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: **November 2026**

Commission file number: **001-38350**

Lithium Argentina AG

(Translation of Registrant's name into English)

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Indicate by check mark whether the registrant files or will file annual reports under cover:

Form 20-F [X] Form 40-F [ ]

SIGNATURE

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.

Lithium Argentina AG
(Registrant)

By: *"Alex Shulga"*
Name: Alex Shulga
Title: Vice President and Chief Financial Officer

Dated: November 6, 2026

EXHIBIT INDEX

Exhibit	Description
99.1	2026 Cauchari-Olaroz S-K 1300 Technical Report, dated effective September 15, 2026
99.2	Consent of Qualified Person (Alexander Cushing)
99.3	Consent of Qualified Person (David Burga)
99.4	Consent of Qualified Person (James Wang)
99.5	Consent of Qualified Person (Jonathan Gibson)
99.6	Consent of Qualified Person (Marek Dworzanowski)
99.7	Consent of Qualified Person (Mark King)

Lithium Argentina

2026 Cauchari-Olaroz S-K 1300 Technical Report
Jujuy, Argentina



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CERTIFICATES

CERTIFICATE OF QUALIFIED PERSON

MARK KING, PHD, P.GEO., FGC

I, Mark King, P. Geo., do hereby certify that:

1. I am an independent geological consultant contracted by Lithium Argentina AG. I am President and Senior Hydrogeologist with Groundwater Insight Inc., 3 Melvin Road, Halifax, Nova Scotia, B3P 2H5, telephone 902 223 6743, email king@gwinsight.com.

2. This certificate applies to the technical report titled "2026 Cauchari-Olaroz S-K 1300 Technical Report, Jujuy Province, Argentina," (the "Technical Report") with an effective date of September 15, 2026.

3. I have the following academic and professional qualifications and experience:
   a. Academic
      i. B.Sc. (Geology), Dalhousie University, Halifax, Nova Scotia, 1982
      ii. M.A.Sc. (Civil Eng.), Technical University of Nova Scotia, 1987
      iii. Ph.D. (Earth Science), University of Waterloo, Waterloo, Ontario, 1997
   b. Professional
      i. Registered Professional Geoscientist (PGeo) of Nova Scotia (membership #84); Serving on Admissions Board of the Association for 15+ years
      ii. Member of Association of Groundwater Scientists and Engineers (membership #3002241)
      iii. Member of Canadian Institute of Mining (CIM) (membership 758876)
   c. Experience and Areas of Specialization Relevant to this Technical Report
      i. Technical involvement in lithium brine projects for the past 15 years, ranging from NI43-101 Reporting to Due Diligence, 40+ brine projects in Chile, Argentina, Nevada, Utah, California, Mongolia, and Germany
      ii. Co-author - CIM Leading Practice Guidelines for Salar-Hosted Lithium Brine MRMR Estimation (Draft, 2025)
      iii. Numerical modelling of groundwater flow and solutes in groundwater
      iv. Field delineation and monitoring of solutes in groundwater
      v. 35 years of experience in groundwater quality and quantity projects.

   I have read the definition of "qualified person set out in S-K 1300 and certify that, by reason of my education, affiliation with a professional association and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of S-K 1300.

4. I visited the Property that is the subject of this Technical Report on several occasions, the most recent being in 2012.

5. I am responsible for Sections 11 and 12, along with those sections of the Summary pertaining thereto.

6. I have had prior involvement with the Property that is the subject of this Technical Report. That involvement was as an author on the Technical Reports titled "Feasibility Study Reserve Estimation and Lithium Carbonate and Potash Production at the Cauchari-Olaroz Salars, Jujuy Province, Argentina," with an effective date of July 11, 2012; "Updated Feasibility Study and Reserve Estimation and Lithium Carbonate Production at the Cauchari-Olaroz Salars, Jujuy Province, Argentina", with an effective of March 29th, 2017; "2026 Cauchari-Olaroz S-K 1300 Technical Report, Jujuy Province, Argentina" and "2026 Cauchari-Olaroz NI 43-101 Technical Report, Jujuy Province, Argentina", both reports with an effective date of February 27, 2026.

7. As of the Effective Date of this technical report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Effective Date: September 15, 2026
Signing Date: November 6, 2026

{SIGNED AND SEALED} [Mark King]

_____
Mark King, P.Geo.

CERTIFICATE OF QUALIFIED PERSON

DAVID BURGA, P.GEO.

I, David Burga, P. Geo., residing at 3884 Freeman Terrace, Mississauga, Ontario, do hereby certify that:

1. I am an independent geological consultant contracted by Lithium Argentina AG.

2. This certificate applies to the technical report titled "2026 Cauchari-Olaroz S-K 1300 Technical Report, Jujuy Province, Argentina," (the "Technical Report") with an effective date of September 15, 2026.

3. I am a graduate of the University of Toronto with a Bachelor of Science degree in Geological Sciences (1997). I have worked as a geologist for a total of 22 years since obtaining my B.Sc. degree. I am a geological consultant currently licensed by Professional Geoscientists Ontario (License No 1836). I have read the definition of "qualified person" set out in S-K 1300 and certify that, by reason of my education, affiliation with a professional association and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of S-K 1300. My relevant experience for the purpose of the Technical Report is:

Exploration Geologist, Cameco Gold	1997-1998
Field Geophysicist, Quantec Geoscience	1998-1999
Geological Consultant, Andeburg Consulting Ltd.	1999-2003
Geologist, Aeon Egmond Ltd.	2003-2005
Project Manager, Jacques Whitford	2005-2008
Exploration Manager - Chile, Red Metal Resources	2008-2009
Consulting Geologist	2009-Present

4. I have visited the Property that is the subject of this Technical Report on January 24, 2017, February 19-21, 2019, June 10-12, 2019, and November 19-21, 2024.

