mantle thickness, tonnage, and grades of the mineralized bodies. Variability and uncertainty studies show a relative estimation error of 7.6 and 8.3 % for both grids, respectively.

- Inferred Mineral Resources were defined using the 400-x-400-m prospecting grids carried out in the earlier steps of the project. When prospecting is carried out in districts or areas of recognized presence of caliche, or when the drill hole grid 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 surface geology and the definition of GUs.

The QP carried out an independent variographic analysis on several deposits. The results show a high lateral continuity of the grade for both nitrate and iodine in the mineralized mantle. As an example, Figure 11-10 shows the experimental variogram for TEA_HS (upper-left), TEA_W (upper-right) and TEA_E (bottom-left), where the grade has good continuity for iodine, especially in TEA_HS and TEA_W where the sill was reached beyond 600 m. The mineralized mantle (bottom right) also shows a good level of continuity in all directions.

Figure 11-10. Experimental Variograms of Iodine for TEA_HS (upper-left), TEA_W (upper-right), TEA_E (bottom-left) and Mantle Thickness (bottom-right) for Nueva Victoria





It is the QP’s opinion that these analyses show that the estimated errors were low enough (5 %) for drill hole grids of 50-x-50 m and 70-x-70 m. The definition of Measured Mineral Resources from these grids is justified.

Considering that the Down the hole (DTH) variograms also show a low nugget effect the general conclusion of the independent analysis was that both grades and the mineralized mantle have an adequate level of continuity due to the large range of the experimental variogram (up to 600 m). This justifies the definition of Indicated Mineral Resource for drill holes grids up to 200-x-200 m.

11.4 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.

11.5 Assumptions for Multiple Commodity Mineral Resource Estimate

For Nueva Victoria, the cut-off grade was dependent only on iodine grade. Nitrate was considered a by-product of the iodine process.

11.6 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 twenty 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, socio-economic, marketing, political, or other relevant factors, that could materially affect the Mineral Resource Estimate that are not discussed in this TRS.

The 2021 Mineral Resource Estimate may be materially impacted by any future changes in the break-even cut-off grade, changing some sectors to be evaluated by nitrate instead of iodine, potentially resulting from changes in mining costs, processing recoveries, or metal prices, or from changes in geological knowledge, because of new exploration data.

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 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 mine design parameters.

Mineral Resource estimates are based on sample grades obtained from drill holes executed with reverse air drilling machines in 200-x-200 m (RGM200), 100-x-100 m (RGM100), 70-x-70 m (RGM100T) and 50-x-50 meters (RGM50) grid spacing.

Measured Resources are evaluated from 3D blocks built by numerical interpolation techniques (Kriging Method), where iodine, nitrate and soluble salt content information available from data obtained in drill hole grids with a spacing equal to or less than 70 m (RGM100T and RGM50).

Indicated Resources are defined by drill hole spacing of 100-x-100 m (RGM100) and 200-x-200 m (RGM200).

Mineral Reserves considers SQM's criteria for the mining plan which includes the following:

- Caliche Thickness ≥ 2.0 m
- Overburden thickness ≤ 3.0 m
- Waste / Mineral Ratio ≤ 1.5
- Iodine (300 ppm) cut-off grade.
- The average production cost corresponds to 27.45 US$/kg for Iodine and the sales price for Iodine derivatives is 35 US$/kg. For nitrate concentrate brine[1], the average production unit cost is 145 US$/tonne (mining, leaching, seawater pipeline, neutralization and pond treatment) and the unit internal price is 295 US$/tonne.

The mining sectors considered in the mining plans (see Figure 12-2) are delimited based on 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-x-25 m and the volumes of caliche to be extracted are established considering an average density value applied to 2.10 t/m³ for the deposit.

Using these criteria, SQM estimated mineral 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.

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[1] Correspond to the brine enriched in nitrate salts (AFA -*Agua Feble Ácida*-: Acid Water Feble) neutralized and treated in ponds (Salar Viejo) that SQM transport to Coya Sur plant to produce Potassium Nitrate Fertilizers mixing with KCl from Salar de Atacama.

The Indicated Resources estimated by geometric or conventional method using the Iodine and Nitrate grades and other relevant data obtained from medium density drill hole prospecting grids (RGM100 and RGM200) are stated as Probable Reserves using the same criteria described above, such as caliche and overburden thickness, waste/mineral rates and iodine cut-off grade.

To convert Indicated Resources to Probable Reserves, SQM uses a conversion factor equal to one for tonnage considering the layered, shallow, 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 (RGM100 or RGM200) with higher density surveys (RGM100T or RGM50), indicates using a coefficient below 1.0 for Iodine and Nitrates grades for the conversion of 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.

WSP has executed an analysis using 3D model blocks built with the information derived from the database provided by SQM from the prospecting drill hole surveys (RGM100, RGM100T and RGM200) in the TEA sector of Nueva Victoria mine, reviewing the base data, variograms for iodine and nitrate grades and ordinary kriging interpolation, to reconcile these with 3D block models from the data obtained from the 3D Model Block executed by SQM, which combine all the data of the prospecting surveys executed in the TEA sector (RGM200, RGM100T and RGM50).

The purpose was to verify the criteria used to convert Indicated Resources to Probable Reserves. The results of the reconciliation exercise executed by WSP are as follows (Figure 12-1 and Table 12-1):

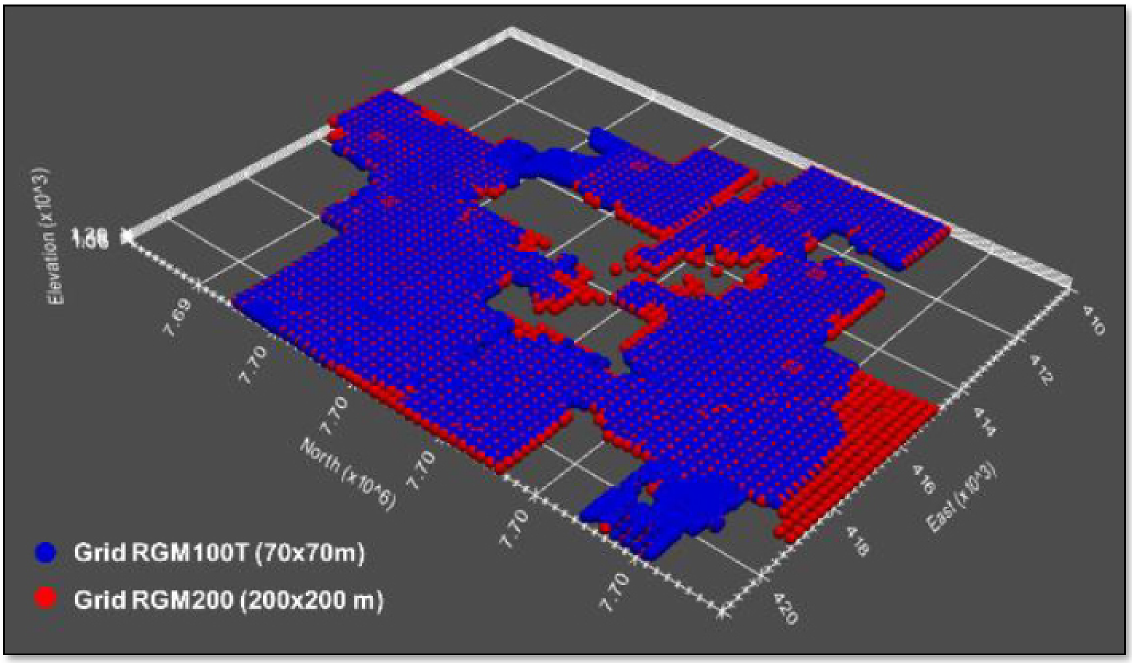
- The average Iodine and Nitrate grades obtained by the 3D Block Model built using RGM200 database are higher than the average grades obtained by the 3D Block Model built by the RGM100T database.

- The average iodine and nitrate grades and tonnage obtained by the 3D Block Model built using the RGM100T database (70-x-70-m drill hole spacing grid) and the 3D Block Model built by SQM to estimate resources (using collectively base data from RGM50, RGM100T, and RGM200) are similar.

- The average Iodine and Nitrate grades obtained by the 3D Block Model built using only the RGM200 database are higher than the average grades obtained by the 3D Block Model built by SQM using the whole entire database (using collectively base data from RGM50, RGM100T, and RGM200).

Based on the SQM operational experience and the results obtained by WSP to compare data from different grid geological investigations, justify the use of coefficients below a value of one for iodine and nitrate grades to convert Indicated Resources to Probable Reserves, as shown in accounts for the geological variability of the caliches deposit.

Figure 12-1. Results of the 3D Block Model Reconciliation

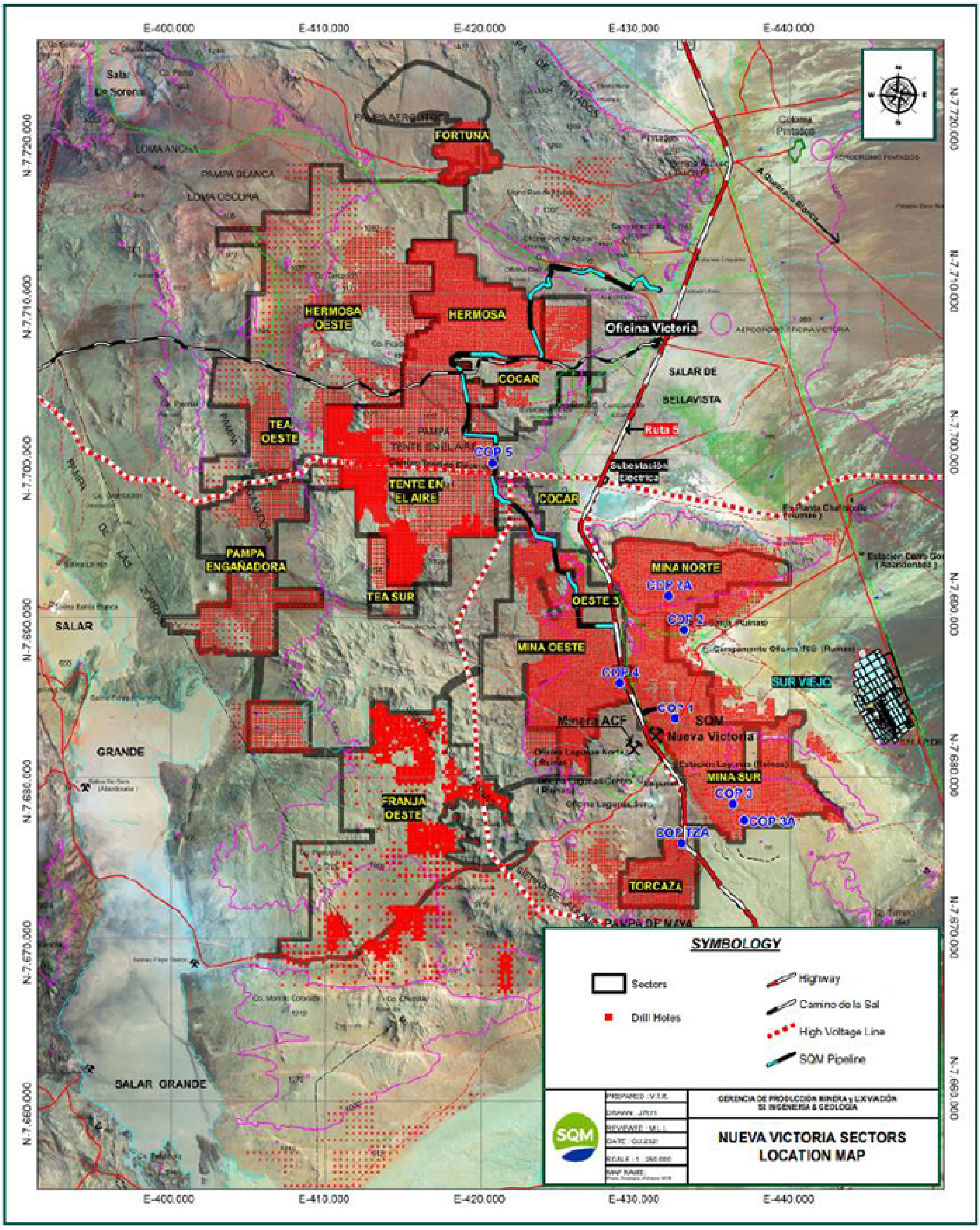


Prospecting drill hole grid - Tente el Aire (TEA) sector (Nueva Victoria mine)

Table 12-1. Results of 3D Block Model Reconciliations

SOURCE	CUTOFF Iodine ppm	NITRATE (%)	IODINE (ppm)	Tonnage (Mt)	NITRATE (Mt)	IODINE (Kt)
3D Model Block SQM (MBSQM)	300	5.87	448.3	324.0	1.9	145.3
3D Model Block RGM100T (MB100T)	300	5.84	428.2	321.5	1.9	137.6
3D Model Block RGM200 (MB200)	300	6.58	460.4	319.4	2.1	147.0
Difference: (MB100T-MQ SQM)/MB100T	300	**-1%**	**-4%**	-1%	-1%	-5%
Difference: (MB SQM-MB200)/MB SQM	300	**-12%**	**-3%**	1%	-10%	-1%
Difference: (MB100T-MB200)/MB100T	300	**-11%**	**-7%**	1%	-11%	-6%

Figure 12-2. Map of Reserve Sectors in Nueva Victoria (caliches)



Source: Provided by SQM

12.2 Cut-off Grade

SQM's has historically used an operational cut-off grade of 300 ppm of iodine. The QP has reviewed the cut-off and agrees that at a cut-off of 300 ppm iodine is conservative and will more than pay all mining costs and iodine production costs. Additional nitrate production profits will enhance the economics, and that the iodine cut-off is appropriate for operations.

12.3 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 geological features of the mineral deposits (sub-horizontal, superficial and limited thickness) allow consideration of 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 (25x25m) 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 described 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 0.90 for Iodine grade and 0.85 for Nitrate grades. Proved Reserve tonnages are the same as Indicated Mineral Resources.

The cut-off Iodine (I2) grade use by SQM to estimate reserves in Nueva Victoria mine has been set a 300 ppm I2. This value could be considered as an operational cut-off grade, because the real cut-off grade evaluated reach a value of 216 ppm I2, using the unit costs or prilled Iodine production (mining, leaching a processing –27,500 USD/tonne-) versus unit sales price (35,000 USD/tonne).

12.4 Mineral Reserves

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

Finally, the Hermosa Sector (North and NE Sector):

- Hermosa, Hermosa Oeste, Hermosa Sur and Coruña.

SQM extracts "caliches" from these sectors within areas having environmental license currently approved by the Chilean authorities. In the near future, 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 6,480 Ktpy (Exempt Resolution 1447/2018), which implies a caliche production of 43,480 Ktpy. Exploitation is expected to increase to a total of 65,000 Ktpy of caliche extraction in Nueva Victoria, when the additional environmental license for Nueva Victoria mine will be approved ("TEA project").

In 2021 caliche mining production targeted 41.40 Mt of Proved Reserves[2], with an iodine grade averaging 441 ppm I_2 and nitrate salts of 5.3% $NaNO_3$. This implies an average mining rate of 18.3 kt of iodine and 2,182 kt of nitrates in 2021.

SQM's Mining Plan for 2022-2040 (Nueva Victoria-SQM Industrial Plan) sets a total extraction of 917.4 Mt of caliche with production ranging between 44,000 Ktpy and 58,800 ktpy. 75.6% (693.4 Mt) of this material will be extracted by blasting and 27.4% (251.5 Mt) by continuous miner. Iodine average grade is 420 ppm and Nitrate average grade is 4.90% for the life-of-mine (LOM).

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[2] The Five-Year Mining Plan (5YP) in Nueva Victoria mine is defined by the exploitation of Proved Reserves. Every year SQM executes a plan to re-shape the prospecting grid used to define Indicated Resources (RGM100 or RGM200) to convert these to Measured Resources using a higher density drill hole spacing grid (RGM50 or RGM100T).

The criteria for estimating Mineral Reserves are as described below:

- Measured Mineral Resources defined by 3D Model block and kriging using data from high resolution drill hole spacing campaigns (RGM50 and RGM100T) 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 geometrically in 2D using data from medium resolution drill hole spacing campaigns (RGM100 and RGM200) 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

	PROVEN RESERVES		
MEASURED RESOURCES	**Tonnage (Mt)**	**Iodine (ppm)**	**Nitrate (%)**
RGM100T (70x70)	**1.00**	**1.00**	**1.00**
RGM50	**1.00**	**1.00**	**1.00**

	PROBABLE RESERVES		
INDICATED RESOURCES	**Tonnage (Mt)**	**Iodine (ppm)**	**Nitrate (%)**
RGM100	**1.00**	**0.90**	**0.85**
RGM200	**1.00**	**0.90**	**0.85**

Notes:

1. Grade variability depends on the prospecting drill hole spacing.

2. Reconciliation analysis using grades/tonnages obtained from RGM100 or RGM200 against those obtained from RGM100T or RGM50 indicates the need to use conversion coefficients lower than 1 on grades.

3. The factors depend on the mine and SQM's mining experience.

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.

The volume of estimated reserves was provided by SQM. The WSP team audited the volume and average grades and applied the coefficients for tonnage and grades as appropriate to the model. Using the economic data supplied by SQM (unit costs and sales prices), WSP checked the cut-off grade set by SQM for iodine (I_2) to establish mineral reserves (see Section 12.2).

Table 12-3.Mineral Reserves at the Nueva Victoria Mine (Effective 31 December 2021)

	PROVEN RESERVES	PROBABLE RESERVES	TOTAL RESERVES
Tonnage (Mt)	268.1	649.3	917.4
Iodine Grade (ppm)	436	414	420
Nitrate Grade (%)	5.2	4.8	4.9
Iodine (kt)	116.8	268.9	385.7
Nitrate (kt)	14,021	30,926	44,947

Notes:

a) Mineral Reserves are based on Measured and Indicated Mineral Resources at an operating cutoff of 300 ppm iodine. Operating constraints of caliche thickness ≥ 2.0 m; overburden thickness ≤3.0 m; and waste / caliche ratio ≤ 1.5 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 tonnes, kilotonnes, parts per million, and weight percent respectively.

f) Mineral Reserves are based on an Iodine price of USD35/kg and a Nitrate price of USD295/t. Mineral Reserves are also based on economic viability as demonstrated in an after-tax discounted cashflow (see Section 19)..

g) Donald Hulse 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 is summarized in the Table 12-5. The procedure used by WSP to check the estimates provided by SQM is as follows:

- Verified tonnage and average grades (iodine and nitrate) provided by SQM 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 life-of-mine plan (2022-2040) 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 Nueva Victoria Mine by Sector (Effective date 31 December 2021)

Exploitation Sector	Proved Tonnage (Mt)	Proved Iodine (ppm)	Proved Nitrate (%)	Probable Tonnage (Mt)	Probable Iodine (ppm)	Probable Nitrate (%)	RESERVES Tonnage (Mt)	RESERVES Iodine (ppm)	RESERVES Nitrate (%)
Nueva Victoria	68,9	438	4,5%	123,3	407	3,5%	192,2	418	3,8%
Tente en el Aire (TEA)	54,0	440	5,2%	277,7	404	5,0%	331,8	410	5,0%
Hermosa	145,2	433	5,6%	248,3	426	5,3%	393,5	429	5,4%
TOTAL	**268,1**	**436**	**5,2%**	**649,3**	**414**	**4,8%**	**917,4**	**420**	**4,9%**

Exploitation sector of Nueva Victoria comprises:

Mina Oeste, Oeste 3, Torcaza and Franja Oeste (see ubication in the Figure 12-2 (Map of Reserve Sectors in Nueva Victoria -caliches-).

Exploitation sector of Tente en el Aire (TEA) includes:

TEA Oeste Sur, TEA Oeste Norte, TEA Sur, TEA Oeste, Fortuna, Pampa Engañadora and Cocar (see ubication in the Figure 12-2 (Map of Reserve Sectors in Nueva Victoria -caliches-).

Exploitation sector of Hermosa considers:

Hermosa, Hermosa Oeste, Hermosa Sur and Coruña (see ubication in the Figure 12-2 (Map of Reserve Sectors in Nueva Victoria -caliches-).

Notes:

a) Mineral Reserves are based on Measured and Indicated Mineral Resources at an operating cutoff of 300 ppm iodine. Operating constraints of caliche thickness ≥ 2.0 m; overburden thickness ≤3.0 m; and waste / caliche ratio ≤ 1.5 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 tonnes, kilotonnes, parts per million, and weight percent respectively.

f) Mineral Reserves are based on an Iodine price of USD35/kg and a Nitrate price of USD295/t. Mineral Reserves are also based on economic viability as demonstrated in an after-tax discounted cashflow (see Section 19)..

g) Donald Hulse 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.

12.5 Qualified Person’s Opinion

Mineral Reserve estimates are based on Measured and Indicated Mineral Resources and have been provided by SQM in reference to its mining operations at Nueva Victoria. The QP has audited the estimation of mineral resources and the modifying factors to convert the measured and indicated resources to proven and probable reserves. The QP has also reconciled the estimated mineral reserves with production and judges that the mineral reserves herein presented are appropriate for use in mine planning and production forecasting.