5. I am responsible for Sections 2 to 9, 20, 22, 27, and co-author for Sections 1, and 21 to 24 of the Technical Report along with those sections of the Summary pertaining thereto.

6. I have had prior involvement with the Property that is the subject of this Technical Report. That involvement was as an author on the technical report titled "2026 Cauchari-Olaroz S-K 1300 Technical Report, Jujuy Province, Argentina" and "2026 Cauchari-Olaroz NI 43-101 Technical Report, Jujuy Province, Argentina", both reports with an effective date of February 27, 2026; "Operational Technical Report at the Cauchari-Olaroz Salars, Jujuy Province, Argentina," with an effective date of December 31, 2024; "Updated Feasibility Study and Mineral Reserve Estimation to Support 40,000 tpa Lithium Carbonate Production at the Cauchari-Olaroz Salars, Jujuy Province, Argentina", (the "Technical Report") with an effective of September 30th, 2020; "Updated Mineral Resource Estimate for Cauchari-Olaroz, Jujuy Province, Argentina" (the "Technical Report") with an effective of March 1st, 2019; and the technical report titled "Updated Feasibility Study and Reserve Estimation and Lithium Carbonate Production at the Cauchari-Olaroz Salars, Jujuy Province, Argentina", (the "Technical Report") with an effective of March 29th, 2017.

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

Effective Date: September 15, 2026
Signing Date: November 6, 2026

{SIGNED AND SEALED} [David Burga]

_____
David Burga, P.Geo.

CERTIFICATE OF QUALIFIED PERSON

MAREK DWORZANOWSKI, EUR ING CENG

I, Marek Dworzanowski, EUR ING, CEng, BSc(Hons), FIMMM, HonFSAIMM residing at 25 Rue Paul Doumer, 22950, Tregueux, France, do hereby certify that:

1. I am an independent process consultant contracted by Lithium Argentina AG.
2. This certificate applies to the technical report titled "2026 Cauchari-Olaroz S-K 1300 Technical Report, Jujuy Province, Argentina," (the "Technical Report") with an effective date of September 15, 2026.
3. I graduated from the University of Leeds, United Kingdom, with a BSc (Honours) in Mineral Processing in July 1980. In March 2016, I was appointed as a Visiting Adjunct Professor in Metallurgical Engineering, University of Witwatersrand, South Africa.
4. I became a Fellow of the Southern African Institute of Mining and Metallurgy (SAIMM) in 2006 and my membership number is 19594. I became a Fellow of the Institute of Materials, Minerals and Mining (IMMM) in 2020 and my membership number is 485805. I became a Chartered Engineer (CEng) with the Engineering Council of the United Kingdom in 2020, and my registration number is 357983. I became a European Engineer (EUR ING) in 2022, and my registration number is 34956.
5. I have read the definition of "qualified person" (QP) set out in S-K 1300 and by reason of my education, affiliation with a professional association and past relevant work experience, I fulfill the requirements to be a QP for the Technical Report.
6. I have over 40 years of experience in the mining industry during which time I gained a considerable amount of diverse experience in various senior roles within the areas of mineral processing and hydrometallurgy, production, project execution, project studies, technical consulting and research and development. My relevant experience in lithium brine projects for the purpose of the Technical Report includes operational reviews of producing lithium plants, process consulting support and acting as QP for a number of lithium brine projects including: Minera Salar Blanco Maricunga Project PEA and DFS (Chile), Millennial Lithium Pastos Grandes Project PEA and DFS (Argentina), Advantage Lithium Cauchari Project PEA and PFS (Argentina), NeoLithium 3Q Project DFS (Argentina), Standard Lithium Lanxess Smackover Project PEA (USA) and Standard Lithium SWA Project PFS (USA).
7. I have had prior involvement with the Property that is the subject of this Technical Report. That involvement was as an author on the technical report titled "2026 Cauchari-Olaroz S-K 1300 Technical Report, Jujuy Province, Argentina" and "2026 Cauchari-Olaroz NI 43-101 Technical Report, Jujuy Province, Argentina", both reports with an effective date of February 27, 2026; "Operational Technical Report at the Cauchari-Olaroz Salars, Jujuy Province, Argentina," with an effective date of December 31, 2024; and "Updated Feasibility Study and Mineral Reserve Estimation to Support 40,000 tpa Lithium Carbonate Production at the Cauchari-Olaroz Salars, Jujuy Province, Argentina", (the "Technical Report") with an effective date of September 30th, 2020.
8. I visited the property that is the subject of the Technical Report on 10 September 2025.

9. I am responsible for Section 10 and Section 14 of the Technical Report along with those sections of the Summary pertaining thereto.

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

Effective Date: September 15, 2026
Signing Date: November 6, 2026

{SIGNED AND SEALED} [Marek Dwarzanowski]

_____
Marek Dwarzanowski, EUR ING CEng

CERTIFICATE OF QUALIFIED PERSON

JONATHAN GIBSON P.ENG. - MINING ENGINEER/QP

I, Jonathan Gibson P.Eng., residing at 1343 Queenston Road, Cambridge, Ontario, do hereby certify that:

1. I am an mining and mineral processing engineering consultant contracted by Lithium Argentina AG.

2. This certificate applies to the technical report titled "2026 Cauchari-Olaroz S-K 1300 Technical Report, Jujuy Province, Argentina," (the "Technical Report") with an effective date of September 15, 2026.