13 MINING METHODS

SQM provided WSP with production forecasts for the period from 2022 to 2040 (Mining Plan -MP-). WSP 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 overburden 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 (≤ 7.5m), and limited thickness (3.2m 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 7.5 m in height (overburden + caliche) where the mineral is extracted using traditional methods - drilling and blasting and a CM (SEM). 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.

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[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
Blasting	ANFO, detonating cord, 150 gr APD booster and non-electric detonators. Power factor 0.365 kg/tonne
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/tonne of caliche
Caliche production	122,500 tonnes per day (tpd)
Dilution factor	±10 ppm Iodine (<2.5 %)
Recovery factor	56% of iodine and 52% of nitrate (2008-2021 period)
Heap leaching water consumption	0.39 to 0.60 m^3/tonne leached caliche (2008-2021 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.

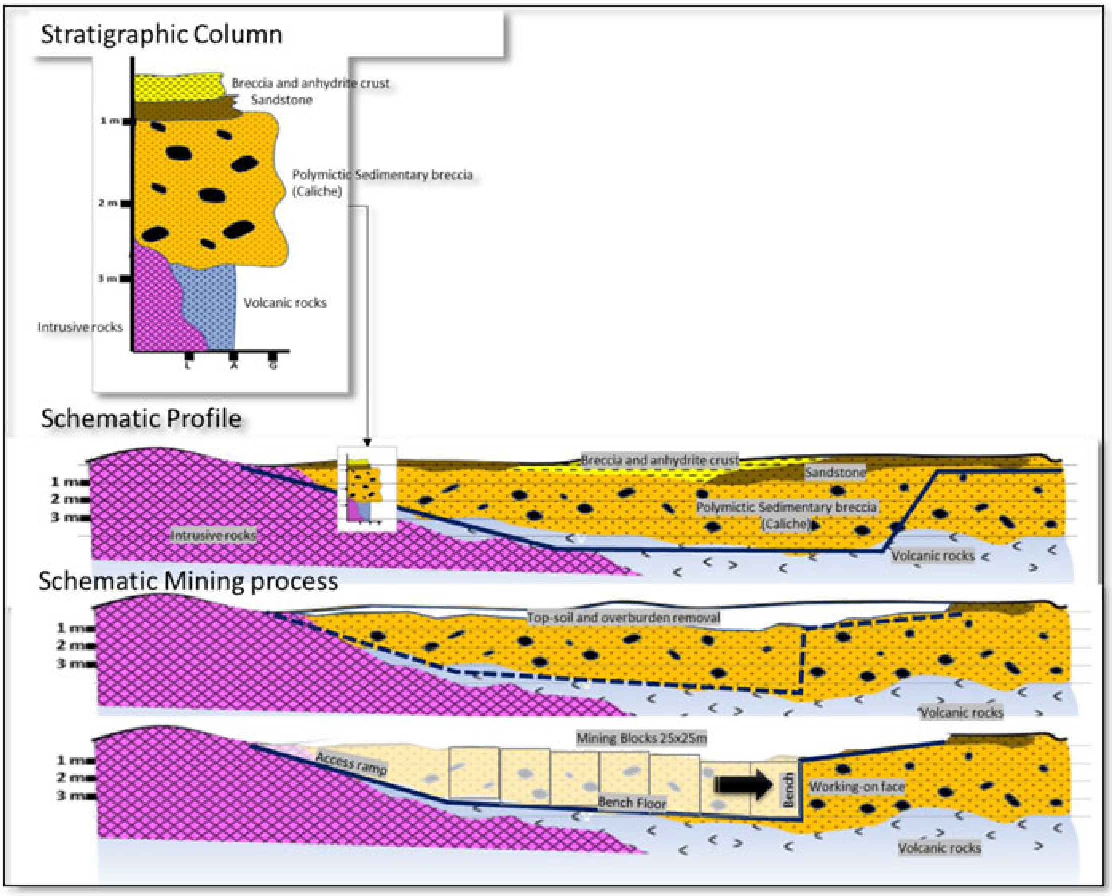
13.1 Geotechnical and Hydrological Models, and Other Parameters Relevant to Mne Designs and Plans

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 1.50 m thick (sandstone, breccia and anhydrite crusts), which is removed. Subsequently the ore (caliche) is extracted, which has a thickness of 1.50 to 6.00 m (average of 3.20 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 (1.50 m of soil + overburden and 3.2 m of caliche) is typical of the operations (Figure 13-1).

Figure 13-1. Stratigraphic Column, 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] in order 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 (Ø) 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 Ø = 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 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 kv 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.

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[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.

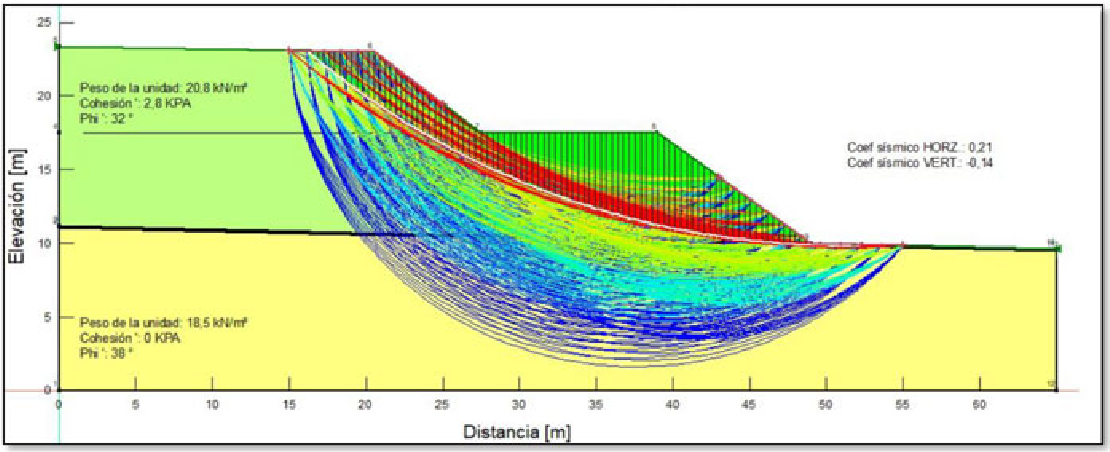
Based on the analysis developed in this document, it is possible to draw the following conclusions (Table 13-2 and Figure 13-2):

- 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	1.10

Figure 13-2. Geotechnical Analysis Results: Heap #300, Hypothesis Maximum Credible Earthquake



TECHNICAL REPORT "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.

13.2 Production Rates, Expected Mine Life, Mining Unit Dimensions, and Mining Dilution and Recovery Factors

The MP considers a total caliche extraction of 917.4 Mt, with an increasing production from 44 Mtpy to 58.8 Mtpy as shown in Table 13-4. For the MP total caliche to be extracted is projected to have iodine grades ranging between 410 to 436 ppm and nitrate grades between 4.03% and 6.12%.

With an average Iodine grade of 420 ppm (0.042%), gross iodine production is estimated to be at 56 tpd (20,500 tpy of iodine). Likewise, for a Nitrate average grade of 4.90%, average Nitrate production is estimated to be at 6,587 tpd (2.37 Mtpy of nitrate).

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 ≤ 3.0 m.
- Waste / Mineral Ratio ≤ 1.5.
- Iodine (300 ppm) 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.
- Density.
- 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 (2022-2040)

Year	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**TOTAL**
Nueva Victoria Sector Ore Tonnage (kt)	**16,000**	**16,000**	**16,000**	**16,000**	**16,000**	**16,000**	**16,000**	**16,000**	**16,000**	**4,204**	**4,341**	**4,478**	**4,615**	**4,751**	**4,888**	**5,025**	**5,162**	**5,299**	**5,435**	**192,197**
Iodine (I2) in situ (kt)	438	427	407	397	397	396	396	404	423	450	451	449	451	447	452	452	445	452	449	**420**
Average grade Nitrate Salts (NaNO3) (%)	5.3%	5.3%	4.2%	4.2%	4.1%	4.0%	4.0%	4.4%	5.5%	3,7%	3,7%	3,8%	3,6%	3,9%	3,6%	3,5%	4,1%	3,6%	3,8%	**4.3%**
Tente en el Aire (TEA) Sector Ore Tonnage (kt)	**9,000**	**7,000**	**7,000**	**10,000**	**10,000**	**7,000**	**7,000**	**7,000**	**7,000**	**22,743**	**23,483**	**14,223**	**24,963**	**25,703**	**26,443**	**27,183**	**27,923**	**28,663**	**29,403**	**331,731**
Iodine (I2) in situ (kt)	439	429	434	408	408	407	407	410	404	393	394	392	394	391	395	395	389	394	392	**398**
Average grade Nitrate Salts (NaNO3) (%)	6.3%	6.2%	5.9%	4.7%	4.6%	4.5%	4.5%	4.6%	4.8%	4,1%	4,0%	4,1%	4,0%	4,3%	3,9%	3,8%	4,4%	3,9%	4,2%	**4.3%**
Hermosa Sector Ore Tonnage (kt)	**19,000**	**21,000**	**21,000**	**18,000**	**18,000**	**21,000**	**21,000**	**21,000**	**21,000**	**18,533**	**19,136**	**19,739**	**20,343**	**20,946**	**21,549**	**22,152**	**22,755**	**23,358**	**23,961**	**393,472**
Iodine (I2) in situ (kt)	433	422	427	423	423	422	422	416	410	453	454	453	455	451	456	456	449	455	452	**439**
Average grade Nitrate Salts (NaNO3) (%)	6.7%	6.6%	6.4%	6.7%	6.6%	6.5%	6.4%	6.3%	6.5%	5,0%	4,9%	5,1%	4,9%	5,2%	4,8%	4,7%	5,4%	4,8%	5,1%	**5.7%**
TOTAL ORE MINED (CALICHE) (kt)	**44,000**	**44,000**	**44,000**	**44,000**	**44,000**	**44,000**	**44,000**	**44,000**	**44,000**	**45,480**	**46,960**	**48,440**	**49,920**	**51,400**	**52,880**	**54,360**	**55,840**	**57,320**	**58,800**	**917,400**
Iodine (I2) in situ (kt)	19.2	18.7	18.5	18.0	18.0	18.0	18.0	18.1	18.2	19	20	20	21	22	22	23	23	24	25	**385.3**
Yield process to produce prilled Iodine (%)	48.9%	45.8%	48.1%	52.8%	51.7%	55.3%	55.9%	60.0%	61.9%	68,3%	68,5%	67,9%	68,4%	67,5%	68,5%	68,6%	66,8%	68,3%	67,5%	**61.7%**
Prilled Iodine produced (kt)	**9.4**	**8.6**	**8.9**	**9.5**	**9.3**	**10.0**	**10.1**	**10.9**	**11.3**	**13.1**	**13.6**	**13.9**	**14.5**	**14.6**	**15.4**	**15.9**	**15.6**	**16.6**	**16.7**	**237.8**
Nitrate Salts in situ (kt)	2,693	2,671	2,416	2,332	2,310	2,314	2,292	2,350	2,583	2.009	2.033	2.181	2.149	2.373	2.226	2.258	2.681	2.429	2.653	**44,953**
Yield process to produce Nitrates (%)	42.0%	41.3%	48.3%	61.1%	59.5%	65.3%	66.4%	71.8%	71.9%	77,1%	77,2%	76,9%	77,2%	76,6%	77,3%	77,4%	76,1%	77,2%	76,6%	**69.0%**
Brine Nitrate production for Fertilizers (kt)	**1,131**	**1,104**	**1,167**	**1,424**	**1,374**	**1,512**	**1,522**	**1,687**	**1,856**	**1,549**	**1,570**	**1,676**	**1,659**	**1,817**	**1,721**	**1,747**	**2,040**	**1,874**	**2,032**	**30,462**

Grade dilution from mining is estimated to be less than 2.5% (±10 ppm iodine) and less than 2.25% for nitrate (±0.12% nitrate). During the caliche mining process, as the mineralized thicknesses are low (< 5.0m), 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 92% (average value por MP 2022-2040).

The processes of extraction, loading and transport of the mineral (caliche) include:

- Surface layer and overburden removal (between 0.50 to 1.5 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 50-60 mm, 80% of fragments below 370 mm, and maximum diameter of 1,000 mm).

  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 150 mm (20% below 35 mm, 80% below 150 mm and D_{max} 450 mm, 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 2022 Mining Plan targets an annual production of 44 Mt of fresh caliche (436 ppm Iodine, 6.12% $NaNO_3$ and 58.4% soluble salts) of which 36 Mt will be extracted by traditional mining and 8 Mt by continuous mining. However, the objective is to progressively increase continuous mining to reach a production 12 Mt in 2023 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, 100t 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 a crown area of 65,000 m².

Figure 13-3. Caliche Leach Pad Construction and Morphology in Nueva Victoria Mine

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 (18% of annual production and projected to reach 27% by 2023) comes to heaps separate from the ROM ones.

There are a number of 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 (0.40-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 tonnes). 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 are considered as SI and are used to irrigate other heaps. This stage lasts about 20 days.

- Washing: last stage of a heap's life, with a final irrigation of water, for approximately 60 days.

In total, there is a cycle of approximately 400-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 2021, for the heap leaching processes, the total water demand was 584 L/s (2,069 m³/h) (unit consumption of 0.438 m³/tonne 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 LOM for 2022-2040 period, the unit water consumptions range from 0.41 to 0.71 m³/tonne of caliche leached with an average of 0,64 m³/tonne. The leaching process projected for 2022-2040 envisions an increase of water used (pumped groundwater and seawater) from 551 l/s in 2022 to 1,351 l/s in 2040. 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 71% for iodine and 74% for nitrate in ROM heap leaching (drill and blast material) for the LOM from 2022 to 2040 period.

Homogeneous and smaller fragmentation generated by the CM allows an increase of 6% in Nitrate yield (up to 80% recovery) and 12% in Iodine yield (up to 82% recovery)[6]. There is a lower water consumption that has not yet been quantified by SQM.

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[5] In SQM NV complex, Brine Feble (BF) and AFA (Agua Feble Ácida -Acid Water Feble-) are terms used interchangeably.

[6] The improvement in the performance for Iodine and Nitrates recovery due to the increase in the amount of water applied in the heap leaching structures means going from 52% to 71% for Iodine in ROM heaps and from 65% to 83% in CM heaps; for nitrates an increase from 45% to 78% in ROM heaps and from 51% to 84% in CM heaps is projected.

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 m³ to 36,000 m³ 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.

13.3 Production and Final Mine Outline

SQM works with topographic control in the mining operations whereby the soil and overburden are removed (total thickness of 1.50 m on average at Nueva Victoria) and caliche is extracted (average thickness of 3.20 m).

Given that the excavations are small (4.70 m on average) in relation to the surface area involved (655 Ha/year), 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 2022 to 2040 period (Life of Mine Plan).

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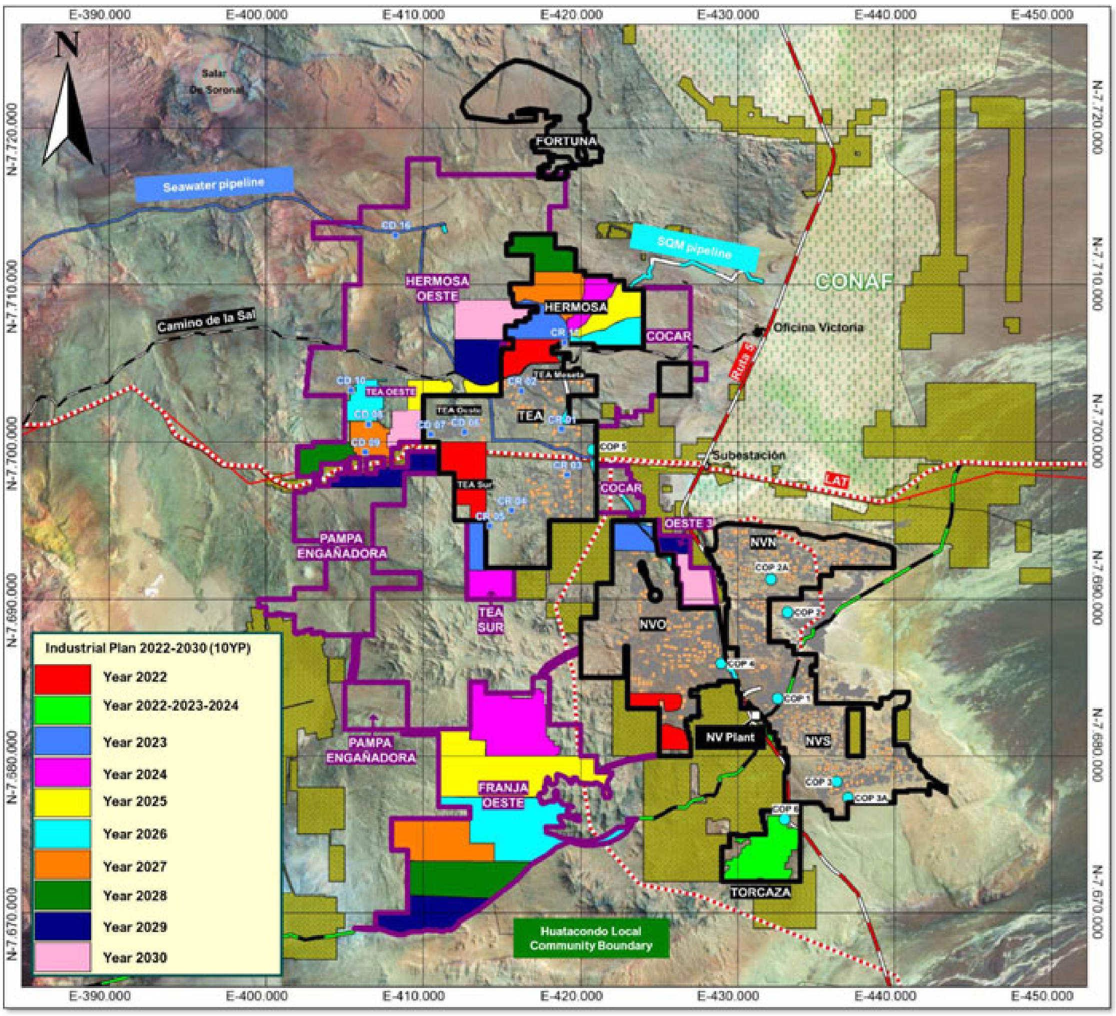
[7] Heap morphology implies a natural slope of 24º (1H:0.44V).

Figure 13-4. Final Mine Outline - Nueva Victoria Mining Plan 2022-2040 (sectors to caliche extraction 2022-2030 - 10YP)



Caliche production data for the 2022-2040 MP involves a total production of 917.4 Mt, with average grades of 420 ppm of Iodine and 4.9% of Nitrates.

The total of volume of brine leach solution to produce expected is around 655 Mm^3 (Mining Plan 2022-2040).

Based on production factors set in mining and leaching processes, a total production of 257 kt of Iodine and 30,462 kt of Nitrate salts is expected for this period (2022-2040), which means to produce fresh brine solution (95.997 m^3/d) with average contents of 37.7 tpd of Iodine (0.39 g/L) and 4,464 tpd of Nitrate salts (54.6 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 2022-2040

LoM 2022-2030	**Caliches**	**%/Ratios**	**Iodine**	**Nitrates**
Production (kt)	917.4			
Average grades (Iodine ppm / Nitrate ppm)			420	4.9%
In-situ estimates (kt)			385.3	44,953
Traditional mining (kt)	693.4	75.58%		
Continuous mining (kt)	251.5	27.42%		
Mining yield		92.31%		
Grade Dilution Factor			2.25%	2.50%
Grade dilution			±9.4	±0.12%
Mining process efficiency			92%	92%
Mineral charged in heap leach (kt)			385.3	44,953
Heap Leach ROM recovery from traditional mining(a)			71%	75%
Heap ROM production from traditional mining heaps (kt)			191.0	22,863
Heap Leach recovery from continuous mining			77%	76%
Heap production ROM continuous mining (kt)			3.5	401
TOTAL Heap Leach production (kt)			**257.1**	**30,462**
TOTAL Heap Leach production (tpd)			**38.5**	**4,524**
TOTAL Heap Leach production (ktpa)			**13.8**	**1,625**
Heap Leaching recovery coefficient			72%	75%
Reserve/Fresh Brine conversion factor			67%	69%
Recovery Average Coefficient for Iodine complete process			62%	-
TOTAL industrial plant processing NV-Iris (kt)			**237.8(b)**	**30,462(c)**

(a) Recovery from CM is higher than ROM ore material

(b) Prilled Iodine

(c) Brine with nitrate salts concentrated used to produce Potassium Nitrates Fertilizers.

13.4 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 wheeldozer-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 t and 4 wheeldozer-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 (3.2 m average and 1.5 m minimum mineable thickness), with an annual caliche production rate at Nueva Victoria of 44 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, the drilling grid used in Nueva Victoria is 2.8 x 3.0 m and 3.00 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% 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 0.50 to 1.50 m. Blasting assumes a rock density of 2.1 t/m³ of intact rock, with an explosives load factor of 365 gm/tonne (load factor of 0.767 kg/m³ of blasted caliche), for an extraction of 122,500 tpd of caliche (Table 13-5). 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.

SQM is analyzing the performance of the SME-Wirtgen's against the Vermeer models to decide which has a better cutting performance.

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 1.80 US/tonne, while for continuous mining it is 2.80 US/tonne.

In addition, SQM's analysis implies an 18% increase in production costs for iodine and nitrate enriched solutions (heap leach) using continuous mining equipment (1.18 US/tonne) compared to using the traditional (drill & blast) system (1.00 US/tonne).

However, 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 US/tonne iodine produced for traditional mining method versus 11,750 US/tonne iodine produced 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%.

13.5 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 (2022-2040) 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. The gradual increase of mine production from 44 million tons to 59 million tons will occur over 9 years and the production growth will be addressed through sustaining capital replacement with the larger sized equipment.

Table 13-6. Equipment. Equipment Fleet at Nueva Victoria Mine

Equipment	Quantity	Type or size
Front loader	10	12.5 and 15 m^3
Shovels	3	13 to 15 m^3
		150 to 200 tonnes
Surface Excavation Machines (SME)	2	100 to 200 tonnes
Trucks	30	100 to 150 tonnes
Bulldozer	8	50 to 70 tonnes
Wheeldozer	4	35 tonnes
Drill	10	Top hammer of 3.5 to 4.5 inches (diameter)
Grader	5	5 – 7 m
Roller	3	10-15 tonnes
Excavator	5	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 copper 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 4.9% nitrate and 420 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 44Mtpy. 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 and iodine plants, 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).

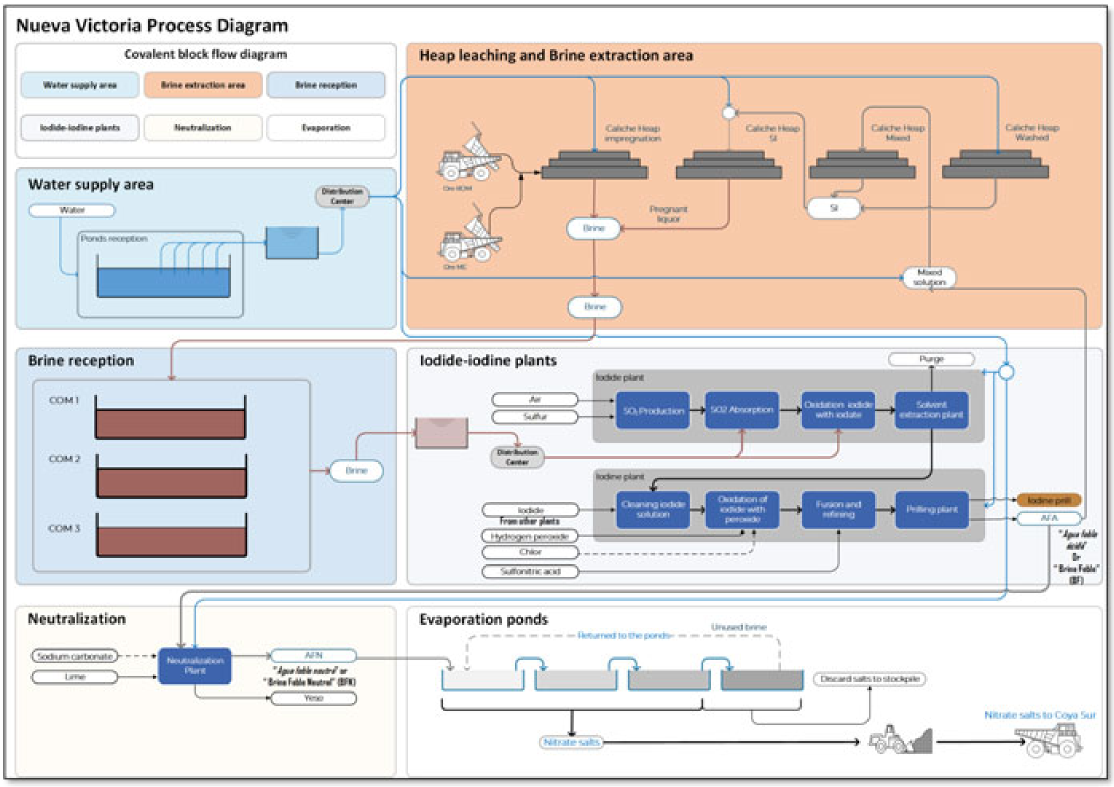
Nueva Victoria operations currently have the following facilities:

- 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

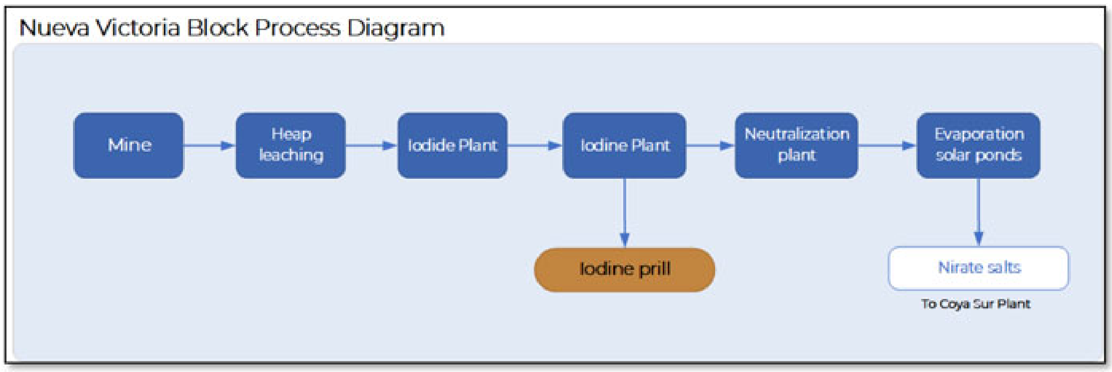


14.1 Process Overview

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 18.18% 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 LOM.

SQM excavates caliche from the Nueva Victoria at a rate of 37 Mtpy in accordance with RE N°0515/2012 (Resolución Exenta, 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. Once the TEA project is approved, the authorized mining rate will increase 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 iodine prilling 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 EIA for the TEA expansion project is currently being assessed within SEIA by the Chilean Regulator, SEA. 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 km^2	Increase of 436 km^2	Total mineable area of 844.5 km^2 at Nueva Victoria (890 km^2 including Iris)
Iris surface area authorized for mining	45.5 km^2	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 km^2	Increase of 10.17 km^2	Total evaporation ponds area 18.51 km^2
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 Areas 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 Operación 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

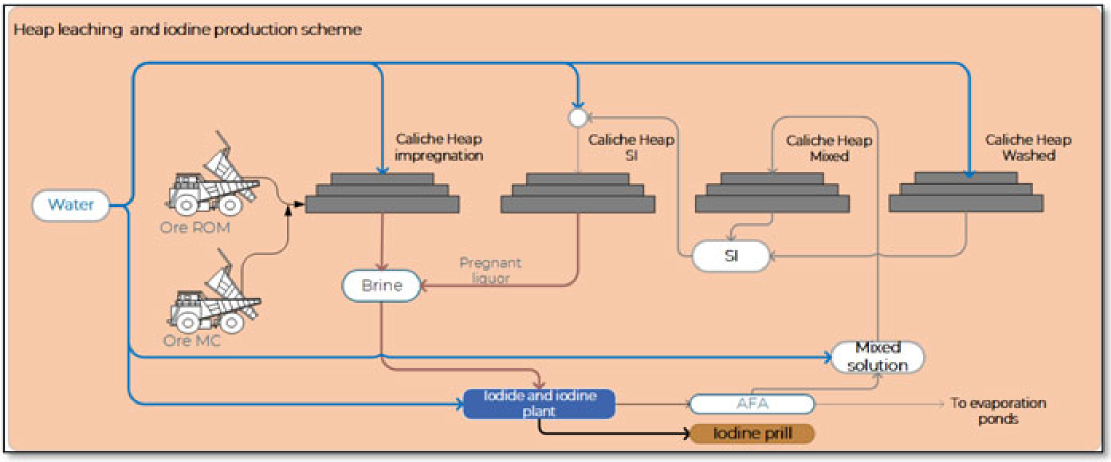
Leach piles are constructed on non-mineralized ground, so as not to cover valuable caliche resource. The land is prepared prior to construction of the heap leach pads. The soil is left with a slope profile of 1 to 4%, to promote gravity flow of the PLS. The base is covered with an impermeable geomembrane (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 400- 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 55-60 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 also 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 20 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 60 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 and Iodine Production Process

The facilities are in three sectors corresponding to: Nueva Victoria, Sur Viejo and Iris. The iodide and iodine production plants are located at Sur Viejo.

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 spherical pellets (prills) 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.

Nueva Victoria Iodine Production

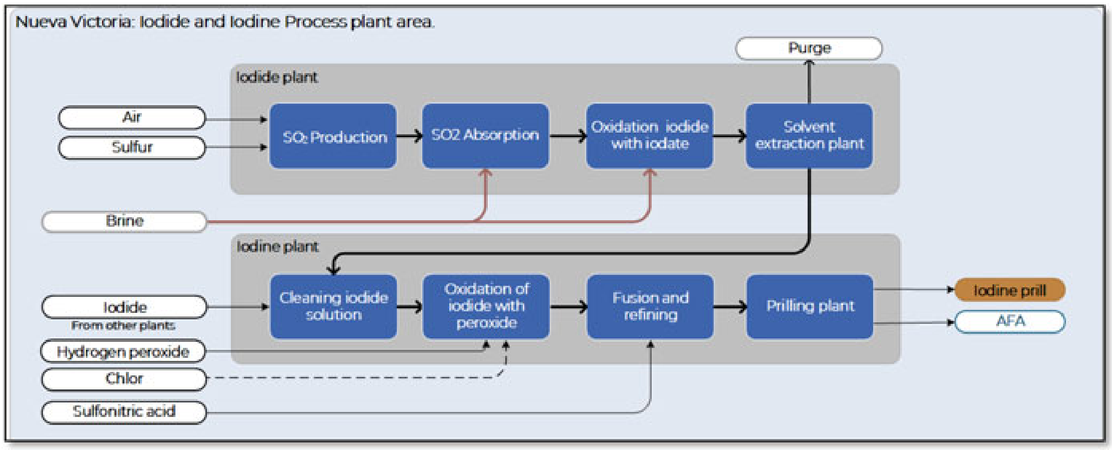
The Nueva Victoria Iodine Processing Plant is situated 1 km southeast of the access control (garita) to the SQM Nueva Victoria complex. It covers an area of approximately 15 ha. It includes:

- 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 ions 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.

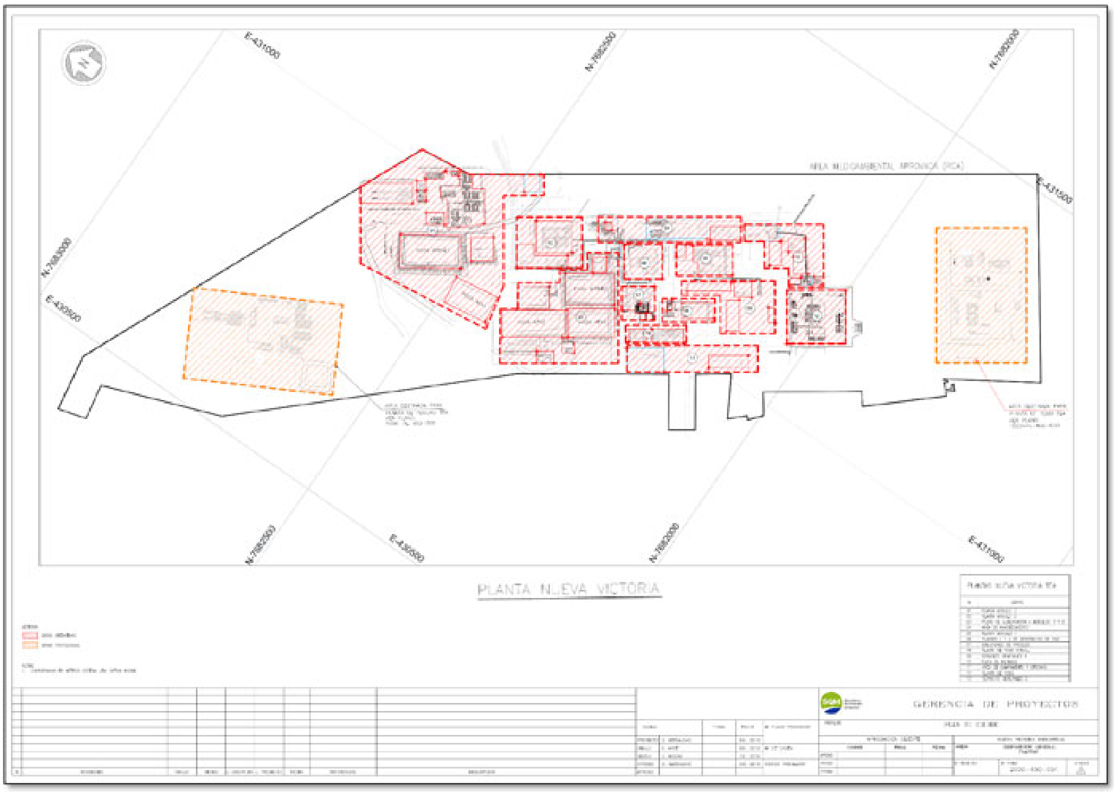
The AFA is neutralized with sodium hydroxide to give BFN, part of which is recycled to the heap leaching process, with the rest routed to the evaporation ponds at Sur Viejo for the recovery of salts rich in potassium and sodium nitrate, which are trucked to the SQM Property at Coya Sur for refining.

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 “prills” 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.

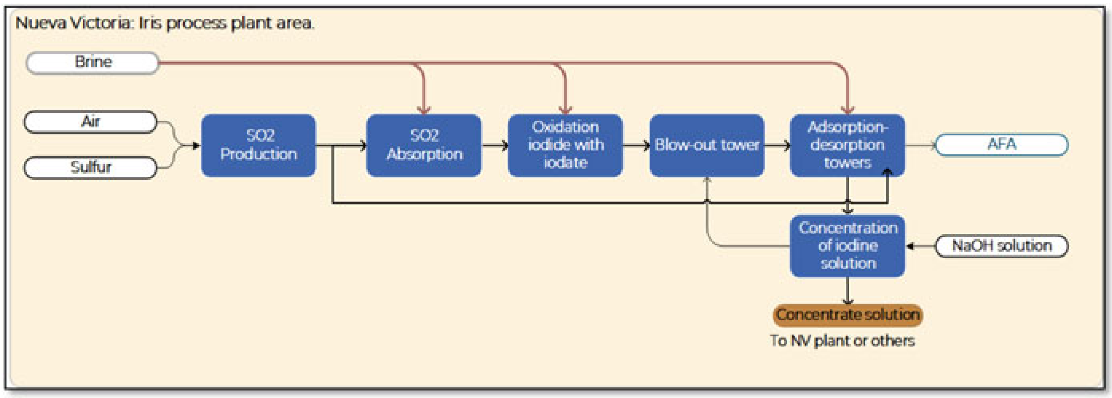
Figure 14-5. General Arrangement of Iodide-Iodine Plants at Nueva Victoria



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, triiodide ions form, which are unstable. The design of the adsorption-desorption tower maximizes contact time between the reagents.

The triiodide-bearing solution is sent to reducing towers (coolers) where, on contact with SO_2, it dissociates, yielding solid iodine.

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 $l/m^2/d$ (5 mm/d or 1,825 mm/a).

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 astrakanite 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 astrakanite ($Na_2Mg(SO_4)_2 \bullet 4H_2O$) 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, astrakanite, $KClO_4$, 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

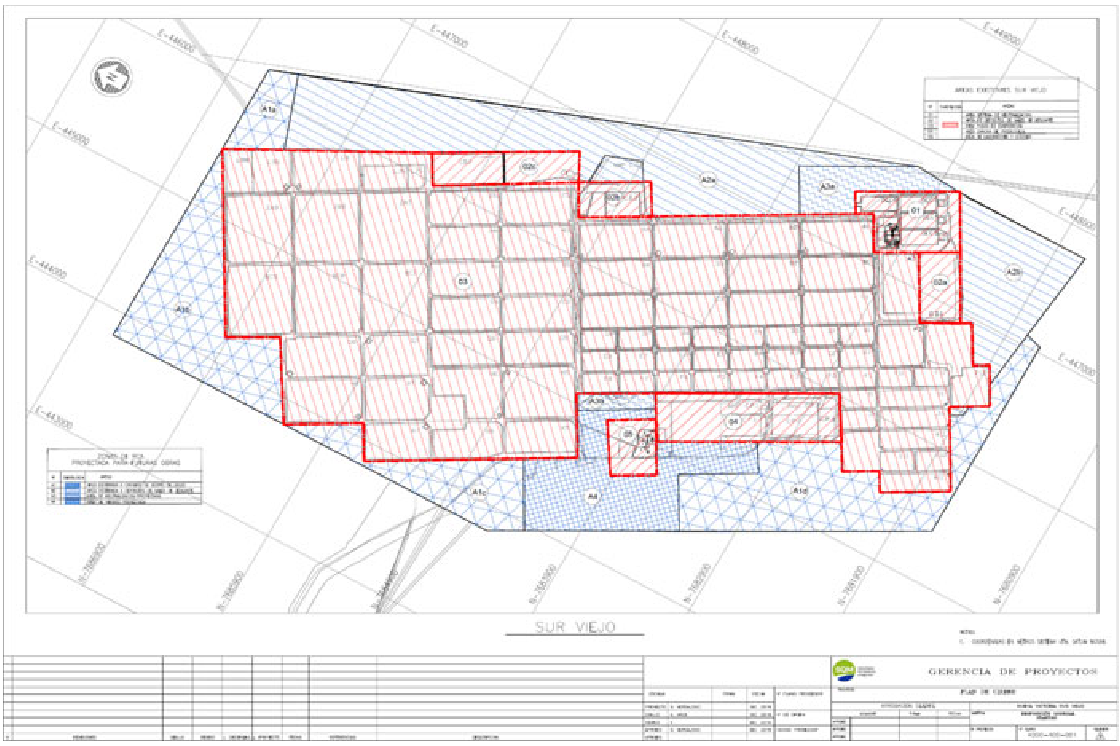
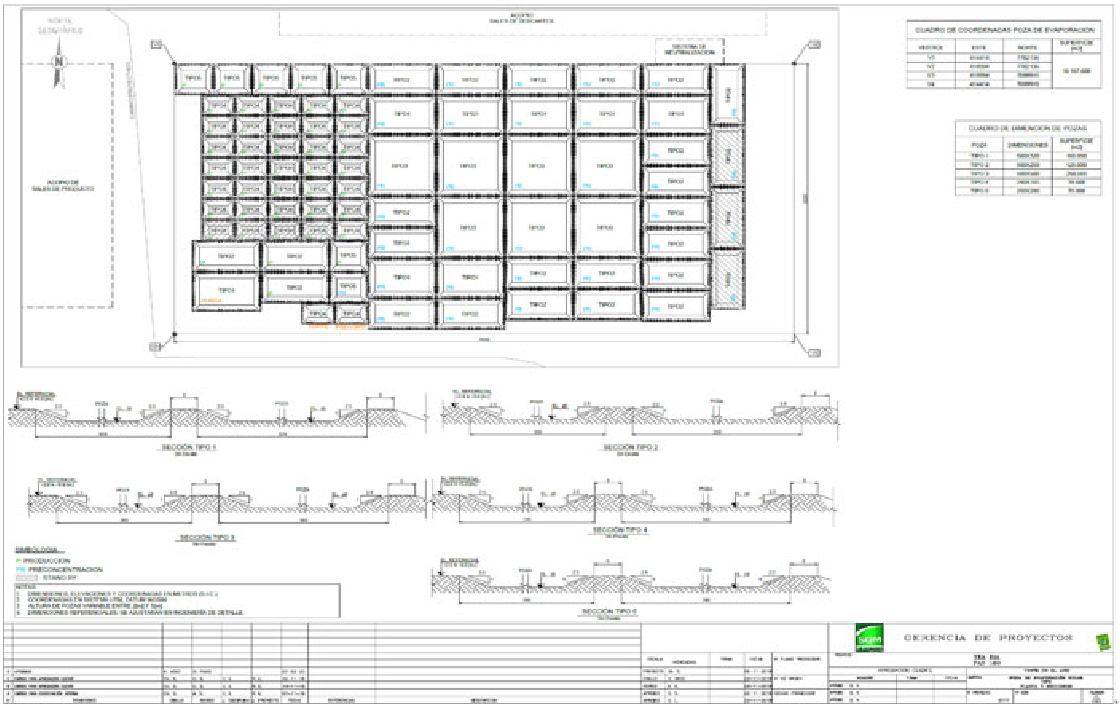


Figure 14-8. General Arrangement of TEA Evaporation Ponds



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

14.2 Production specifications and efficiencies

14.2.1 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 exploitation at Nueva Victoria mine	:	37 Mtpy
Caliche exploitation at Iris mine	:	6.48 Mtpy
Exploitation of future proven areas	:	28 Mtpy
Average grades	:	5.2% nitrate, 436 ppm iodine
Cut-off grade		
Availability/Use of availability		
Mining exploitation factor		80-90%
Plant availability factors		85%
Caliche Iodine NV Factor		4.2 Mt caliche per tonne of prilled iodine at Nueva Victoria
Caliche Nitrate NV Factor		48 tonnes caliche per tonne of finished $NaNO_3$ & KNO_3 at Nueva Victoria
Caliche Iodine Iris Factor		
Heap leaching		
Impregnation stage Intermediate Solution Mixed irrigation stage Washing stage with industrial water		400-to-500 days for each heap
Water + AFA mixed irrigation	:	40% dilution of AFA
Heap drainage	:	10 days
Iodate Brine Turbidity		
Yield and plant capacity		
Iodate/iodide yield		94-95%
Iodide/iodide yield		98%
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 subsections summarize the Nueva Victoria productivity and forecast.