3. I am a graduate of Dalhousie University with a Bachelor of Engineering degree in Mining, Mineral Processing and Oil & Gas (2007). I have worked as a Mining and Mineral Processing Engineer for a total of 18 years since obtaining my B.Eng. degree. I am a professional mining engineer currently licensed by the Professional Engineers of Ontario as well as the Association of Professional Engineers of Nova Scotia (License No 100126726 and 20230175 respectively). I have read the definition of "qualified person set out in S-K 1300 and certify that, by reason of my education, affiliation with a professional association and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of S-K 1300. My relevant experience for the purpose of the Technical Report is:

Mining and Mineral Processing Engineer, Vale	2007-2012
Independent Professional Mining and Mineral Processing Engineer, Optimineral	2012-present
Consulting Mining and Mineral Processing Engineer, BBA	2020-2021
Consulting Mining and Mineral Processing Engineer, CSU Projects	2023-present

I have participated in well over 2 dozen various technical reports (from prefeasibility to FEL 0-4, Multi-Discipline Engineering Reports, Trade-off studies, mineral processing flowsheet adaptations (including the supporting laboratory R&D), Backfill and mine ventilation capital projects to start-up/commissioning of material handling circuits and several mine closure plans) as well as being the QP of record and/or author of over half a dozen SEC reported technical reports (Vale, CSU Projects & BBA).

4. I have not visited the Property that is the subject of this Technical Report.

5. I am responsible for Sections 12, 13, 15, and 16, and co-author for Section 19 and of the Technical Report along with those sections of the Summary pertaining thereto.

I have had prior involvement with the Property that is the subject of this Technical Report. That involvement was as an author on the technical report titled "2026 Cauchari-Olaroz S-K 1300 Technical Report, Jujuy Province, Argentina" and "2026 Cauchari-Olaroz NI 43-101 Technical Report, Jujuy Province, Argentina", both reports with an effective date of February 27, 2026.

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

Effective Date: September 15, 2026
Signing Date: November 6, 2026

{SIGNED AND SEALED} [Jonathan Gibson]

_____
Jonathan Gibson, P.Eng.

CERTIFICATE OF QUALIFIED PERSON

ALEXANDER M. L. CUSHING, P.ENG.

I, Alexander Cushing, P. Eng., residing at 243 Albright Road, Hamilton, Ontario, do hereby certify that:

1. I am an independent mineral processing, metallurgical and mineral economics consultant contracted by Lithium Americas (Argentina) Corp.

2. This certificate applies to the technical report titled "2026 Cauchari-Olaroz S-K 1300 Technical Report, Jujuy Province, Argentina," (the "Technical Report") with an effective date of September 15, 2026.

3. I am a graduate of McMaster University with a Bachelor of Engineering degree in Chemical Engineering (2011), Queen's University, Kingston with a Master of Applied Science (2014) and Doctorate of Philosophy (2018) in Mining Engineering, and the University of Toronto with a Master of Finance. I have worked as an engineer for over 10 years since obtaining my B.Eng degree. I am an engineering consultant currently licensed by Professional Engineers Ontario (License No 100555075). I have read the definition of "qualified person" set out in S-K 1300 and certify that, by reason of my education, affiliation with a professional association and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of S-K 1300. My relevant experience for the purpose of the Technical Report is:

Metallurgist, SGS Lakefield	2018 - 2020
Consulting Engineer, Ioniq (formerly CSU Projects)	2020 - 2021
Senior Analyst, Vale Canada	2021 - 2022
Consulting Engineer, Ioniq (formerly CSU Projects)	2022 - Present

4. I have not visited the Property that is the subject of this Technical Report.

5. I am responsible for Sections 16 and 18, and co-author for Sections 1, 21 to 24 of the Technical Report along with those sections of the Summary pertaining thereto.

6. I have had prior involvement with the Property that is the subject of this Technical Report. That involvement was as an author on the technical report titled "2026 Cauchari-Olaroz S-K 1300 Technical Report, Jujuy Province, Argentina" and "2026 Cauchari-Olaroz NI 43-101 Technical Report, Jujuy Province, Argentina", both reports with an effective date of February 27, 2026.

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

Effective Date: September 15, 2026
Signing Date: November 6, 2026

{SIGNED AND SEALED} [Alexander Cushing]

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Alexander Cushing, P.Eng.

CERTIFICATE OF QUALIFIED PERSON

JAMES WANG, P.E.

As the co-author of the report titled "2026 Cauchari-Olaroz S-K 1300 Technical Report, Jujuy Province, Argentina," (the "Technical Report") with an effective date of September 15, 2026, I, James Wang, P.E., do hereby certify that:

1. I am a director and executive consultant with Golder Associates, a wholly owned division of WSP Global Inc. (local office address: 1111 Azia Center, Beijing, China; head office address: 1600 Rene Levesque Blvd. West, Montreal, QC H3H 1P9, Canada). My listed home address is 891 Miami Ridge Drive, Loveland, Ohio, U.S.A.

2. Since graduating with a Bachelor's degree in civil engineering in China in 1992 and a Master's degree in geotechnical engineering in the U.S. in 1994, I have practiced my profession continuously for 30 years. I have held positions with D'Appolonia Consultants, Terracon Consultants, Golder Associates, and WSP Golder in the U.S. and China. I have been a registered Professional Engineer (P.E.) with the State of Ohio (Registration #63824) since 1999 and a registered Professional Engineer (P.E.) with the State of West Virginia (Registration #15545) since 2002.

3. Over the past 31 years, I have completed over 90 projects in the mining sector in the Americas, Asia, and Africa. My areas of expertise include geotechnical/mining engineering, hydrogeology, process engineering, mining technical economics and valuation, and mine waste disposal. Over the past 12 years, I have served as the project director and Qualified Person for over 10 large size lithium brine projects in Argentina and Chile. I have also managed technical due diligence reviews on over 12 lithium projects (both brine projects and hard rock projects) in the Americas over the past 15 years for mining companies and investment funds.

4. I have read the definition of "qualified person" set out in S-K 1300 and certify that and by reason of my education, past relevant experience, professional registrations, and affiliation with professional associations I fulfill the requirements to be a "Qualified Person" for the purposes of S-K 1300.

4. I have not visited the Property that is the subject of this Technical Report.

5. As a qualified person (QP) for this project, I have been responsible for authoring or co-authoring Sections 17 and 21 of this Technical Report along with those sections of the Executive Summary pertaining thereto.