14.2.2 Solar pond specifications

The specific criteria for the operation of evaporation ponds are summarized in Table 14-5.

Table 14-5. Description of Inflows and Outflows of the Solar Evaporation System

System inflows	Unit	Value
AFA Feed Flow	m^3/h	1,200
Sodium nitrate ($NaNO_3$)	g/L	127
Potassium (K)	g/L	12.5
Potassium perchlorate ($KClO_4$)	g/L	1.2
Magnesium (Mg)	g/L	15
Boron as boric acid (H_3BO_3)	g/L	4.0

System outflows	Unit	Value
Discard salts	t	3,900,000
Astrakanite	%	25
Sodium chloride (NaCl)	%	75
High-nitrate salt production	t	2,050,000
Sodium nitrate ($NaNO_3$)	t	1,050,000
Sodium nitrate ($NaNO_3$)	%	41.9
Potassium nitrate (KNO_3)	%	11.4
Potassium perchlorate ($KClO_4$)	%	0.32
Magnesium (Mg)	%	1.30
Boron w/boric acid (H_3BO_3)	%	2.40

14.2.3 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 2020, the mean iodine grade of mined caliche was slightly lower at 452 ppm iodine and the 43.42 Mt of caliche processed yielded 10.61 kt of prilled iodine (9.36 kt from Nueva Victoria and 1.25 kt from Iris).

Table 14-6 presents a summary of 2020 iodine & nitrate production at Nueva Victoria, including Iris.

Table 14-6. Summary of 2020 Iodine and Nitrate Production at Nueva Victoria, Including Iris

Nueva Victoria Iodine Production	Unit	Total, year 2020
Caliche processed	Mt	43.420
Caliche nitrate grade	%	5.1%
Caliche iodine grade	ppm	452
Iodine heap yield	%	51.0%
Iodate-rich brine feed to iodide plant	m^3	17,803,215
Iodate concentration	g/L	0.57
Iodide produced	kt	9.639
Iodide plant yield	%	97%
Iodine produced	kt	9.360
Iodine plant yield	%	94%
Iodide global yield	**%**	**52%**

Iris Iodine Production	**Unit**	**Total, year 2020**
Iodate-rich brine feed to iodide plant	m³	1,021
Iodide to Nueva Victoria Iodine Plant	kt	1.2818
Iodide Plant Yield	%	90%
Average yield of prilled iodine from Iris iodide	%	97%
Global iodine yield, Iris	%	87%
Iodine produced	kt	1.250
Nueva Victoria Nitrate Production	**Unit**	**Total, year 2020**
AFA sent to Sur Viejo Evaporation Ponds	Mm³	9,663,961
Nitrate in AFA sent to Sur Viejo Evaporation Ponds	t $NaNO_3$	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 2021, 2020, and 2019.

Table 14-7. Nueva Victoria Production Data for 2019 to 2021

Nueva Victoria (including Iris)	**2021**	**2020**	**2019**
Mass of caliche ore mined (Mt)	41.428	43.420	42.196
Iodine grade in caliche ore (ppm)	441	452	465
Mass of iodine produced (kt)	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.

During 2020, there has been progress at TEA Project, moving forward in its environmental processing and obtaining authorizations required by the authorities. This project will incorporate 900 L/s of seawater, increase mine area by more than 40,000 ha as well as increase production in the first stage by 3,000 t of iodine and 250,000 t of nitrate salts.

In terms of future plans, 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 10.9-11.3 ktpy of iodine production by 2029-2030.

From 2031 starting at a production of 13 kt and is expected to reach a production of about 17 kt in 2040. The estimated production of iodine and nitrates for the period 2021 to 2040 is presented in Section 19.2 of this TRS.

Table 14-8 shows that to achieve the committed production it is required to increase water consumption to 0.65 for the years 2028-2040 and the heap leach yield for iodine must be increased to 74.2%.

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.

For the 2031-2040 period, the expected increase in caliche production in the Mining Plan -MP-prepared by SQM (average caliche production of 52.5 Mtpy) requires reaching leaching recoveries near 80% for Iodine in the heap pads and over 80% for Nitrate leaching, which could be achieved through the projected increment the consumption of water for irrigation (0.71 m^3/tonne) (increase of water consumption using seawater pipeline). The QP recommends that the production planning process incorporate ore blending strategies to optimize production and maintain the cost/recovery profile in an optimum balance.

Table 14-8. Nueva Victoria Process Plant Production Summary

PARAMETER	2022	2023	2024	2025	2026	2027	2028	2029	2030	Long Term 2031-2040	AVERAGE	TOTAL
Mass of caliche ore processed (Mt)	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0	52.49	**48.82**	**917.4**
Water consumption (m^3/tonne caliche)	0.420	0.419	0.459	0.557	0.542	0.592	0.599	0.637	0.647	0.71	**0.64**	
Ore grade (ppm I_2)	436	425	421	410	410	410	410	411	414	423	**420**	
Ore grade (nitrate, %)	6.12%	6.07%	5.49%	5.30%	5.25%	5.26%	5.21%	5.34%	5.87%	4.41%	**4,90%**	
Soluble salts, %	58.5%	60.3%	60.3%	60.5%	60.5%	60.7%	60.7%	59.1%	58.5%	59.74%	**59.81%**	
Iodine leaching yield, %	59.3%	55.6%	57.9%	63.3%	62.0%	66.3%	67.0%	71.9%	74.2%	79.05%	**72.49%**	
Nitrate leaching yield %	47.7%	46.9%	54.2%	67.8%	66.1%	72.6%	73.8%	79.8%	79.9%	82.90%(a)	**75.18%**	
Iodine leaching production (kt)	8.8	8.4	8.6	9.5	9.9	10.2	10.6	10.9	11.3	16.3	**13.8**	**257**
Nitrate leaching production (kt)	1,173	1,145	1,195	1,445	1,394	1,535	1,545	1,712	1,884	1,574	**1,507**	**28,405**

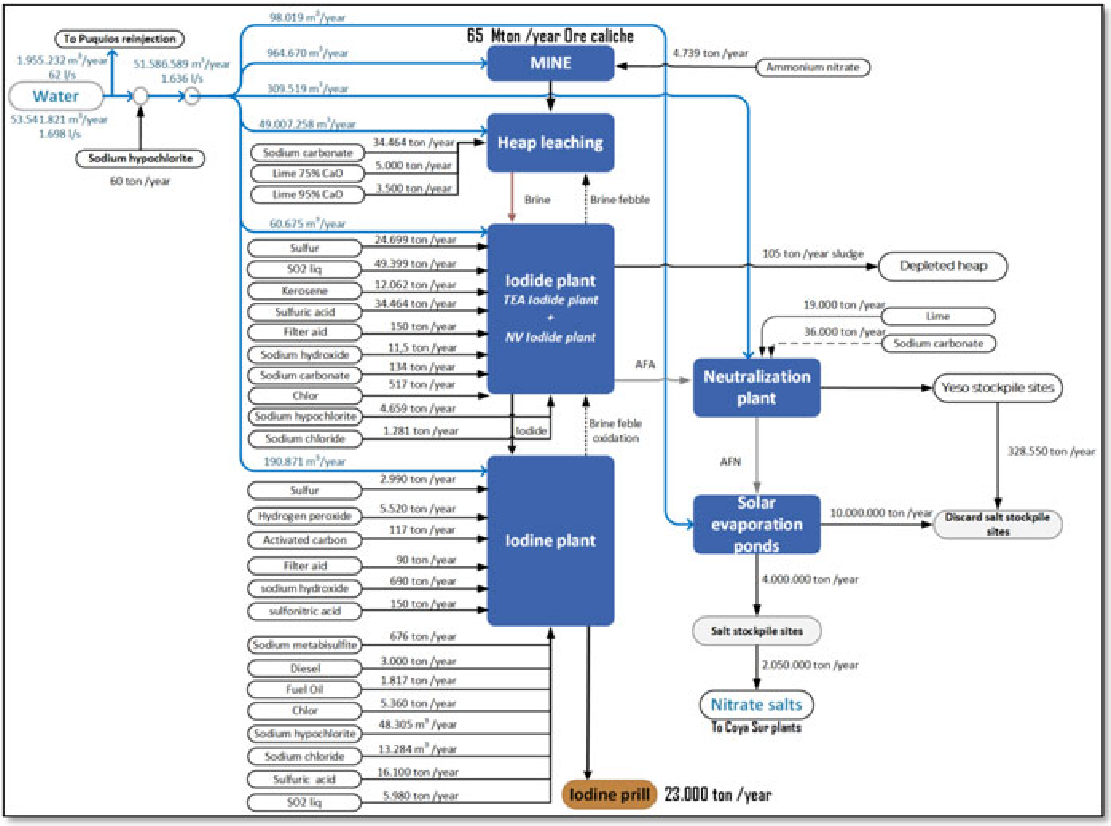
a) The expected increase in caliche production requires reaching leaching yields over 80% for Nitrate leaching based on the projected increment in the water consumption for irrigation (0.71 m^3/tonne). However, it's advisable to keep the nitrate leaching yield in heap pads not above 80%, selecting sectors with a Nitrate grade above 5.0% and maintaining ore control to prevent dilution grade in mining process.

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.

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.

14.3.1 Energy and Fuel Requirements

Power 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 2021 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 2021, 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.

Fuels

The operation will require 26,601 m^3/year of diesel and 22 m^3/year 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.

14.3.2 Water Supply and Consumption

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[8], from wellfields at the Salar de Sur Viejo, the Salar de Llamara and the Pampa del Tamarugal.

SQM has:

- 9 wells at Sur Viejo with consumptive rights totaling 64.5 L/s.
- 10 wells in the western area of the Salar de Bellavista with consumptive rights totaling 208.5 L/s.
- Well TC-9, situated to southwest of the Salar de Bellavista.
- 3 wells in the Salar de Llamara with consumptive rights totaling 70.7 L/s.
- A further 4 wells in the Salar de Llamara with consumptive rights totaling 174 L/s, of which 120 L/s currently have environmental approval.

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:

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[8] 797.8 L/s (approved by the *Dirección 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.

Water Consumption

Table 14-9 summarizes the rate of groundwater pumping for industrial water supply by SQM, by sector, for the years 2020 & 2021.

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

Source: Provided by SQM- Registros extracción agua NV 2020_2021.xls

Potable water will be required to cover all workers’ consumption and sanitary needs. Potable water supply considers a use rate of 100 L/person/day, of which 2 L/person/day 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).

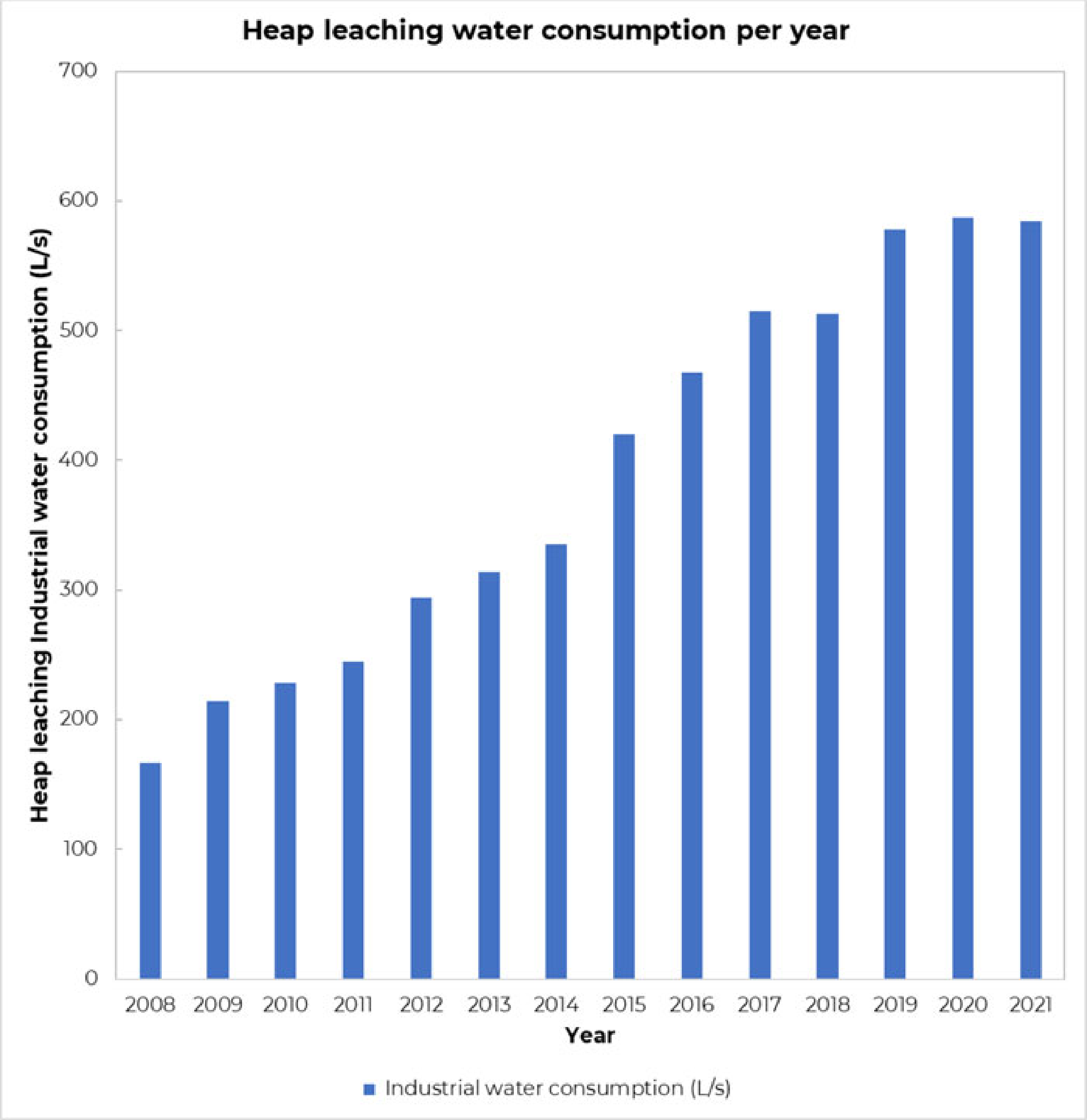
Table 14-10 provides a breakdown of the estimated annual water requirement by potable and industrial water for year 2021. The heap leaching process corresponds to the greatest water demand.

Table 14-10. Nueva Victoria Industrial and Potable Water Consumption

Use	Annual volume (m^3/year)	Equivalent Rate (L/s)
Industrial water		
Heap leach	18,332,548	581.20
Puquios reinjection	877,836	27.80
Mine	152,583	4.80
Iodide- Iodine Plants		
Neutralization Plant	271,521	8.60
Solar evaporation ponds	435,130	13.90
Camp	63,073	2.00
Total other areas		
Mine		
Iodide Plant		
Iodine Plant		
Neutralization Plant		
Solar evaporation ponds		
Camp		
Puquios reinjection	1,800,142	57.10
Total industrial water	20,132,690	638.30
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 – 2021. In 2021 the consumption of industrial water for heap leaching was 581.20 L/s.

Figure 14-10. Historical Rate of Consumption of Industrial Water by the Heap leach Operation at Nueva Victoria (L/s)



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.

14.3.3 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 14-11 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**

Source: Provided by SQM-Informe actualización plan de cierre Faenas Nueva Victoria e Iris.

14.3.4 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	Consumption of Nueva Victoria (11-ktonnes iodine prill)	Consumption With TEA (23-ktonnes 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
		tpy	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
		tpy	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 thee Iodide plant as peplacement of kerosene	tpy	1,935	34,464
			166	690
Chlorine	Supply chlorine to the Iodine plants as an oxidizer	tpy	2,563	5,360

Reagent and Consumables	**Function or Process Area**	**Units**	**Consumption of Nueva Victoria (11-ktonnes iodine prill)**	**Consumption With TEA (23-ktonnes iodine prill)**
	To the Iodide plants	tpy	247	517
Filter Aid	Alpha Cellulose Powder used tt 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	1,674	3,500
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	Tpy	3,314,000
Fuel oil	Tpy	33,500
Diesel	Tpy	31,500

Reagent handling and storage

In order 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.

14.3.5 Air Supply

High pressure air at 600-700 kPa is produced by compressors in place in order 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.

14.4 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 2022 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, in order 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, in order 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 located 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

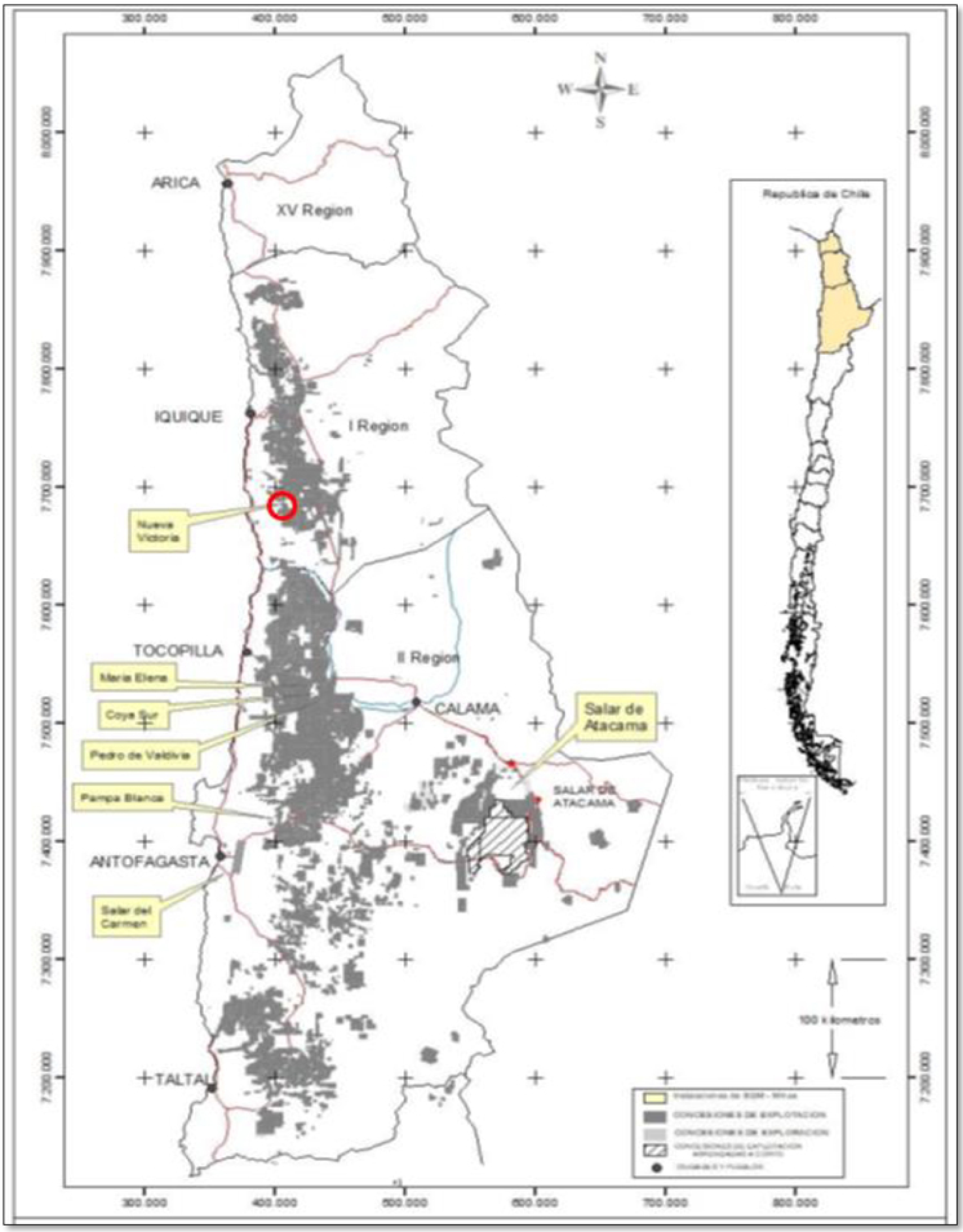
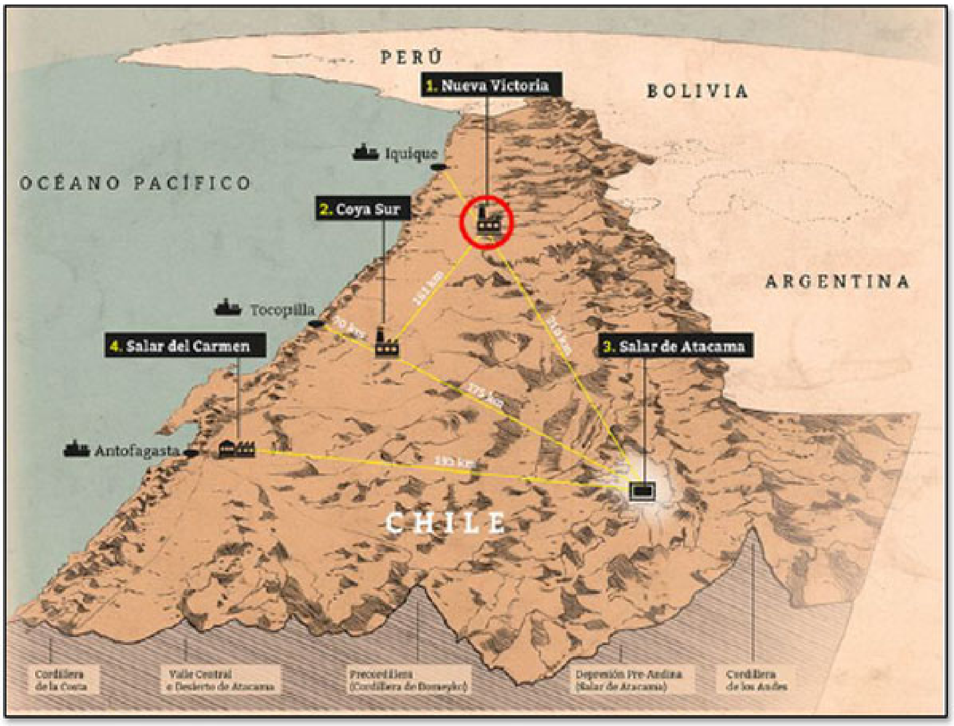


Figure 15-2. Location of Nueva Victoria Production Area



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 the processfacilities and the iodine and nitrates extraction can be found n Section14.