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

Effective Date: September 15, 2026
Signing Date: November 6, 2026

{SIGNED AND SEALED} [James Wang]

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Signature of James Wang, P.E.

FORWARD LOOKING STATEMENTS

This Technical Report, including the economics analysis, contains statements or information that constitute forward-looking information (forward-looking statements) within the meaning of applicable Canadian securities laws. Forward looking statements include, but are not limited to project economics, financial and operational parameters such as the timing and amount of future production from the Project, expectations with respect to the NPV and costs of the Project, anticipated mining and processing methods of the Project; proposed infrastructures, anticipated mine life of the Project, expected recoveries and grades, timing of development plans, the estimation of Mineral Resources and Reserves; realization of Mineral Resource and Reserve Estimates; the timing, success and amount of estimated future exploration; costs of future activities; capital and operating expenditures; and success of exploration activities. Generally, forward looking statements can be identified by the use of forward-looking terminology such as "plans", "expects" or "does not expect", "is expected", "budget", "scheduled", "estimates", "forecasts", "intends", "continue", "anticipates" or "does not anticipate", or "believes", or variations of such words and phrases or statements that certain actions, events or results "may", "could", "would", "will", "might" or "will be taken", "occur" or "be achieved". Forward looking statements are made based upon certain assumptions and other important facts that, if untrue, could cause the actual results, performance, or achievements of the project to be materially different from future results, performances or achievements expressed or implied by such statements. Such statements and information are based on numerous assumptions, some of which are discussed in this Technical Report. Forward-looking statements are subject to known and unknown risks, uncertainties and other important factors that may cause the actual results, level of activity, performance or achievements of the project to be materially different from those expressed or implied by such forward-looking statements, including but not limited to: there being no assurance that the exploration program or programs for the project will result in expanded Mineral Resources; risks and uncertainties inherent to Mineral Resource and Reserve Estimates; the high degree of uncertainties inherent to economic analysis which are based to a significant extent on various assumptions; variations in lithium prices and other commodities; exchange rate fluctuations; variations in cost of supplies, labour rates and consumable and equipment costs; receipt of necessary approvals; availability of financing for project development; uncertainties and risks with respect to developing mining projects; general business, economic, competitive, political and social uncertainties; future lithium prices; accidents, labour disputes and shortages; environmental and other risks of the mining industry, including without limitation, risks and uncertainties discussed herein and in the Company's latest Annual Information Form and other continuous disclosure documents of the Company available under the Company's profile at www.sedarplus.ca. There may be other factors that cause results not to be as anticipated, estimated or intended. There can be no assurance that such statements will prove to be accurate, as actual results and future events could differ materially from those anticipated in such statements. Accordingly, readers should not place undue reliance on forward looking statements.

1.0 EXECUTIVE SUMMARY

1.1 INTRODUCTION

This report titled "2026 Cauchari-Olaroz S-K 1300 Technical Report" (the "Report" or "Technical Report"), was prepared by Deptford Geoscience Inc. ("Deptford") to provide Lithium Argentina AG, previously Lithium Americas Corp ("LAR" or "Lithium Argentina" or the "Company") with a Technical Report prepared in accordance with Regulation S-K Item 1300, U.S. Securities and Exchange Commission (SEC), that governs how mining companies report their mineral properties, resources, and reserves in public filings, ("S-K 1300") on the Cauchari-Olaroz Salars ("Cauchari-Olaroz" or "Project" or "Property"), located in the Jujuy Province, Argentina. This report was prepared for LAR to support a Scoping Study which outlines a proposed expansion project of the pre-existing project known as Cauchari Olaroz. The objective of the expansion project is to increase production capacity by 45,000 tpa LCE through new direct lithium extraction ("DLE") technology.

Lithium Argentina and Ganfeng Lithium Co. Ltd. ("GANFENG" or "Ganfeng Lithium") own Cauchari-Olaroz through a joint venture company ("JV"), Minera Exar S.A. ("Exar"). On August 26, 2020, GANFENG, LAR and Exar entered into a Share Acquisition Option Execution Agreement with Jujuy Energía y Minería S.E. ("JEMSE") a Province of Jujuy state company, setting the guidelines of JEMSE acquisition of an 8.5% participating interest in Exar, proportionally diluting GANFENG and LAR participating interest accordingly.

Lithium Argentina is a public company listed on the Toronto Stock Exchange ("TSX") and New York Stock Exchange ("NYSE") under the symbol "LAR." GANFENG trades on the Hong Kong Stock Exchange ("HKEX") under the stock code 01772. Deptford understands that the Company may use this Report for internal decision-making purposes and will file it as required under applicable securities laws.

The current Mineral Reserve Estimate presented in this Report has been prepared in compliance with the S-K regulations with an effective date of December 31, 2025.

1.2 PROPERTY DESCRIPTION, LOCATION, ACCESS AND HISTORY

The Cauchari and Olaroz Salars are located in the Department of Susques in the Province of Jujuy in northwestern Argentina, approximately 250 kilometres ("km") northwest of San Salvador de Jujuy, the provincial capital. The salars extend in a north-south direction from S23°18' to S24°05' and in an east-west direction from W66°34' to W66°51'. The average elevation of the salars is 3,940 metres. The midpoint between the Olaroz and Cauchari Salars is located along National Highway 52, 55 km west of the Town of Susques. The nearest port is Antofagasta (Chile), located 530 km west of the Project by road.

Through its Argentine subsidiary Exar, LAR acquired title to the project through direct staking or entering into exploration and exploitation contracts with third party property owners. The claims are contiguous and cover most of the Caucharí Salar and the eastern portion of the Olaroz Salar. The annual aggregate payment (canon rent) required by Exar to maintain the claims is US$268,346. Under Exar's usufruct agreement with Borax Argentina S.A., Exar acquired Borax Argentina S.A.'s usufruct rights on properties in the area in exchange for an annual royalty of US$200,000 plus annual canon rent property payments to Jujuy Province. The area that contains the Mineral Resource and Mineral Reserve estimate is covered by mining concessions which grant the holder a perpetual mining right, subject to the payment of a fee and an agreed upon investment in accordance with the principal legislation that regulates the mining industry in Argentina, the Código de Minería.