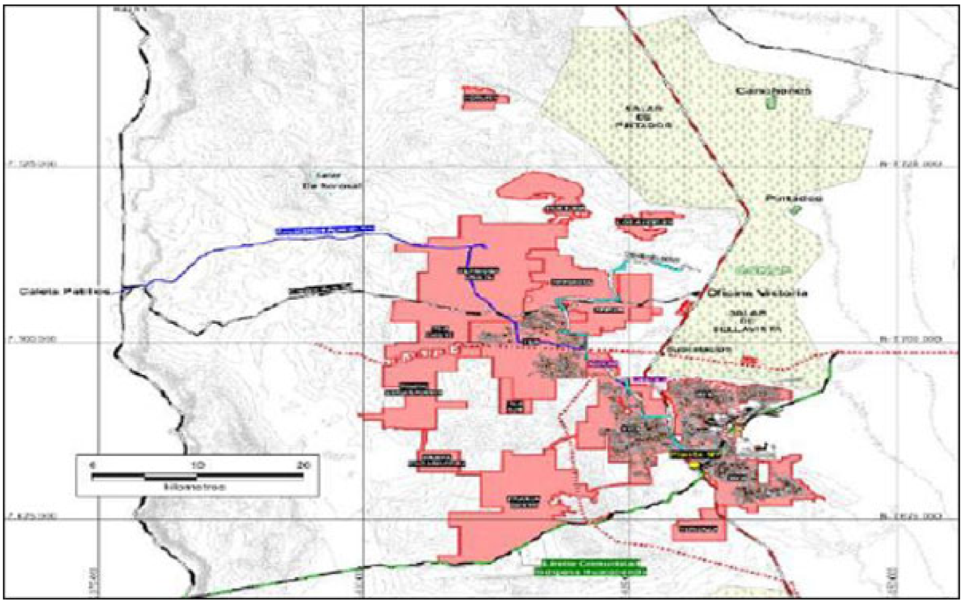
Prilled iodine is tested for quality control purposes, using international standard procedures it has implemented, and then packaged in 20-50 kg drums or 350-700 kg maxi bags and transported by truck to Antofagasta, Mejillones or Iquique for export.

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 2020 is approximately 558,562 ha (Figure 15-4). In addition, as of 31 December 2020, Exploration Mining Concessions held in association with caliche Mineral Resources for the mining operations represent approximately 400 ha.

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 also 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 t 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 2020 was 12,118 t, 9,362 t from Nueva Victoria (with loading fronts TEA, and NV Norte), 1,250 t from Iris, and 1,506 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 also 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 water for these processes.

This project consists in modifying Nueva Victoria mine, which consists of:

a) New mine areas (43,586 ha approx.), 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 for the production of nitrate-rich salts (1,950,000 tpy) for a total of 4,000,000 tpy.

e) New iodine production plants for a total of 4,000,000 tpy.

f) New iodine production plants for a total of 4,000,000 tpy.

g) A new neutralization system, a seawater conveyance (900 L/s maximum) from Patillos Bay sector to the mining area.

h) A new electricity transmission line from the National Electricity System to the mining area.

15.1 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.

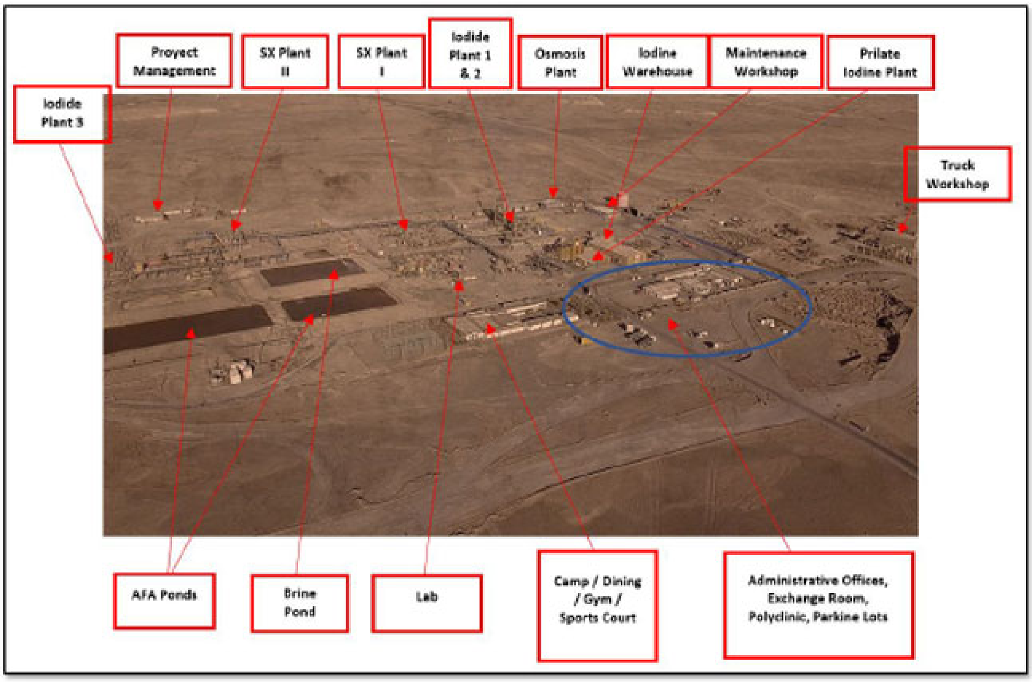
15.2 Production Areas and Infrastructure

The main facilities at Nueva Victoria are as follows:

- Caliche mining areas.
- Industrial water supply.
- Heap leaching operation.
- Iodide plants (Nueva Victoria and Iris properties).
- Industrial water supply.
- 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.

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 Mining 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 408.5 km², this will increase to a total of 890 km² when the TEA expansion is approved. 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 will increase to a total of 71.48 Mtpy with the incorporation of the 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), are loaded with required caliche (between 400 to 1000 Mt) and are irrigated with different solutions (industrial water, industrial water + BF mix or Intermediate Solution).

- Mine Operation Centres (COM) represent a set of heap leaching facilities, with brine accumulation ponds (poor solution, intermediate solution and rich solution ponds), 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. When the TEA expansion is approved 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.

- SO_2 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 will increase to 23 ktpy when the TEA expansion is approved.

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.

- Vehicle 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 when SQM receives the environmental permits for the TEA expansion.

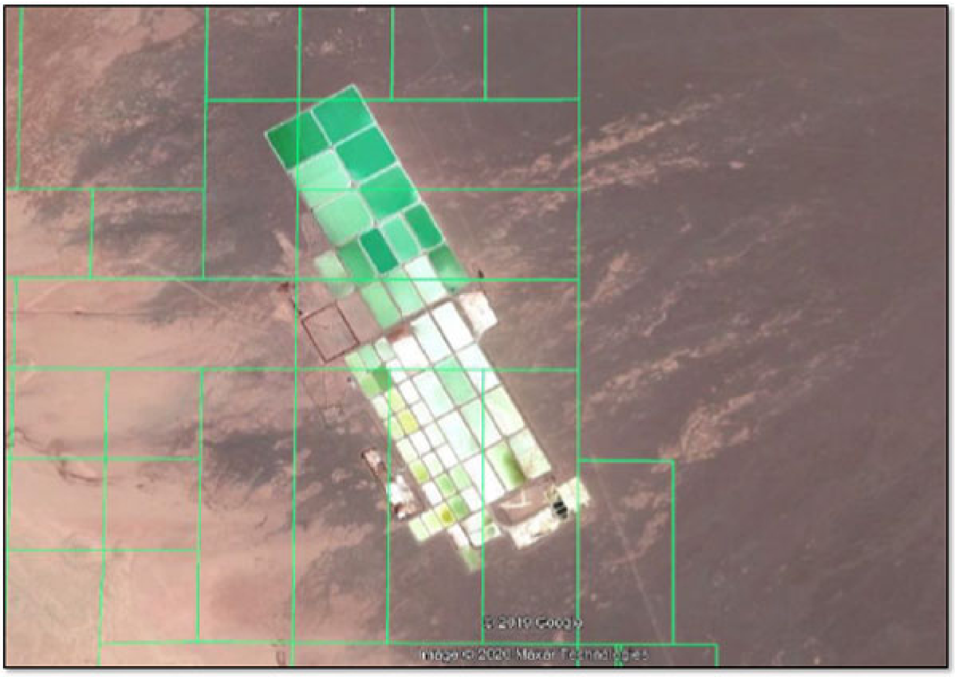
The current facility covers an area of 8.34 km², this will increase to a total of 18.51 km² once the TEA expansion is approved.

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



Source: Provided by SQM

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

Source: Provided by SQM

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

Source: Provided by SQM

For the production of iodin at Iris the plant that cover reception of raw materials to producing iodine prill as a final product.

The main equipment and infrastructure at the iodine plant are:

- SO_2 generation furnaces.
- Iodization absorption towers, each with its respective tank pick up, cooler and tank seal.
- Iodine reception tank from the iodization towers.
- Gas scrubber with its respective tank seal.
- Tank for primary cutting.
- Blow-out modules, consisting of absorption tower, desorption tower and NaOH tank.
- Concentrated iodide tank.
- BF 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:

- Packaging and transitory storage warehouse (product awaiting approval),
- Auxiliary facilities.

Storage facilities at the at Iris iodine plant include:

- Sulfur storage yard,
- Sulfuric acid tanks,
- Diesel oil tank,
- Caustic soda tank

Other infrastructure in the area of 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.

15.3 Communications

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

15.4 Water Supply

Water for Nueva Victoria's facilities is obtained from ground water ponds near the production facilities. Currently, a new EIA TEA has been submitted to increase production, which 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 (L/s)
Salar de Sur Viejo	171,5
Pampa del Tamarugal	321,6
Salar de Llamara	244,7
Total	**737,8**

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 and part of 2021 are included in Table 15-2.

Table 15-2. Average Water Extraction by Sector

Water Resource Sector	Groundwater pumping rate, 2020 (L/s)	Groundwater pumping rate, Jan to Oct 2021 (L/s)
Salar de Sur Viejo	104.68	106.50
Pampa del Tamarugal	304.89	309.30
Salar de Llamara	225.48	220.62
Total	**635.05**	**636.42**

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 551 l/s.

The difference between extraction of 635 L/s compared to consumption of 551 L/s, in other words, 84 L/s (approximately 2,649,024 m³/year) is accumulated in pools and/or ponds.

15.5 Water Treatment

The volume of treated water at the wastewater treatment plant in 2019 was 11,738 cubic meters.

Mining waste generated at the site correspond to depleted heap leaching, overburden, and waste salts.

15.6 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 also 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

Source: Provided by SQM

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 LOM 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 90% of the sales 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.

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 2020, 2019 and 2018 according to the product lines:

Table 16-1. Percentage breakdown of SQM's revenues for 2020, 2019, and 2018

Revenue Breakdown	**2020**	**2019**	**2018**
Specialty Plant Nutrition	39.2%	37.9%	35.3%
Lithium and derivatives	21.4%	26.5%	33.1%
Iodine and derivatives	18.7%	19.4%	14.7%
Potassium	11.7%	11.1%	12.1%
Industrial Chemicals	9.0%	5.0%	4.9%

16.2 Iodine and its Derivatives, Markets, 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 2020, the SQM´s revenues from iodine and iodine derivatives amounted to US$334.7 million, representing 18.4% of the total revenues in that year. It is estimated that SQM ´s sales accounted for approximately 28% of global iodine sales by volume in 2020.

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 23% 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 account for 13% of demand; LCD and LED screens, 12%; iodophors and povidone-iodine, 9%; 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 tonne 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 tonne of iodine, the second largest reserves in the world.

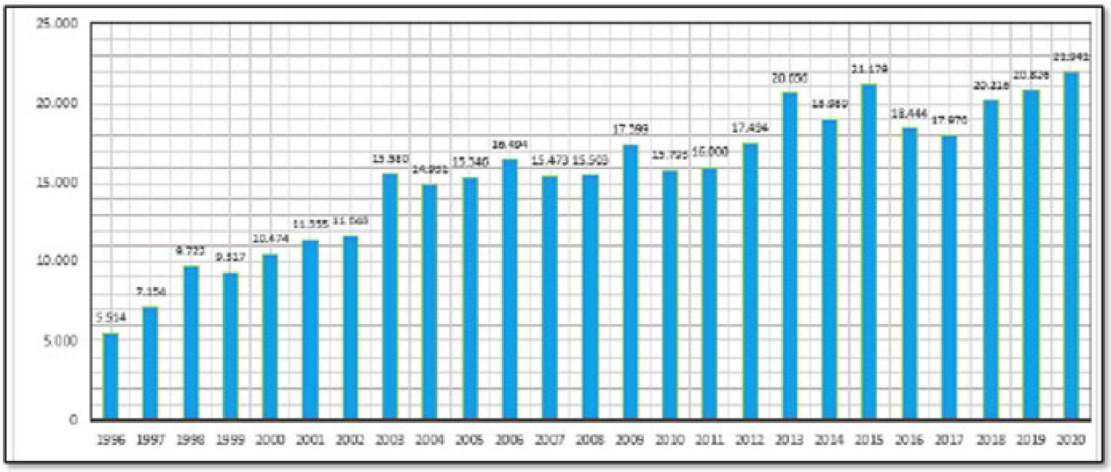
The USA has similar resources in its type to Japan, but to a lesser extent (250,000 tonne).

During 2020, iodine demand was impacted significantly due to the economic crisis caused by COVID-19, with total global demand decreasing by approximately 9% to 33,200 metric tonne, of which 9,700 were sold by SQM.

Although the decrease in demand occurred across product lines, two uses of iodine had growth compared to 2019: the use of povidone-iodine grew by 6%, and the use of iodine for human nutrition grew by 1%. It is expected that most iodine applications will begin to recover demand during the course of 2021.

Figure 16-1 shows the production of iodine and its derivatives in Chile, from 1996 to 2020.

Figure 16-1. Annual Iodine Production in Chile and Derivates 1996-2020 (tonnes)



Source: Chilean Copper Commission Non-Metallic Mining Statistics.

16.2.2 Iodine: Products

SQM produces iodine in the Nueva Victoria plant, near Iquique, and in Pedro de Valdivia plant, close to María Elena. The production capacity is 14,800 metric tonne of iodine per year, including the Iris plant, which is located near 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 decreased to US$334.7 million in 2020 from US$371.0 million in 2019. This decrease was primarily attributable to lower sales volumes during 2020. SQM's sales volumes decreased 24.1% in 2020. Average iodine prices were about 18.9% higher in 2020 than in 2019.

Table 16-2 shows the total sales volumes and revenues from iodine and iodine derivatives for 2020, 2019 and 2018:

Table 16-2. Iodine and derivates volumes and revenues, 2018-2020

	2020	2019	2018
Sales volumes (thousands of metric tonne)			
Iodine and derivatives	9.7	12.7	13.3
Total revenues (in US$ millions)	**334.7**	**371.0**	**325.0**

16.2.3 Iodine Marketing and Customers

In 2020, SQM sold iodine products in 47 countries to 250 customers, and most of the sales were in exports. Two customers each accounted for more than 10% of the iodine revenues in 2020 accounting for approximately 42% of revenues. The ten largest customers accounted for approximately 77% of total revenues.

Table 16-3 shows the geographical breakdown of the revenues:

Table 16-3. Geographical breakdown of the revenues

Revenues breakdown	2020	2019	2018
North America	27%	24%	26%
Europe	42%	33%	34%
Chile	0%	0%	0%
Central and South America (excluding Chile)	3%	2%	2%
Asia and Others	27%	40%	37%

Note: Totals may not add to 100% due to rounding

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 55% of total global sales of iodine in 2020, including SQM, with approximately 28%, 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.

Eight Japanese iodine producers accounted for approximately 28% of global iodine sales in 2020, including recycled iodine. Iodine producers in the United States (one of which is owned by Toyota Tsusho and another by Ise Chemicals Ltd., both of which are Japanese companies) accounted for nearly 5% of world iodine sales in 2020.

Iodine recycling is a growing trend worldwide. Several producers have recycling facilities where they recover iodine and iodine derivatives from iodine waste streams.

It is estimated that 19% 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.

The price of iodine recovered from the lows of US$ 12/kg registered in 2003, stabilizing between US$ 22/kg and US$ 26/Kg in 2006-2010, and then enjoying significant growth in 2011 and 2012, exceeding US$ 52/Kg. The reason for this increase is mainly attributed to the explosive demand registered as a result of the earthquake in Japan that affected nuclear power plants, forcing the supply of iodine (potassium iodide tablets) to the population to avoid thyroid complications due to effects of possible nuclear radiation. In 2013 there was a fall in price attributed to a more stabilized demand and to the greater Chilean supply available, which led to the price of iodine moderating between levels registered between 2010 and 2012, in line with market fundamentals.

The annual average iodine sales prices increased to approximately US$35/kg in 2020, from the average sales prices of approximately US$29/kg observed in 2019 and US$24/kg in 2018.

During 2021, the demand for iodine recovered to pre-pandemic levels, and sales volumes per SQM were close to 12,000 tonnes, with a price close to US$35/kg. The QP has determined that using $35/kg for iodine at the port of Tocopilla is the best price for this study.

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 sodium nitrate, potassium nitrate, iodine, and sodium sulfate. The ore, called caliche, usually occurs naturally as a dense, hard surface layer of salt-cemented sands and gravels, with variable thicknesses between 0.5 m to 5 m.

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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).

Potassium nitrate is 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 account for 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 ammonia fertilizers in certain markets due to its advantage in 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 with higher market value.

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 market share to potassium nitrate.

Nitrates can be modified by adding other functional nutrients, such as phosphorus, sulfur, boron, magnesium, silicon, etc., to enhance certain fertilizer properties for more specific crops.

Sodium and potassium nitrates also have industrial applications based on their chemical properties.

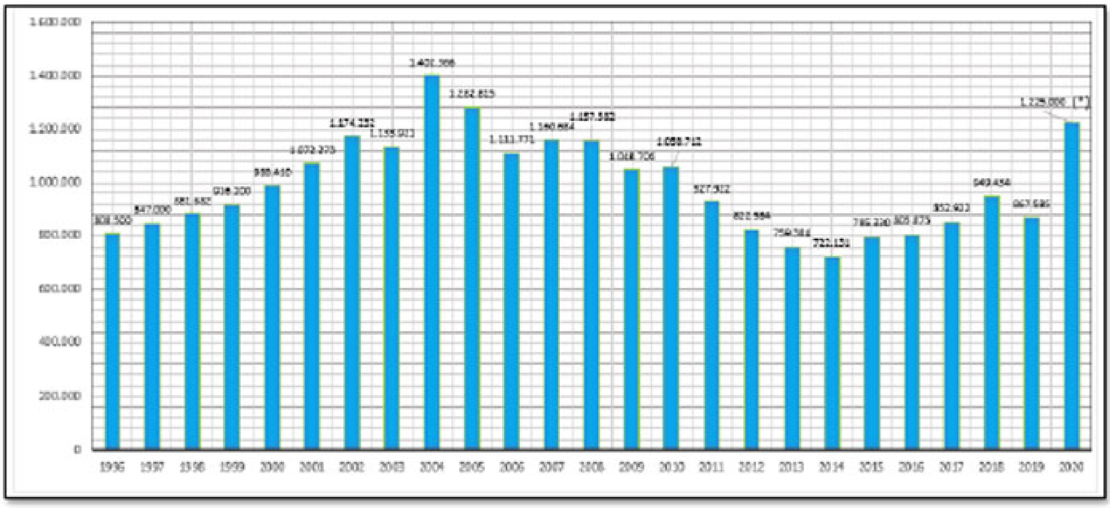
The alkaline oxides of sodium and potassium (Na_2O and K_2O) lend themselves to the special requirements of the glass industry. The nitrate, rich in oxygen, strengthens the oxidizing properties. Its main industrial applications are found in high-resolution glasses for TV screens and computers, ceramics, 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 95% of the nitrates produced in Chile.