On March 28, 2016, Exar entered into a purchase option agreement ("Option Agreement") with Grupo Minero Los Boros ("Los Boros") for the transfer of title to Exar for certain mining properties that comprised a portion of Cauchari-Olaroz. Under the terms of the Option Agreement, Exar paid US$100,000 upon signing, and obtained a right to exercise the purchase option at any time within 30 months for the total consideration of US$12M payable in sixty quarterly installments of US$200,000.

On November 12, 2018, Exar exercised the purchase option; as a result, the following royalties became payable to Los Boros:

- US$300,000 was paid on November 27, 2018 because the commercial plant construction started (purchase option established payment within 10 days of the commercial plant construction start date); and
- 3% net profit interest for 40 years, to be paid annually in Argentine pesos, within 10 business days after calendar year end.

Exar can cancel the first 20 years of net profit interest in exchange for a one-time payment of US$7M and the second 20-year period for an additional US$7M.

On March 28, 2016, SQM and Exar executed a Shareholders Agreement that established the terms by which the parties planned to develop Cauchari-Olaroz.

On October 31, 2018, the Company closed a transaction with Ganfeng Lithium and SQM. Ganfeng Lithium agreed to purchase SQM's interest in Cauchari-Olaroz. LAR increased its interest in the Project from 50% to 62.5% with Ganfeng holding the remaining 37.5% interest and the parties entered into a shareholder agreement to govern their ownership and business operations of Exar. Ganfeng Lithium also provided the Company with a US$100 million unsecured, limited recourse subordinated loan facility as part of funding its 62.5% share of the project expenditures.

On August 19, 2019, LAR and Ganfeng completed a transaction whereby Ganfeng contributed US$160 million in Exar and increased its participating interest in Exar to 50%. At such transaction closing, LAR and GANFENG each owned a 50% equity interest in Exar. The parties made certain consequential amendments to the shareholders agreement governing their relationship to refer to the new equity ownership structure in Exar. LAR and GANFENG authorized Exar to undertake a feasibility study on a development plan to increase the initial production capacity from 25,000 tpa to 40,000 tpa of lithium carbonate, as well as certain permitting and development work in advance of a decision to increase the project production rate.

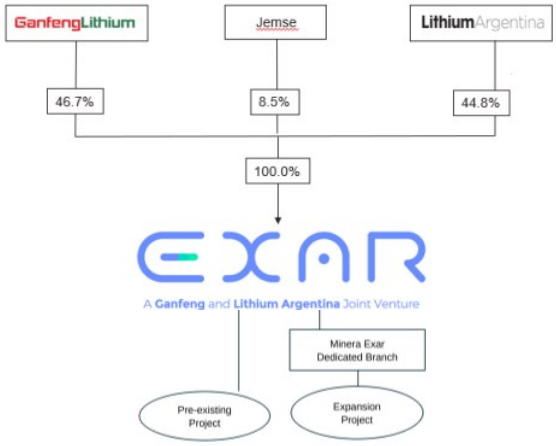
On August 27, 2020, LAR and Ganfeng closed a transaction whereby Ganfeng increased its participating interest in Exar to 51% by completion of US$16 million capital contribution in Exar. At such transaction closing, GANFENG owned a 51% equity interest in Exar and LAR a 49%. The parties made certain consequential amendments to the shareholders agreement governing their relationship to refer to the new equity ownership structure in Exar.

On August 26, 2020, GANFENG, LAR and Exar entered into a Share Acquisition Option Execution Agreement with JEMSE, setting the guidelines of JEMSE acquisition of an 8.5% participating interest in Exar, proportionally diluting GANFENG and LAR participating interest accordingly. JEMSE incorporation was completed in 2020. JEMSE acquired the Exar shares for a consideration of US$1 plus an amount equal to 8.5% of the capital contributions in Exar. JEMSE paid for this amount to the shareholders through the assignment of one-third of the dividends to be received by JEMSE from Exar after taxes. In accordance with the agreement, for future equity contributions GANFENG and LAR are obliged to loan to JEMSE 8.5% of the contributions necessary for JEMSE to avoid dilution, which loans also would be repayable from the same one-third dividends assignment, after taxes.

On October 3, 2023, LAR separated into two independent public companies, Lithium Americas (Argentina) Corp. and a new Lithium Americas Corp. LAR retained Cauchari-Olaroz as well as the Pastos Grandes and Sal de la Puna projects in Argentina.

Current ownership of the Project is summarized in Figure 1.1.

FIGURE 1.1 OWNERSHIP STRUCTURE



1.3 GEOLOGICAL SETTING AND DEPOSIT TYPES

There are two dominant structural features in the region of the Cauchari and Olaroz Salars: north-south trending faults and northwest-southeast trending lineaments. The high-angle north-south trending faults form narrow and deep basins, which are accumulation sites for numerous salars, including Olaroz and Cauchari. Basement rock in this area is composed of Lower Ordovician turbidites (shale and sandstone) that are intruded by Late Ordovician granitoids. Bedrock is exposed to the east, west and south of the two salars, and generally along the eastern boundary of the Puna Region.

The salars are in-filled with flat-lying sedimentary deposits, including the following five primary informal lithological units that have been identified in drill cores:

- Red silts with minor clay and sand;
- Banded halite beds with clay, silt and minor sand;
- Fine sands with minor silt and salt beds;
- Massive halite and banded halite beds with minor sand; and
- Medium and fine sands.

Alluvial deposits intrude into these salar deposits to varying degrees, depending on location. The alluvium surfaces slope into the salar from outside the basin perimeter. Raised bedrock exposures occur outside the salar basin. The most extensive intrusion of alluvium into the basin is the Archibarca Fan, which partially separates the Olaroz and Cauchari Salars. National Highway 52 is constructed across this alluvial fan. In addition to this major fan, much of the perimeter zone of both salars exhibits encroachments of alluvial material associated with fans of varying sizes.

1.4 MINERALIZATION

The brines from Cauchari are saturated in sodium chloride with total dissolved solids (TDS) on the order of 27% (324 to 335 grams per litre) and an average density of about 1.215 grams per cubic centimetre. The other primary components of these brines include potassium, lithium, magnesium, calcium, sulphate, HCO_3, and boron as borates and free H_3BO_3. Since the brine is saturated in NaCl, halite is expected to precipitate during evaporation. In addition, the Cauchari brine is predicted to initially precipitate halite (NaCl) and ternadite (Na_2SO_4) as well as a wide range of secondary salts that could include: astrakanite ($Na_2Mg(SO_4)_2 \cdot 4H_2O$), schoenite ($K_2Mg(SO_4)_2 \cdot 6H_2O$), leonite ($K_2Mg(SO_4)_2 \cdot 4H_2O$), kainite ($MgSO_4 \cdot KCl \cdot 3H_2O$), carnalite ($MgCl_2 \cdot KCl \cdot 6H_2O$), epsomite ($MgSO_4 \cdot 7H_2O$) and bischofite ($MgCl_2 \cdot 6H_2O$).

1.5 EXPLORATION AND DRILLING

The following exploration programs were conducted between 2009 and 2024 on behalf of LAR to evaluate the lithium development potential of the Project area:

- Surface Brine Program - 55 brine samples were collected from shallow pits throughout the salars to obtain a preliminary indication of lithium occurrence and distribution.
- Seismic Geophysical Program - Seismic surveying was conducted to support delineation of basin geometry, mapping of basin-fill sequences, and siting borehole locations.
- Gravity Survey - A limited gravity test survey was completed to evaluate the utility of this method for determining depths to basement rock.
- Time Domain Electromagnetic (TEM) Survey - TEM surveying was conducted to attempt to define freshwater and brine interfaces within the salar.

- Air Lift Testing Program - Testing was conducted within individual boreholes as a preliminary step in estimating aquifer properties related to brine recovery.
- Vertical Electrical Sounding (VES) Survey - A VES survey was conducted to attempt to identify freshwater and brine interfaces and surrounding freshwater occurrences. Surveys were conducted in 2010-2011, 2019-2021 and 2024.
- Surface Water Sampling Program - A program was conducted to monitor the flow and chemistry of surface water entering the salars.
- Pumping Test Program 2011-2019 - Pumping wells were installed at eleven locations, to estimate aquifer parameters related to brine recovery. One of the locations was used to estimate the capacity of freshwater supply. Some tests were carried out using multiple wells on the same platform in order to estimate three-dimensional aquifer parameters.
- Boundary Investigation -A test pitting and borehole program was conducted to assess the configuration of the freshwater/brine interface at the salar surface and at depth, at selected locations on the salar perimeter.
- Reverse Circulation (RC) Borehole Program - Dual-tube, reverse circulation drilling was conducted to develop vertical profiles of brine chemistry at depth in the salars and to provide geological and hydrogeological data. The program included installation of 24 boreholes and collection of 1,487 field brine samples (and additional Quality Control samples).
- Diamond Drilling ("DD") Borehole Program 2009-2010 - A drilling and sampling program was conducted to collect continuous cores for geotechnical testing (relative brine release capacity ("RBRC"), grain size and density) and geological characterization. The program included 29 boreholes and collection of 127 field brine samples.
- Diamond Drilling (DD) Borehole Program 2017-2019 - A drilling and sampling program included a total of 49 boreholes and 9,703 metres of cores recovered. In 2019, 58 additional samples were sent for RBRC testing at Daniel B. Stephens & Associates, Inc. (samples from DD19D-001 and DD19D-PE09; this program also included a total of 1,006 samples sent to the laboratory for brine characterization, including QAQC samples).
- Borehole Drilling Program 2022-2024 - A drilling and sampling program included a total of 8 boreholes and 2,125 metres of cores recovered.
- Since 2011 a total of 43 production wells have been drilled on the Property.

1.6 MINERAL PROCESSING AND METALLURGICAL TESTING

Since 2019, the pilot plant has worked to provide process support and monitor efficiency improvements in the lithium carbonate production process.

In the liming plant, important work has been carried out monitoring the consumption of lime reagent. A 50% reduction in the consumption required by design was obtained. This improvement not only reduced the operating expenditure ("OPEX") but also enhanced downstream performance in the purification process.

Other studies conducted in the pilot plant also allowed for the optimization of reagent consumption in the purification stages. In purification, lime consumption was reduced from a molar ratio of 300% relative to the incoming magnesium to 250%, representing a 16.7% decrease in consumption.

1.6.1 Continuing Work Plan for Supporting the Plant Operations

Homologation Tests for Inputs Used in Lithium Carbonate Production:

- Testing and evaluation of new inputs in different areas.

Evaluation of Suppliers for Various Production Inputs:

- Procedure for evaluating new suppliers.
- Tests required for evaluation.

Work Required According to Plant Needs for Process Optimization, Operational Problem Resolution, or Development of Alternatives:

- Solvent extraction tests to reduce organic traces in the ouput streams.
- Support for the analysis of new scenarios arising from new specifications across different areas.
- Studying the use of process water and mother liquors in the liming process.
- Pilot Plant IX tests to evaluate resins.
- Implement a process support program for ensuring that product quality is achieved more consistently.
- Implementation of mathematical tools/models to predict plant operating conditions

1.7 MINERAL RESOURCES AND MINERAL RESERVES

The lithium Mineral Resources and Mineral Reserves described in this report occur in subsurface brine. The brine is contained within the pore space of alluvial, lacustrine, and evaporite deposits that have accumulated as a multi-layer aquifer in the structural basin of the salars.