Figure 16-2 shows the production of nitrates in Chile, from 1996 to 2020.

Figure 16-2. Annual nitrate Production in Chile from 1996-2020 (tonnes)



Source: Chilean Copper Commission Non-Metallic Mining Statistics.
(*): value considers the production of nitrates in fertilizer and in the chemical industry.

In 2020, SQM supplied more than 1,000,000 tonnesnes of nitrates to the Specialty Plant Nutrition market and nearly 225,000 tonne of nitrates to the Industrial chemicals market.

It is estimated that the Chilean participation in the potassium nitrate market is between 47% and 53% 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 US$241/tonne registered in 2003, reaching US$400/tonne in 2006 and 2007, and stabilizing between US$650/tonne and US$900/tonne in 2009-2019. In 2020 the price for Specialty Plant Nutrition was on average US$677/tonne and for Industrial Chemicals was US$713/tonne.

16.3.1 Specialty Plant Nutrition, Market, Competition, Products, Customers

Specialty Plant Nutrients are premium fertilizers that allow farmers to improve their yields and the quality of certain crops. In 2020, SQM's revenues from the sale of specialty plant nutrients was US$701.7 million, representing 39% of the total revenues for that year.

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 (fertilizer dissolved in water before irrigation).

Specialty plant nutrients have certain advantages over commodity fertilizers. These 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, 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. Leveraging 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. Pursuing investment opportunities in complementary businesses to enhance the product portfolio, increase production, reduce costs, and add value to the marketing of the products.

iv. Developing 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. Focusing primarily on the markets where SQM can sell plant nutrients in soluble and foliar applications to establish a leadership position.

vi. Further developing the global distribution and marketing system directly and through strategic alliances with other producers and global or local distributors.

vii. Reducing production costs through improved processes and higher labor productivity to compete more effectively.

viii. Supplying 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, cottonnes 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 though agricultural demand for this product is largely met by local producers. The demand for potassium nitrate in the China is expected to be approximately 400,000 to 420,000 metric tonnesnes, of which approximately 130,000 metric tonnesnes are linked to the tobacco industry and approximately another 120,000 metric tonnesnes are related to horticulture. Of this total, between 15,000 and 35,000 metric tonnesnes of potassium nitrate correspond to imports.

Specialty plant Nutrition: Products

Potassium nitrate, sodium 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 2020, 2019 and 2018:

Table 16-4. Sales volumes and revenue for specialty plant nutrients, 2020, 2019, 2018

	2020	**2019**	**2018**
Sales volumes (thousands of metric tonnes)			
Sodium nitrate	25.6	30.2	25.0
Potassium nitrate and Sodium potassium nitrate	575.2	617.4	673.4
Specialty blends	271.3	238.9	242.5
Blended nutrients and other specialty plant nutrients	164.4	155.3	141.6
Total revenues (in US$ millions)	**701.7**	**723.9**	**781.8**

In 2020, SQM's revenues from the sale of specialty plant nutrients decreased to US$701.7 million, representing 39% of the total revenues for that year and 3.1% less than US$723.9 million for sales of the previous year. Average prices during 2020 were down approximately 2.6%.

It is estimated that SQM's sales volume of potassium nitrate marketed during 2020 represented close to 50% of the total potassium nitrate marketed in the world for all its applications (including agricultural use). During 2020, the agricultural potassium nitrate market increased approximately 5% when compared to 2019. 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 specialty field fertilizer [SFF]) or soluble (also known as water soluble fertilizer [WSF]).

Granulated specialty nutrients are those for direct application to the soil, either manually or mechanically. These are highly soluble, are free of chloride and do not present acid reactions, which makes them especially recommended for tobacco, potatoes, coffee, cotton, and for various fruit trees and vegetables.

In the soluble line, the specialty nutrients are typically incorporated into irrigation systems. Due to the high-tech characteristics of these irrigation 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 2020, SQM sold specialty plant nutrients in approximately 102 countries and to more than 1,100 customers. No customer represented more than 10% of specialty plant nutrition revenues during 2020, and the ten largest customers accounted in the aggregate for approximately 33% of revenues during that period. No supplier accounted for more than 10% of the costs of sales for this business line.

Sales breakdown	**2020**	**2019**	**2018**
North America	35%	34%	31%
Europe	21%	21%	26%
Chile	14%	15%	14%
Central and South America (excluding Chile)	10%	11%	10%
Asia and Others	20%	20%	19%

Note: Totals may not add 100% due to rounding

The following table shows the geographical breakdown of the sales:

Table 16-5. Geographical breakdown of the sales

Sales breakdown	2020	2019	2018
North America	35%	34%	31%
Europe	21%	21%	26%
Chile	14%	15%	14%
Central and South America (excluding Chile)	10%	11%	10%
Asia and Others	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

SQM is the largest producer of sodium nitrate and potassium nitrate for agricultural use in the world. The main competitive factors in potassium nitrate sales are product quality, customer service, location, logistics, agronomic expertise, and price.

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 18% of total world sales during 2020 (excluding sales by Chinese producers to the domestic Chinese market). SQM’s sales represented approximately 48% 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 Yuantonnesg 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 earlier.

16.3.2 Industrial Chemicals, Market, Competition, Products, Customers

In 2020, the SQM´s revenues from Industrial Chemicals sales amounted to US$160,6 million, representing 8,8% 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) Be a 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.

SQM supplies solar salts to CSP projects around the world. In 2020, it sold approximately 160,000 metric tonne of solar salts to supply a CSP project in the Middle East and targeted to supply over 400,000 metric tonne to this project between 2020-2022. In addition, there are ten major projects currently under development worldwide that SQM could supply through 2025. As a result, SQM´s sales volumes of this product are expected to surpass 1 million metric tonne through 2025. As a result, SQM´s sales volumes of this product is expected to surpass 1 million metric tonne for the 2020-2025 period.

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 increased to US$160.6 million in 2020 from US$94.9 million in 2019, as a result of higher sales volumes in this business line. Sales volumes in 2020 increased 82.3% compared to sales volumes reported last year.

The following table shows the sales volumes of industrial chemicals and total revenues for 2020, 2019 and 2018:

Table 16-6. Sales volumes of industrial chemicals and total revenues for 2020, 2019 and 2018

	2020	2019	2018
Sales volumes (thousands of metric tonne)			
Industrial chemicals	225.1	123.5	135.9
Total revenues (in US$ millions)	**160.6**	**94.9**	**108.3**

Industrial Chemicals: Marketing and Customers

In 2020 SQM sold industrial nitrate products in 54 countries to 268 customers

No supplier accounted for more than 10% of the cost of sales of this business line.

Sales breakdown	**2020**	**2019**	**2018**
North America	15%	29%	25%
Europe	7%	16%	16%
Chile	3%	42%	4%
Central and South America (excluding Chile)	3%	7%	11%
Asia and Others	72%	6%	43%

Note: Totals may not add to 100% due to rounding

The following table shows the geographical breakdown of the revenues for 2020, 2019 and 2018:

Table 16-7. Geographical breakdown of the revenues

Sales breakdown	**2020**	**2019**	**2018**
North America	15%	29%	25%
Europe	7%	16%	16%
Chile	3%	42%	4%
Central and South America (excluding Chile)	3%	7%	11%
Asia and Others	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 2020, SQM's estimated market share by volume for industrial potassium nitrate was 73% and for industrial sodium nitrate was 44% (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.

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 16% for 2020. SQM's market share was approximately 73% for 2020. 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 $35/kg for iodine at the port of Tocopilla is the appropriate price for this study. Nitrates are more complicated since varios products are produced based on market conditions, however the QP has determined that an appropriate average price for nitrates at Tocopilla is $US680. 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 Impact Study (EIA) process requires that data be gathered on many components and consultations be held to inform the Project relevant stakeholders. The main results of this inventory and consultation process are also documented in this section. The design criteria for the water and mining waste infrastructure are also outlined. Finally, the general outline of the mine's rehabilitation plan is presented to the extent of the information available at this point in time.

17.1 Environmental Studies

The Law 19.300/1994 General Bases of the Environment (Law 19.300 or Environmental Law), its modification by Law 20.417/2010 and Supreme Decree N°40/2012 Environmental Impact Assessment 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 TEA projects, has been submitted to the SEIA a total of 13 times, on account of the following projects:

- Groundwater Extraction from Salar Sur Viejo Project submitted through a DIA and approved by RCA 36/ 1997
- Lagoons project submitted through an EIA and approved by RCA N° 58/1997
- Nueva Victoria Expansion submitted through a DIA and approved by RCA N° 163/2005)
- Llamara Pipeline Project submitted through a DIA and approved by RCA N° 32/ 2005)
- Nueva Victoria Sur Mine submitted through a DIA and approved by RCA N° 173/ 2006
- Modification of Nueva Victoria Iodide Plant submitted through a DIA and approved by RCA N° 94/2007
- Chlorine Incorporation at Nueva Victoria Iodine Plant submitted through a DIA and approved by RCA N°70/2008)
- Nueva Victoria Operation Update submitted through a DIA and approved by RCA N°124/2008
- Nueva Victoria Mine Area submitted through an EIA and approved by RCA N°42/2008)
- Iris Evaporation Pipeline and Ponds submitted through a DIA and approved by RCA N° 61/ 2009
- Pampa Hermosa project submitted through an EIA and approved by RCA N° 890/2010

- Nueva Victoria South Mine Zone Expansion submitted through a DIA and approved by RCA N°76/ 2012
- TEA submitted through an EIA and approved by RCA N° 20210100112/2021

In addition, an Environmental Impact Study (EIA), “Partial modification of the reinjection system in the Llamara reservoirs”, was submitted to the SEIA on July 17, 2020 and is in process of being qualified.

17.1.1 Baseline Studies

Each time the project has been submitted to the SEIA, baseline environmental studies were 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

Regarding the hydrology of the site, the average annual precipitation has a value of less than 2 mm in recent years, with many years with zero precipitation. The maximum 24-hour rainfall 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 in the sector’s ravines are capable of containing 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. The annual flow of the wells varies between 0.2 and 40 L/s, totaling 68.86 + 168.8 + 12.4 = 250.06 L/s.

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 m2/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 hydrochemical information, the water in the area corresponds to the chloride-sodium type.

Figure 17-1. Location of Wells with Granted Water Rights

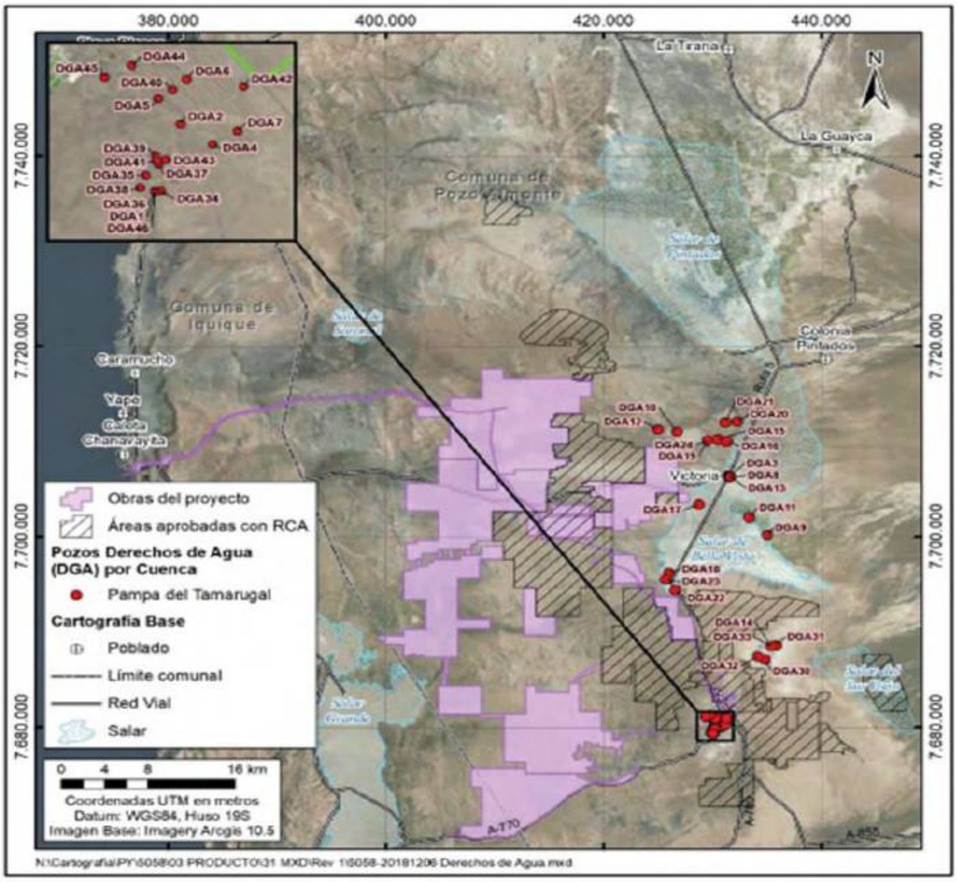
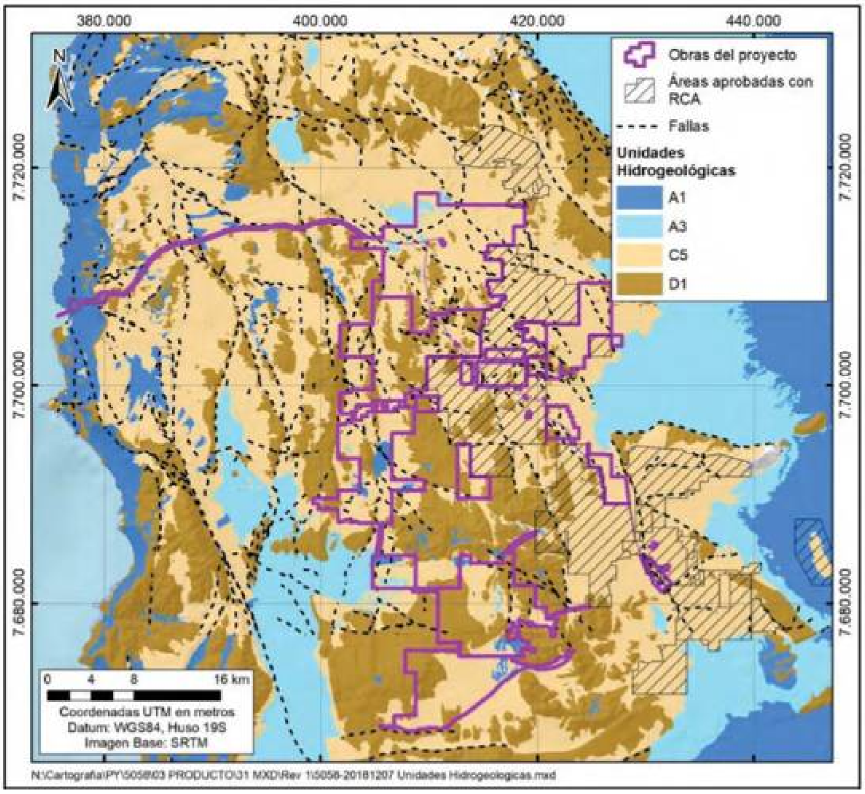


Figure 17-2. Hydrogeologic Map of the Area of Background Collection



Soil

The soils present in the project 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%).

In general terms, the sector's soil 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 of these characteristics place all of 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").

As a result of all the findings, it is indicated that the soil resource present in the area of influence of the project would not be 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

Regarding the vegetation in the area of 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 in the area of 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* preservation were detected, because it is a scarce area and because of the presence of a species classified as Endangered; however, the project estimates that there will be no impact on 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:

Endangered: black tern, little tern.

Vulnerable: Garuma Seagull, Nun Seagull, Humboldt penguin, Guanay, Stolzmann's dragon, Chungungo (detected exclusively in the Patillos Islet sector).

Near threatened: Northern mouse-eared bat.

Rare: Teresa's Runner

Insufficiently known: Tamarugal sebo-eater, Lile;

Least Concern: Four-banded racer, Booby, Common sea lion, Great northern gecko, Chilla fox, Culpeo fox.

Six exotic species were detected: 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 Procellaridae family 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. Thirty-six 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 Patillos Bay and a sector north of Caleta Caramucho.

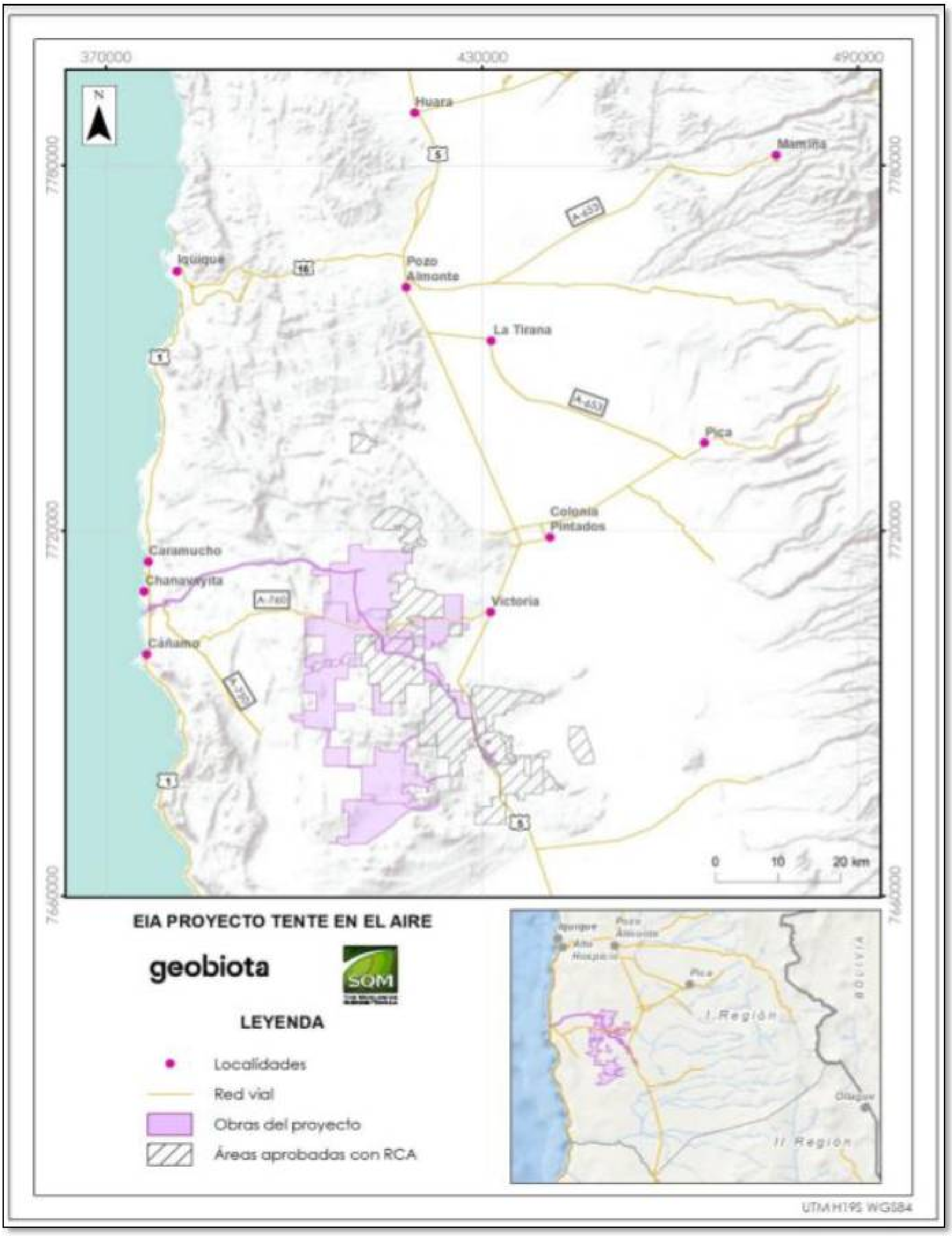
In the sampling period (winter 2017 to winter 2018) the number of identified phytoplanktonnes taxa varied between 41 and 47; of zooplanktonnes varied between 24 and 68.

With respect to fish, 16 taxa were found, the most abundant being burrito (C. crusma), bilagay (C. variegatus) and borachilla (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 in the sector did not show paleontological findings of interest during prospecting; however, the Coastal Deposits unit (PIHI) shows a medium to high potential, having shown a finding of fossil pieces in the field, in addition to its characteristics.

With respect to archaeology, a survey found 3.017 heritage elements in the area of influence of the project. They were classified into five categories: 761 point type finds, 194 aeral type finds, 239 linear type finds, 71 lithic sites and 1.752 caliche pits. The linear elements were mostly classified as roadways, totaling almost 410 km in length. The specific finds are divided into isolated finds, signaling structures, animal skeletonne and stonnese inscriptions. With respect to the time period of the finds, 76% were dated as chronologically historical, with 5.5% dating to pre-Hispanic times.

17.1.2 Environmental Impact Study

Regarding the Pampa Hermosa Project, based on the results of the EIA (Section 5), the 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.