The Mineral Resource Estimate reported in Section 11.0 was completed using a new Leapfrog Hydrogeological Model model that incorporates a new description of the hydrostratigraphic (HSU) units based on the salar lithistratigraphic units. This new model is based on the full basin model developed by Aquatec. The Mineral Reserve Estimate, documented in Section 12.0, uses the same HSU framework.

The results of drilling, exploration, and production carried out in recent years have enabled an updated Mineral Resource and Reserve estimation. Based on this new information, a significant portion of the Mineral Resources previously classified as Inferred in the Burga et al (2019) estimate has been reclassified to Indicated and Measured Mineral Resources. This reclassification is due to an increase in the spatial and temporal continuity of the supporting data.

This resulted in the latest 2026 Mineral Resource Estimate for the Project with an effective date of December 31, 2025.

The 2026 Mineral Resource Estimate at the Measured, Indicated, and Inferred Mineral Resource classification (CIM, 2014) for lithium is based on the total amount of lithium in brine that is theoretically drainable from the bulk aquifer volume. The Mineral Resource Estimate is computed as the overall product of the Resource Evaluation Area and aquifer thickness resulting in an aquifer volume, lithium concentration dissolved in the brine, and specific yield of the resource aquifer volume. This framework is based on an expanded and updated hydrostratigraphic model incorporating bulk aquifer volume lithologies and specific yield estimates for block modeling of the Mineral Resource Estimate. Radial basis function was performed as the main lithium distribution methodology using variogram modeling techniques; the interpolation method was verified with ordinary kriging. The Mineral Resource block model was validated by means of visual inspection, checks of composite versus model statistics and swath plots. No areas of significant bias were noted.

The Mineral Resource Estimate is summarized in Table 1.1 at the Measured, Indicated, and Inferred confidence level classes. As is accepted in standard practice for lithium brine Mineral Resource Estimates, Table 1.1 also provides lithium represented as Li_2CO_3, or Lithium Carbonate Equivalent ("LCE"), at the Measured, Indicated, and Inferred level classes.

Table 1.1
Summary of 2026 Lithium Mineral Resource Estimate - Exclusive of Mineral Reserves (1-12)

Mineral Resource Classification	Aquifer Volume (m^3)	Brine Drainable Volume (m^3)	Average Li Concentration (mg/L)	Li (t)	LCE (t)	LCE LAR's 44.8% Portion (t)
Measured	5.94E+10	5.89E+09	557	2,742,686	14,599,317	6,540,494
Indicated	3.87E+10	3.82E+09	571	2,122,708	11,299,172	5,062,029
Measured + Indicated	**9.81E+10**	**9.71E+09**	562	**4,865,393**	**25,898,489**	**11,602,523**
Inferred	2.77E+10	3.24E+09	567	1,806,125	9,614,004	4,307,073

Notes:
1. S-K 1300 definitions were followed for Mineral Resources and Mineral Reserves.
2. The independent Qualified Person for the 2026 Mineral Resource Estimate is Mark King, PhD. PGeo, FGC.
3. Mineral Resources are also expressed in the industry standard Lithium Carbonate Equivalent (LCE = Lithium × 5.323).
4. The mass of lithium produced from 2018-2025 period (52,786 t = 280,982 t LCE) has been removed from the Mineral Resource.
5. The Effective Date of the Mineral Resource Estimate is December 31st, 2025.

6. The Mineral Resource Estimate is not a Mineral Reserve Estimate and does not have demonstrated economic viability. There is no certainty that all or any part of the Mineral Resources will be converted to Mineral Reserves.
7. Calculated brine volumes only include Measured, Indicated, and Inferred Mineral Resource volumes above cut-off grade.
8. Comparisons of values may not add due to rounding of numbers and the differences caused by use of averaging methods.
9. A lithium grade cut-off of 300 mg/L is used to define the Mineral Resource.
10. The Mineral Resources Estimates are net of Mineral Reserves (421,854 t Li) without Process efficiency that has been removed from the Estimated Measured Resources
11. The commodity price of $18,000/tonne for lithium carbonate (2025) for the life of the project was used to assess the economic viability for the mineral estimates, as described below.
12. The point of reference is brine pumped from the wellfield to the evaporation ponds.

The 2026 Mineral Reserve Estimate for lithium incorporates additional drilling and testing through an effective date of December 31, 2025. The current Resource Estimate has benefited from an extended period (ramping up since 2018) of production pumping which represents an exceptionally long period of brine grade and production confirmation. Since 2018, a total of 39 production wells were progressively brought online in the current resource exploitation area (Cauchari-Olaroz). During the 2018-2025 period, a total of 82,847,494 m³ of brine has been extracted, equivalent to 280,982 t of LCE or 52,786 t of lithium.

The Proven and Probable Mineral Reserve Estimate is summarized in Table 1.2 using a 63% of LCE process efficiency (pre-processing). Mineral Reserves correspond to the total amount of lithium enriched brine estimated to be available within the aquifer that can be extracted under the proposed pumping schedule and wellfield configuration. The average of the lithium concentration after 35 years of simulated mine life was significantly above of the 300 mg/L cut-off.