Table 17-1 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 (puquios)	Operation	Mitigation	Implementation of a hydraulic barrier: consist of injecting water between the pumping sector and the ponds, in order 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 Puquios and hydromorphic vegetation.

Impact	Phase in which it Occurs	Type of Measure	Measures
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 of time. 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.

Impact	Phase in which it Occurs	Type of Measure	Measures
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 Humberstonnese
			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 undergoing a sanctioning process (Sanctioning File D-027-2016) due to violations detected by the authority during 2016 in relation to non-compliance with certain commitments established in the Environmental Assessment Resolution (RCA 890/2010) of the project, mainly associated with the water resource and its impact on environmental systems (púquios, tamarugos). In this line, in 2019 SQM presented a suitable plan to address this issue: a revised and corrected Environmental Compliance Program, that incorporates the observations made by the authority, complying with the established contents and criteria and legal requirements to ensure compliance with the infringed requirements.

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, 20 reports have been submitted on the status of compliance with the Environmental Compliance Program and no new charges or economic sanctions have been filed. However, constant monitoring of the 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 “Puquios 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 Puquios of Llamara.

So, if this project is approved, it will modify the measure of water injection in the reservoirs.

Regarding the TEA project, it aims to incorporate to the “Nueva Victoria” mine new mine areas for the production of iodide, iodine and nitrate-rich salts, which entails an increase in the total amount of caliche to be extracted, in the production of iodide, iodine and nitrate-rich salts 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 included in Table 17-2.

Table 17-2. Environmental Impacts of the TEA 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.

Impact	Phase in which it occurs	Type of measure	Measures
Alteration of archaeological cultural heritage Alteration of paleontological 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.
			MC3- Intensive archaeological survey and documentation
			MC4- Protection of the exclusion area

Source: Own elaboration, based on information obtained from RCA N° 890/210

Industrial Chemicals: Marketing and Customers

In 2020 SQM sold industrial nitrate products in 54 countries to 268 customers. One customer accounted for more than 10% of SQM´s revenues of industrial chemicals in 2020, accounting for approximately 69%, and the ten largest customers accounted in the aggregate for approximately 79% of such revenues/2021

17.2 Operating and Post Closure Requirements and Plans

17.2.1 Waste Disposal Requirements and Plans

Two types of waste are generated during mining operations. Mineral and non-mineral wastes.

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.

To this purpose, the Nueva Victoria site has the Sectorial Permit for Stockpiling of Discard 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 waste dump.), additionally, it has the corresponding environmental authorization.

Currently, the discarded salts are deposited in stockpiles in the industrial area of Sur Viejo (in an area of approximately 1,328 ha that also includes storage areas for the final product). However, in the TEA project (environmentally approved in November 2021), which expands the current operation of Nueva Victoria, a new deposit is considered to dispose of the discarded salts from the evaporation ponds and the waste from the neutralization process. This new deposit will have a surface area of 360 ha in which material accumulation cakes up to 50 m high will be placed, resulting in a total estimated capacity of 102,500,000 t (4,997,000 tpy of discarded salts and 110,150 tonnes/year of gypsum). These salts are neutral and do not present health risks as declared to the authority.

Regarding the management of these deposits, it should be noted that the hygroscopic properties of the salts that make up the deposits favor compaction and subsequent cementation.

Given these characteristics (salts that form a crust and the level of final impregnation in brine of the residue from the neutralization process is approximately 20%), no emissions of particles, or gases are generated.

Regarding the management of possible effluents, the new deposit will have a perimeter drainage system, which will allow, on one hand, the collection of solutions resulting from the squeeze or runoff generated by impregnation solutions, which will be channeled to 4 collection pools for later be pumped to the evaporation ponds and on the other hand, the function of this drainage system will be the channeling of rainwater.

The discard salt deposits have the commitment of 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 the residue from the BFN process will remain in place.

Non-mineral Waste

All kinds of waste can be classified as non-mineral waste, which in turn can be classified as Hazardous Waste and Non-hazardous Waste, according to current environmental and sector regulations in Chile.

Among the non-hazardous waste associated with this type of project, it is possible to mention solid waste assimilable to domiciliary waste, sludge from the sewage treatment system, containers of non-hazardous inputs, non-hazardous discards, waste associated with maintenance and generated products of the actions taken in contingencies, among others.

Hazardous waste (RESPEL) comes from process discards, used lubricant oil maintenance generated by changing equipment and machinery, batteries, paint residue, 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, including reducing the generation of industrial waste by 50% by 2025.

17.2.2 Monitoring and Management Plan Established in the Environmental Authorization

The contents of the Environmental Monitoring Plan agreed upon 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 would be used to characterize the status and evolution of said component, Permitted or committed levels or limits, Duration and frequency of the monitoring plan according to the project stage, Delivery of Report with monitoring results, Indication of the competent body that would receive said documentation, and Location in the Evaluation History.

The Hydrogeological Environmental Monitoring Plan for the "Pampa Hermosa" Project is the same environmental monitoring plan [Plan de Seguimiento Ambiental (PSA)] of the Llamara Aduction Project (committed through RCA Nº32/05 and modified according to Resolution Nº097/07). Thus, the commitments of the Aducción Llamara PSA will be incorporated to the Pampa Hermosa PSA.

For the implementation of the TEA project, a monitoring plan for the different components was committed. This plan establishes 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-educational publication on local and regional paleontology; creation of archeological cultural heritage protection areas; permanent archeological monitoring during construction; induction talks on archeology; and intensive archeological survey and documentation. Also, improvement or fitting out of the warehouse of the Corporación Museo del Salitre for the conservation of cultural heritage pieces.

- Regarding the wild animals component, the follow-up plan includes exclusion of mining area in tern nesting sites; modification of layout and establishment of precautionary areas in linear works in tern nesting sites; Chanavayita little tern nesting site; protection of exclusion area; study of the ecology, phenology and ethology of the tern (Procellariformes: Hydrobatidae) in the Pampa Hermosa; research program on increasing habitat use at the "Pampa Hermosa" nesting site.

17.2.3 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 continental water 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. The monthly average extraction flow reported during the years 2020 and 2021 was approximately 630 L/s.

Table 17-3. Monthly Average Flow Period 2020-2021-Nueva Victoria

Sur Viejo (L/s)	Llamara (L/s)	Iris (L/s)	Soronal (L/s)	CPC (L/s)	Total flow (L/s)
105	225,5	61	126	119	636
17%	35%	10%	20%	19%	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)	Other Areas	Leaching (L/s)
2%	4%	1%	1%	0%	8%	84%

The information on water extraction n from natural sources is public, being reported to the Chilean Regulatory Authority via the reporting component of the PSA.

The PSA fulfills the objective of monitoring the ecosystems which might be affected by a project, thereby guaranteeing their conservation and the continuance of the ecosystem services that they supply. Hydrogeological reporting, includes groundwater levels, the hydrochemical quality of groundwaters and surface waters, and the rates and cumulative volumes of pumping from supply wells and surface water abstraction points.

The PSA also documents the mitigation measure of injecting water to generate a hydraulic barrier to protect the Puquíos wetlands against drawdown in the water table associated with the extraction of groundwater from the Llamara aquifer. The chemical quality of the injected water is controlled to ensure that the hydrochemistry of the groundwaters of the Puquíos wetlands is not adversely affected. Currently, SQM is seeking approval from the regulatory authority for modifications to this mitigation measure in relation to the period of injection of water into the aquifer and the operational rule to ensure the protection of the wetland ecosystem.

As stated in the current Closure Plan (Res 1858/2015) for the Nueva Victoria site, the works or actions contemplated for closure in relation to water resources are the disabling of pumping wells and the removal of all infrastructure associated with the operation.

The EIA Modification of the Injection System (in evaluation by the regulatory authority) would contemplate prolonging the injection of water by 15 years in the closure phase compared to what was initially considered in the EIA of Pampa Hermosa (8 years).

17.3 Environmental and Sectorial Permit Status

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.

The project has been submitted 13 times to the SEIA. In 9 cases the projects were submitted through Environmental Impact Statements (DIA) and in 4 cases through EIAs and in all cases the projects were authorized by the environmental authority. Section 17.1 contains the environmental authorization for each project.

Additionally, the Project required different sectorial permitting for operating. Table 17-5. 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 for stockpiling mining waste	136	Res. Ex. N° 1602/10; Res. Ex. N° 2552/15; Res. Ex. N° 2959/16; Res. Ex. N° 1570/2020; Res. Ex. N° 2129/20; Res. Ex. N° 1032/09 A new application was submitted for approving by the National Mining Service in July 2020. The application is currently in process.
Approval of the mining closing plan	137	Res. Ex. N°376/09; Res. Ex. N° 515/12; Res. Ex. N° 49/14. An update of the closure plan was submitted to the National Mining Service for it approval in June 2020.
Permit for the construction, modification and expansion of any public or private work for the evacuation, treatment or final disposal of sewage water	138	Res. Ex. N° 2543/06; Res. Ex. N° 1970/13; Res. Ex. N° 3428/14; Res. Ex. N° 3079/11; Res. Ex. N° 3427/14; Res. Ex. 3429/14; Res. Ex N° 339/18.
Permit for the construction, modification and expansion of any garbage and waste treatment plant of any kind; or for the installation of any place for the accumulation, selection, industrialization, trade or final disposal of garbage and waste of any kind.	140	Res. Ex. N° 1813/06; 2167/14, Res. Ex. N° 2547/10; Res. Ex. N° 758/18; Res. Ex. N° 2482/19; Res. Ex 17581/21.
Permit for the construction of a site for the storage of hazardous wastes	142	Res. Ex. N° 81/18; Res. Ex. N° 753/18
Permit for the hunting or capture of specimens of animals	146	
Permit for the construction of some hydraulic works	155	The application was submitted for approving by the Water General Directorate in November 2020 for the seawater pools and in June 2020 for the evaporation pools. Both applications are currently in process.
Permit for the modification of a watercourse	156	The application was submitted for approving by the Water General Directorate in June 2020 for the evaporation pools. The application is currently in process.
Permit to subdivide and urbanize rural land to complement an industrial activity with housing, to equip a rural sector, or to set up a spa or tourist camp; or for industrial, equipment, tourism and population constructions outside the urban limits.	160	Res. Ex. N° 577/11. A new field is being elaborated for an updating of the permit.
Permit for the qualification of industrial or warehousing establishments.	161	Res. Ex. N° 686/14

Source: Own elaboration based on letter sent by SQM

Additionally, an authorization of the Method of exploitation is required. These authorizations are:

- Res. Ex 1447/2018. Exploitation method update – Office Iris
- Res. Ex. 1646/2011. Approves the Project "Updating Nueva Victoria Operation".
- 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.

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 both from previous commitments and from programs associated with corporate policies on community relations, for example:

- Registration of the community hotline, as a permanent communication mechanism.
- Hydrogeological environmental monitoring plan for Pampa Hermosa (Pampa Tamarugal and Salar Llamara).

Working groups with different communities and territories:

- Bellavista Sector: there is a Memorandum of Understanding and Agreement that incorporates Voluntary Environmental Commitments (VEC), in the framework of the TEA EIA (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).
- Quechua Huatacondo Indigenous Community: there is also a Memorandum of Understanding and VEC. In this context, there were minutes in sight - between December 2020 and June 2021 - regarding the implementation of an Environmental Education Center in the Llamara sector. This project will be developed in coordination with the National Forestry Development Corporation (CONAF). There was also a report on a field visit to the Copaquire sector (Mrs. Sabina Segovia).

- Aymara Indigenous Community of Quillagua: as in the previous cases, they are part of the Memorandum of Understanding and VEC. Accordingly, records of meetings held between June 2020 and August 2021 were presented, which addressed issues such as: Enviro Program Report; Chug Chug Park; Quillagua Development Plan; Algarrobo Park Project; land lease; Foundation, and "Quebrada Amarga" sector, 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 above, a standard format document or agreement 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; working table and operation; obligations of the parties; environmental commitments for the sustainability of the territory; communications between the parties; dispute resolution; mechanisms for reviewing the agreement; assignment of rights; anti-corruption clause; other commitments; term of the agreement; domicile.

Nevertheless, within the framework of the company's relationship policies, the following working groups are maintained:

IQUIQUE:

1. Chanavayita Fishermen's Union N° 5 Working Group.
2. Working table of Fishermen's Union N°6 Chanavayita.
3. Working table Fishermen's Union N°1 Caramucho (Coastal Union Grouping).
4. Working table Fishermen's Union N°2 Caramucho (Grouping of Coastal Unions).
5. Working table Sindicato de Pescadores Cáñamo (Grouping of Coastal Unions).

POZO ALMONTE:

1. Working group of the Multiethnic Association Tierras de Jehovah.
2. Aymara Indigenous Aymara Youth of the Desert Association Working Group.
3. Working group Junta de Vecinos de Oficina Victoria.
4. Working Group with Efrain Choque Family, Bellavista Sector.
5. Working Group with Sandra Vicentelo Family, Tamentíca.
6. Alfalfa Production Center Working Group (with CONAF and Pampa del Tamarugal Indigenous Aymara Campesino Association).
7. Tarapacá Dairy Farmers' and Dairy Cooperative Working Group.

17.4.2 Commitments to Local Procurement or Hiring

Notwithstanding the above, 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 Tarapacá Suppliers Program.
- Program for the Development of Agricultural Suppliers in the Province of Tamarugal.

17.4.3 Social Risk Matrix

There is no specific risk matrix to evaluate these aspects at the corporate level. In the framework of the work meetings for the preparation of this report, it was indicated that there are initiatives to evaluate these aspects but that they lack a specific program or derive from a specific commitment or goal.

17.5 Mine Closure

This sub-section contains forward-looking information related to mine closure for the Project. The material factors that could cause actual results to differ materially from the conclusions, estimates, designs, forecasts or projections in the forward-looking information include any significant differences from one or more of the material factors or assumptions that were set forth in this sub-section including prevailing economic conditions continue such that 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 Reclamation Plans

During the abandonment stage of the Project, the measures established in the Closure Plan “Faena Nueva Victoria” approved by the National Geology and Mining Service (SNGM), through Resolution No. 1858 of 2015, modified by Resolution No 2817 of 2015, will be implemented.

Among the measures to be implemented are the removal of metal structures, equipment, materials, panels and electrical systems, de-energization of facilities, closure of accesses and installation of signage. The activities related to the cessation of operation of the Project will be carried out in full compliance with the legal provisions in force at the date of closure of the Project, especially those related to the protection of workers and the environment.

However, currently the Closure Plan Update (includes the TEA Project) is in processing and pending approval by the authority, in compliance with the provisions of Law 20.551 that “Regulates the Closure of Mining Sites and Facilities” since 2012. This update includes all closure measures and actions included in the documents of the Environmental Qualification Resolution (RCA) and sectorial Resolutions, including the closure plans: Res Exe. N° 376/2009 “Plan de Cierre Faena Iris”, Res Exe. N°515/212 “Pampa Hermosa: Actualización Método de Explotación, Tratamiento de Minerales y Plan de Cierre”, Res Exe. N° 049/2014 “Paralización temporal parcial de la Planta de Yodo de Iris”, Res Exe. N°1858/2015 “Plan de Cierre para la Faena Minera Nueva Victoria” modified by Resolution N°2817/2015.

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 stockpile, slope stabilization measures will be carried out in the post-closure phase, as indicated in Addendum 1 of the Closure Plan in process. For the closure of the leach heaps, the removal of structures, equipment, electrical equipment, concrete structures, support structures and piping will be considered, along with the closure of access and installation of closure signage. For the closure of the solar evaporation ponds, 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 facilities, the measures are also aimed at protecting the safety of people and animals, and are basically the removal of structures, closure of roads, installation of signage, de-energization of the facilities and perimeter closures, and leveling of the terrain.

All measures are of the "Personal Safety" 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 the 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 as a result 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

Register	Risk	Description of Risk	Level Nueva Victoria	Level Project Tea	Significance
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 as a result 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).

17.5.2 Closure costs

The total amount of the closure of the Nueva Victoria and TEA Project mine site, considering closure and post-closure activities, adds up to 271.135 UF (Unidad de Fomento), 258.899 UF for closure and 12.236 UF for post-closure. Below is a summary of the costs reported to the authority in the Nueva Victoria Mine Closure Plan Update (in process) (see Table 17-7 and Table 17-8).

Table 17-7. Nueva Victoria Mine Site Closure Costs

Item	Total (UF)
Total direct closing cost	164.820
Indirect cost and engineering	16.482
Contingencies (20% CD + CI)	36.260
Subtotal	217.562
IVA (19%)	41.337
Closing Plan Amount (UF)	258.899

Source: Annex 5, Addendum 2 to the Closure Plan Update Nueva Victoria and TEA project mine (in process)

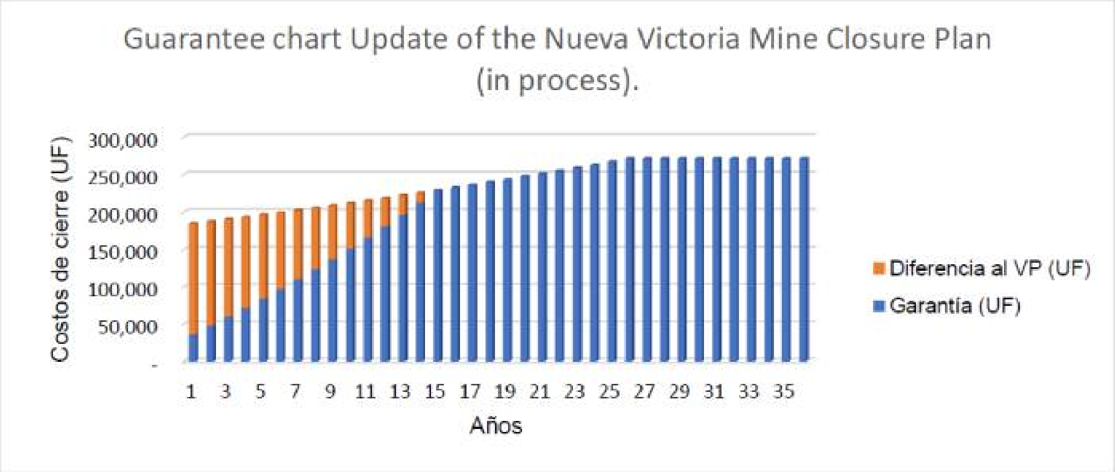
Table 17-8. Nueva Victoria Mining Site Post-closure Costs

Item	Total (UF)
Total direct closing cost	710
Indirect cost and engineering	71
Contingencies (20% CD+CI)	156
Subtotal	937
IVA (19%)	178
Closing Plan Amount (UF)	12.236

Source: Annex 5, Addendum 2 to the Closure Plan Update Nueva Victoria and TEA project mine (in process)

The result of the calculation of the useful life for the Nueva Victoria mine according to the "Nueva Victoria - Statement of Useful Life of the Mining Operation" performed by SQM (2020) by qualified person is 21 years. However, the constitution of the guarantees was carried out considering the total cost of the Closure Plan, and a useful life of 26 years, as stated in the Closure Plan in Process. The development of the constitution of guarantees is shown in Figure 17-4.

Figure 17-4. Guarantee Chart Update of the Nueva Victoria Mine Closure Plan (in process)



Source: Annex 5, Addendum 2 to the Closure Plan Update Nueva Victoria and TEA project mine (in process)

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

18.1 Capital Costs

The facilities for lithium and potassium production operations manly 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 2020, the capital cost invested in these facilities was reportedly about USD 814 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 and Iris Operations

	Capital Cost %	**Capital Cost Millions of USD**
Category	**100%**	**813,727**
Caliche Mining	27%	222,081
Heap Leaching	16%	134,007
Iodide & Iodine Plants	20%	162,276
Solar Evaporation Ponds	20%	166,096
Water Resource Provision	10%	79,817
Electrical Distribution System	3%	23,856
General Facilities	3%	25,593

The net book value as of January 1, 2022 was reportedly about USD 240.6 and according to SQM will be depreciated over the next 6 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 mx 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, eventually 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.

18.2 Future Investment

During 2020, progress was made in the development and environmental approvals of the TEA Project. In November 2021, the Environmental Assessment Commission of the Tarapacá Region agreed to favorably classify the TEA 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. This entails an increase in caliche extraction and in the use of water to support the processes.

The proposed moidfications consist of:

a) New mining areas (approx. 43,586 ha), with a caliche extraction rate of 28 Mtpy, resulting in a total extraction rate of 65 Mtpy.

b) Two new iodide production plants (6,000 tpy each) resulting in a total capacity of 23,000 tpy.

c) A new iodine production plant (12,000 tpy), resulting in a total capacity of of 23,000 tpy.

d) New evaporation ponds to produce nitrate-rich salts (1,950,000 tpy), resulting in a total capacity of 4,000,000 tpy.

e) A new neutralization system and seawater intake (900 L/s maximum) from the Bahía Patillos sector to the mining area.

f) A new electric transmission line from the National Electric System.

g) The construction of a seawater pipeline.

Additional capital for the LOM is estimated to be USD593 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.

18.3 Operating Cost

The main costs to produce Iodine and Nitrates at Nueva Victoria can be separated into three primary areas:

1. Common
    a. Mining
    b. Leaching
    c. Seawater
2. Iodine Production
    a. Solution costs
    b. Iodide Plant
    c. Iodine Plant
3. Nitrate Production
    a. Solution Cost
    b. Ponds and Preparation
    c. Harvesting and production
    d. Personnel and Administrative
    e. Transport to Coya Sur

Estimated aggregate unit operating costs are presented in Table 18-3. These are based on hisotircal unit operating costs provided by SQM for each of the sub-cateopries listed above.

Over the LOM, 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 18-2. Estimated Investments

Investments (M US$)	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Sea Water Pipeline	140	30					20	73	77										
Nueva Victoria	10	16	48	3	20	21	44	20	21	22	45	27	49	51	36	40	59	34	27

Table 18-3. Nueva Victoria Operating Cost

Cost Category	Estimated Unit Cost
Common (Mining / Leaching/ Seawater)	3.76 US$/tonne caliche
Iodine Production (including transport to ports)	16,000 US$/tonne iodine
Nitrates Production	83.6 US$/tonne nitrate
Nitrates Transport to Coya Sur	23.1 US$/tonne 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.

WSP utilized operating costs and capital expense estimates provided by SQM. SQM is a well-established operation with a long history and the staff well experienced in the planning and cost estimation for all aspects of the operation. Therefore, since estimates are based on actual operating experience, it is WSP opinion that the costs provided and considered for this study meets the requirements of accuracy and contingency required of a pre-feasibility level study for the economics required to support Mineral Reserve estimates.

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 Q4 2021 US$.

19.2 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 currently under review by SQM and is presented in a separate TRS. Once developed, the Pampa Orcoma Project will result in a decrease in caliche production at Nueva Victoria. However, Donald Hulse is the QP's opinion that this decreased production will not impact the economic viability of the of the Nueva Victoria mineral reserves.

19.3 Prices and Revenue

An average sales price of USD 35/kg (USD 35,000/t) 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 USD 295/t was assumed for nitrates based on an average sales price of USD 680/t for finished fertilizer products sold at Coya Sur, less USD 275/t for production costs at Coya Sur and the remaining margin distributed amongst the various operations which supply nitrates and potassium to the Coya Sur facilities.

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 Life-of-Mine Production

DESCRIPTION	UNITS																				
MATERIAL MOVEMENT																					
Nueva Victoria Sector Ore Tonnage	**Mt**	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	4.2	4.3	4.5	4.6	4.8	4.9	5.0	5.2	5.3	5.4	**192.2**
Iodine (I_2) in situ	ppm	438	427	407	397	397	396	396	404	423	450	451	449	451	447	452	452	445	452	449	**420**
Average grade Nitrate Salts ($NaNO_3$)	%	5.3%	5.3%	4.2%	4.2%	4.1%	4.0%	4.0%	4.4%	5.5%	3,7%	3,7%	3,8%	3,6%	3,9%	3,6%	3,5%	4,1%	3,6%	3,8%	**4.3%**
Tente en el Aire (TEA) Sector Ore Tonnage	**Mt**	9.0	7.0	7.0	10.0	10.0	7.0	7.0	7.0	7.0	22.7	23.5	24.2	25.0	25.7	26.4	27.2	27.9	28.7	29.4	**331.7**
Iodine (I_2) in situ	ppm	439	429	434	408	408	407	407	410	404	393	394	392	394	391	395	395	389	394	392	**398**
Average grade Nitrate Salts ($NaNO_3$)	%	6.3%	6.2%	5.9%	4.7%	4.6%	4.5%	4.5%	4.6%	4.8%	4.1%	4.0%	4.1%	4.0%	4.3%	3.9%	3.8%	4.4%	3.9%	4.2%	**4.3%**
Hermosa Sector Ore Tonnage	**Mt**	19.0	21.0	21.0	18.0	18.0	21.0	21.0	21.0	21.0	18.5	19.1	19.7	20.3	20.9	21.5	22.2	22.8	23.4	24.0	**393.5**
Iodine (I_2) in situ	ppm	433	422	427	423	423	422	422	416	410	453	454	453	455	451	456	456	449	455	452	**439**
Average grade Nitrate Salts ($NaNO_3$)	%	6.7%	6.6%	6.4%	6.7%	6.6%	6.5%	6.4%	6.3%	6.5%	5.0%	4.9%	5.1%	4.9%	5.2%	4.8%	4.7%	5.4%	4.8%	5.1%	**5.7%**
TOTAL ORE MINED (CALICHE)	**Mt**	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0	44.0	45.5	47.0	48.4	49.9	51.4	52.9	54.4	55.8	57.3	58.8	**917.4**
Iodine (I_2) in situ	kt	19	19	19	18	18	18	18	18	18	19	20	20	21	22	22	23	23	24	25	**385**
Yield process to produce prilled Iodine	%	48.9%	45.8%	48.1%	52.8%	51.7%	55.3%	55.9%	60.0%	61.9%	68.3%	68.5%	67.9%	68.4%	67.5%	68.5%	68.6%	66.8%	68.3%	67.5%	**61.7%**
Prilled Iodine produced	**kt**	9.4	8.6	8.9	9.5	9.3	10.0	10.1	10.9	11.3	13.1	13.6	13.9	14.5	14.6	15.4	15.9	15.6	16.6	16.7	**237.8**
Nitrate Salts in situ	kt	2,693	2,671	2,416	2,332	2,310	2,314	2,292	2,350	2,583	2,009	2,033	2,181	2,149	2,373	2,226	2,258	2,681	2,429	2,653	**44,953**
Yield process to produce Nitrates	%	42.0%	41.3%	48,3%	61,1%	59,5%	65,3%	66,4%	71,8%	71,9%	77,1%	77,2%	76,9%	77,2%	76,6%	77,3%	77,4%	76,1%	77,2%	76,6%	**69.0%**
Brine Nitrate production for Fertilizers	**kt**	1,131	1,104	1,167	1,424	1,374	1,512	1,522	1,687	1,856	1,549	1,570	1,676	1,659	1,817	1,721	1,747	2,040	1,874	2,032	**30,462**

Table 19-2. Nueva Victoria Iodine and Nitrate Prices and Revenues

PRICES		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	TOTAL
Iodine	US$/tonne	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	**35,000**
Nitrates delivered to Coya Sur	US$/tonne	295	295	295	295	295	295	295	295	295	295	295	295	295	295	295	295	295	295	295	**295**
REVENUE																					
Iodine	US$M	328	300	312	333	327	349	353	380	395	460	477	486	506	510	539	555	546	582	585	**8,324**
Nitrates delivered to Coya Sur	US$M	334	326	344	420	405	446	449	498	548	457	463	494	489	536	508	515	602	553	599	**8,986**
Total Revenues	**US$M**	**662**	**625**	**656**	**753**	**732**	**796**	**802**	**878**	**942**	**917**	**940**	**980**	**996**	**1,046**	**1,046**	**1,071**	**1,148**	**1,134**	**1,185**	**17,310**

19.4 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

COST		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	TOTAL
COMMON																					
Mining	US$M	94	94	94	94	94	94	94	94	94	97	100	103	106	109	113	116	119	122	125	**1,954**
Leaching	US$M	47	47	47	47	47	47	47	47	47	49	50	52	53	55	57	58	60	61	63	**982**
Seawater	US$M			7	6	13	12	12	25	25	25	26	27	28	29	30	30	31	32	33	**392**
Total Mining Cost	**US$M**	**141**	**141**	**148**	**147**	**154**	**153**	**153**	**165**	**165**	**171**	**177**	**182**	**188**	**193**	**199**	**204**	**210**	**216**	**221**	**3,328**
IODINE PRODUCTION																					
Solution Cost	US$M	118	108	112	120	118	126	127	137	142	165	172	175	182	184	194	200	197	209	211	**2,997**
Iodine Plant	US$M	15	14	14	15	15	16	16	T7	18	21	22	22	23	23	25	25	25	27	27	**381**
Iodine Plant	US$M	17	15	16	17	17	18	18	20	20	24	25	25	26	26	28	29	28	30	30	**428**
Total Iodine Production Cost	**US$M**	**150**	**137**	**143**	**152**	**149**	**160**	**161**	**174**	**180**	**210**	**218**	**222**	**232**	**233**	**246**	**254**	**250**	**266**	**268**	**3,805**
Total Iodine Production Cost	**US$/ kg Iodine**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**
NITRATE PRODUCTION																					
Solution Cost	US$M	39	38	40	49	48	52	53	58	64	54	54	58	57	63	60	60	71	65	70	**1,054**
Ponds and preparetion	US$M	30	29	31	37	36	40	40	44	49	41	41	44	44	48	45	46	54	49	53	**801**
Harvest production	US$M	6	5	6	7	7	7	7	8	9	8	8	8	8	9	8	9	10	9	10	**149**
Others (C&A)	US$M	20	20	21	25	24	27	27	30	33	28	28	30	30	32	31	31	36	33	36	**542**
Transport to Coya Sur	US$M	26	25	27	33	32	35	35	39	43	36	36	39	38	42	40	40	47	43	47	**704**
Total Nitrate Production Cost	**US$M**	**121**	**118**	**124**	**152**	**147**	**161**	**162**	**180**	**198**	**165**	**168**	**179**	**177**	**194**	**184**	**186**	**218**	**200**	**217**	**3,250**
Total Nitrate Production Cost	**US$/tonne Nitrate**	**107**	**107**	**107**	**107**	**107**	**107**	**107**	**107**	**107**	**107**	**107**	**107**	**107**	**107**	**107**	**107**	**107**	**107**	**107**	**107**
Closure Accretion	**US$M**																			**11**	**11**
TOTAL OPERATING COST	**US$M**	412	396	415	452	450	474	477	519	544	546	562	583	596	620	629	645	677	681	717	**10,394**
TOTAL OPERATING COST	**US$/tonne Caliche**	9.4	9.0	9.4	10.3	10.2	10.8	10.8	11.8	12.4	12.0	12.0	12.0	11.9	12.1	11.9	11.9	12.1	11.9	12.0	**11.3**

19.5 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 USD170 million in years 2022-2023 and the same amount between 2028-2030.

Additional capital for the MP (2022 to 2040) is estimated to be USD593 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 USD11 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 MP (2022 to 2040) is presented in Table 18-2.

19.6 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 17.3 bilion including sales of iodine and nitrates
- Total Operating Cost: estimated to be USD 10.4 billion.
- EBITDA: estimated at USD6.9 billion
- Tax Rate of 28% on pre-tax gross income
- Closure Cost: estimated at USD 11 million
- Capital Expenditure estimated at USD 933 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 1.6 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.

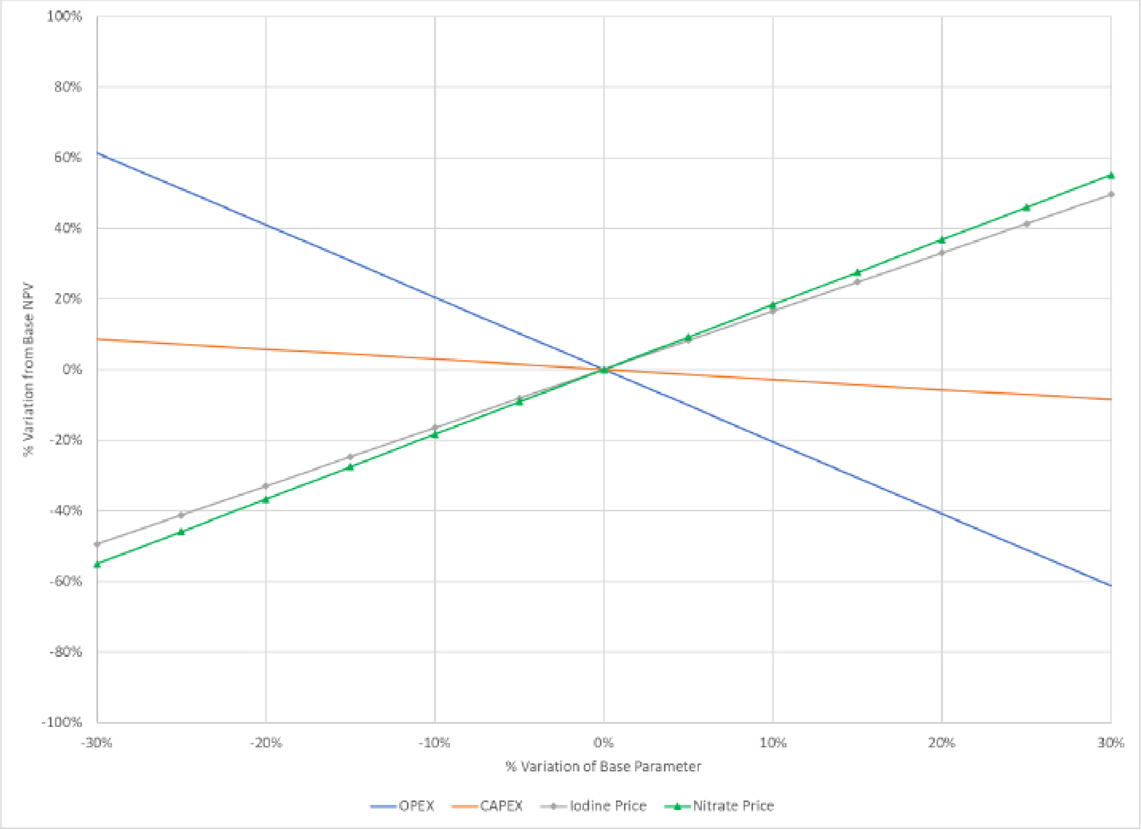
Table 19-4. Estimated Net Present Value (NPV) for the Period

NPV		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	TOTAL
REVENUE																					
Total Revenues	**US$M**	662	625	656	753	732	796	802	878	942	917	940	980	996	1,046	1,046	1,071	1,148	1,134	1,185	17,310
COSTS																					
Total Mining Costs	**US$M**	141	141	148	147	154	153	153	165	165	171	177	182	188	193	199	204	210	216	221	3,328
Total Iodine Production Cost	**US$M**	150	137	143	152	149	160	161	174	180	210	218	222	232	233	246	254	250	266	268	3,805
Total Nitrate Production Cost	**US$M**	121	118	124	152	147	161	162	180	198	165	168	179	177	194	184	186	218	200	217	3,250
Closure Accretion	**US$M**																			11	
TOTAL OPERATING COST	**US$M**	412	396	415	452	450	474	477	519	544	546	562	583	596	620	629	645	677	681	717	10,383
EBITDA	**US$M**	250	230	241	302	282	322	325	359	398	370	378	397	400	426	418	426	471	453	468	6,927
Depreciation	US$M	48	50	52	52	53	54	18	22	27	28	31	32	34	37	39	41	44	45	47	754
Interest Payments	**US$M**	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	570
Pre-Tax Gross Income	US$M	173	150	158	219	199	237	278	306	341	312	317	335	335	359	349	355	397	378	392	5,592
Taxes	28%	48	42	44	61	56	66	78	86	96	87	89	94	94	101	98	100	111	106	110	1,566
Operating Income	**US$M**	124	108	114	158	143	171	200	221	246	225	229	241	241	259	251	256	286	272	282	4,026
Add back depreciation	US$M	48	50	52	52	53	54	18	22	27	28	31	32	34	37	39	41	44	45	47	754
Add back closure accretion	US$M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	11
NET INCOME AFTER TAXES	**US$M**	172	158	166	210	196	225	218	243	273	253	259	273	276	295	290	297	330	317	340	4,791
Total CAPEX	US$M	150	46	48	3	20	21	64	93	98	22	45	27	49	51	36	40	59	34	27	933
Closure Costs	US$M																			11	11
Working Capital	US$M	1	-3	2	10	-3	7	1	6	7	-5	1	3	0	4	-1	1	7	-3	3	38
Pre-Tax Cashflow	US$M	99	187	191	289	265	294	261	260	294	353	332	367	350	371	383	385	404	422	428	5,934
After-Tax Cashflow	US$M	21	115	117	197	180	198	153	144	168	236	213	243	226	240	255	255	263	286	300	3,810
Pre-Tax NPV	US$M	2,492																			
After-Tax NPV	US$M	1,559																			
Discount Rate	US$M	10%																			

19.7 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

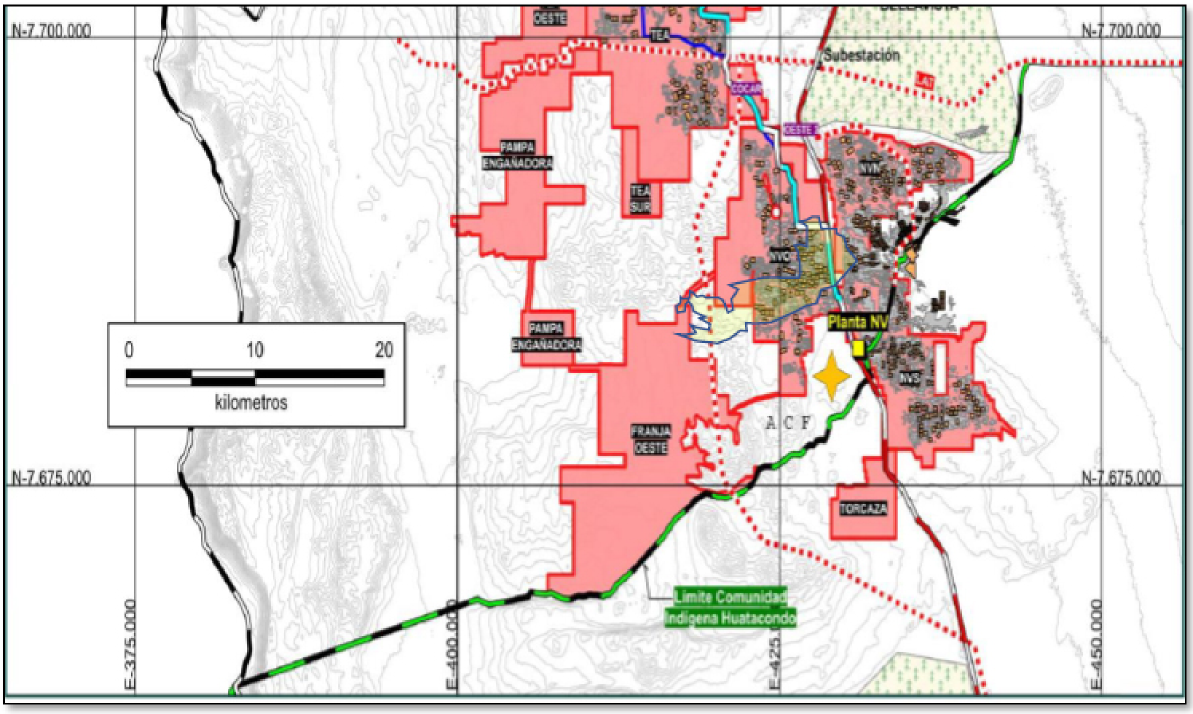
SQM has the right to explore and/or exploit caliche mineral resources in an effective area covering more than 1,565,781 hectares in Northern Chile's Regions I and II. Prospect deposits are located on flat land or "pampas".

- Hermosa Oeste
- TEA Oeste.
- Pampa Hermosa
- Pampa Engañadora
- Hermosa
- Sur fortuna
- Cocar
- Coruña
- Hermosa Sur
- Los Ángeles
- TEA
- Franja 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 2021, a detailed exploration program of 4,100 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



Source: Plano_Recursos_Faena NV (SQM).

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 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 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.

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, WSP 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.

Mr. Donald Hulse 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 N. Victoria project should continue and be integrated into SQM’s corporate plans.

22.1 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.

- Quality control programs for pre-2017 drill campaigns are not recorded. WSP reviewed the available data and found no material issues.

- As of December 31, 2021, the Inferred Resources (exclusive of Mineral Reserves) for iodine and nitrate in Nueva Victoria are 33.4 Mt with a 431 ppm mean grade of Iodine and 5.4% of nitrate. Note that because the caliche deposit is at the surface, all measured and indicated resources has been converted into mineral reserves.

- The average mineral resource concentrations are above the cutoff grades of 300 ppm of Iodine, 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 also the concentration in the mother liquor is monitored in order to eventually detect any situation that may impact the treatment methodologies and the characteristics of its products.

22.2 Risks

22.2.1 Geology and Mineral Resources

- The management of the Nueva Victoria database should be clear and reproducible, keeping only one database containing all sectors and exploration drilling grids. The management and knowledge of the database should not be the responsibility of a single person, but of an entire work team to avoid losses of valuable information.

- All the procedures, methodologies and results should be reported and updated annually, trying to avoid using recycled reports with only some updated tables, leaving outdated or unimportant information.

22.2.2 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.

22.2.3 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.

22.2.4 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.

22.3 Significant Opportunities

22.3.1 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 (50 m and 100T m) 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.

22.3.2 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.

22.3.3 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.

- Use of clayey materials (low permeability) available in discards as soil cover for infiltration management.

23 RECOMMENDATIONS

23.1 Geology and Mineral Resources,

- Construct updated procedures that describe in sufficient detail the activities of capture, administration, and backup of the data.

- 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.

- Improvements are required for the QA/QC program to align with industry best practice and facilitate more meaningful QC

- Maintain original and/or digitized records of collar surveys, geological, and geochemical data in a secure database

- Keep only one database containing all sectors and exploration drilling grids. Quality procedures for data maintenance should be implemented as well as a formal methodology for reviewing laboratory QA/QC information and flagging potential issues.

- Update all the procedures, methodologies, and results in the annual reports.

- 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.

23.2 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.

23.3 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.