Table 1.2
Summary of 2026 Mineral Reserve Estimate (1-12)

Mineral Reserve Classification	Production Period (Years)	Brine Pumped (m^3)	Average Lithium Concentration (mg/L)	Lithium Metal (t)	LCE (t)	LCE LAR's 44.8% Portion (t)
Proven	2026 - 2035 (0 to 10 yr)	227,782,565	588.26	75,315	400,886	179,597
Probable	2036 - 2060 (11 to 35)	526,320,091	572.18	190,463	1,013,796	454,181
Total	**35 years**	**754,102,655**	**580**	**265,779**	**1,414,682**	**633,778**

Notes:
1. S-K 1300 definitions were followed for Mineral Resources and Mineral Reserves.
2. The Mineral Reserve Estimate has an effective date of December 31, 2025.
3. Reserves are estimated using 63.0 % of process efficiency
4. Lithium carbonate equivalent ("LCE") is calculated using mass of LCE = 5.322785 multiplied by the mass of Lithium Metal.
5. The values in the columns for "Lithium Metal" and "LCE" above are expressed as total contained metals.

6. The Production Period is inclusive of the start of Year 0, 2026.
7. The average lithium concentration is weighted by per well simulated extraction rates.
8. Values may not sum exactly, due to rounding of numbers and the differences caused by use of averaging methods.
9. The commodity price of $18,000 / tonne for lithium carbonate (2025) for the life of the project was used to assess the economic viability for the mineral estimates, as described below .
10. A lithium grade cutoff of 300 mg/L is used to define the Mineral Reserve Estimate.
11. The independent Qualified Person for the 2026 Mineral Resource Estimate is Mark King, PhD. PGeo, FGC.
12. The estimate of Mineral Reserves may be materially affected by legal, political, environmental, or other risks.

The relative accuracy and confidence in the Mineral Reserve Estimate is a function of the accuracy and confidence demonstrated in sampling and analytical methods, development and understanding of the conceptual hydrogeologic system, and construction and calibration of the numerical groundwater flow model. As has been demonstrated in this report, input data and analytical results via sample duplication, the use of multiple methods to determine brine grade, and to obtain aquifer parameters from pumping tests have been verified and used as a basis for the Mineral Reserve Estimate model. The current evaluation has benefitted significantly from the accumulated and lengthening period of proven production.

Using standard methods, a conceptual geological and hydrogeologic model consistent with the geologic, hydrogeologic, and chemistry data obtained during the field exploration phases of the Project was prepared. The conceptual model was then used to prepare the numerical groundwater flow model. In addition, the calibration of the numerical model iteratively provided support for the conceptual hydrogeologic model. After review and verification of model projections and brine production to date, the authors have a reasonably high level of confidence that the salar system can yield the quantities and grade of brine calculated in the current Reserve Estimate.

To support the updated Mineral Reserve Estimate Aquatec developed a new hydrostratigraphic framework and numerical model and the expanded dataset. Following calibration with the historical operation and production data, the updated numerical model simulated the current production wellfield to evaluate the ability of the brine aquifer to sustain a minimum target of 40,000 tonnes per year (tpa) LCE over a 35-year operational period which is reported as Mineral Reserves, starting January 1 2026, and extending through the end of year 2060.

Following the verification that the current production wellfield is capable of delivering sufficient brine to sustain the minimum Stage 1 target production rate of 40,000 tpa of LCE, ongoing updates to the calibrated numerical model are being undertaken to evaluate the maximum production rate from the entire Salar basin.

These modeling efforts are designed to support the estimation of a Total Mineral Reserve to allow for a Stage 2 expansion reaching a total production of more than 80,000 tpa over a 40-year operating life. Stage 2 will be incorporating a new DLE technology that will help increase the Lithium recovery, reduce the land footprint and accelerate the Project schedule.

1.7.1 Discussion of Mineral Resource and Mineral Reserve Cut-off Grade

A lithium cut-off concentration grade of 300 mg/L was conservatively applied for the 2026 Mineral Resource and Reserve Estimate. For comparison of the utilized cut-off grade to a breakeven cut-off grade calculation, the following analytical formula can be used based on the controlling inputs as quantified for LOM:

$$Cutoff\ Grade = \frac{\frac{(Total\ Capital\ Expenditure + Total\ Operating\ Expense)}{Total\ Brine\ Extracted}}{(Recovery * Conversion\ from\ Li\ to\ Li2CO3 * Projected\ LCE\ Price * (1 - Export\ Duties) * (1 - Royalties))}$$

Where, for Exar Stage 1 are:

Total Capital Expenditure= US$ 1,950 million
Total Operating Expenditure = US$ 8,766 million
Cost of Capital = US$ 195 million (10 percent of Total Capital)
Total Brine Extracted = 859 Mm3
Conversion from Li to Li2CO3 (LCE) = 5.323
Projected LCE Price = US$ 18,000 per metric ton of LCE
Export Duties =4.31%
Royalties= 1.6%
Calculated Recovery= 63 %.

Resulting in a calculated breakeven cut-off grade of approximately 224 mg/L.

And where, for Expansion Project are:

- Total Capital Expenditure = US$ 1,592 million
- Total Operating Expenditure = US$ 9,087 million
- Cost of Capital = US$ 127 million (8 percent of Total Capital)
- Total Brine Extracted = 944 Mm^3
- Conversion from Li to Li_2CO_3 (LCE) = 5.323
- Projected LCE Price = US$ 18,000 per metric ton of LCE
- Export Duties = 4.31%
- Royalties = 1.6%
- Calculated Recovery = 75%.

Resulting in a calculated breakeven cut-off grade of approximately 170 mg/L.

Considering the economic value of the brine relative to production costs, the applied cut-off grade of 300 mg/L is considered conservative with respect to the overall estimated resource. Resource model domains with lithium concentrations below this threshold were excluded from the estimate. Under these assumptions, a reasonable basis has been established to support the prospect of eventual economic extraction. Moreover, the selected cut-off grade is consistent with values used in other projects at a similar study level and employing comparable processing methodologies.

The applied 300 mg/L cut-off grade, which is more conservative than the breakeven cut-off grade of 170 mg/L and 224 mg/l, provides a margin of precaution considering potential lithium price volatility. Despite this conservative estimate, the cut-off remains well below the average lithium grade of the Measured and Indicated Resources (562 mg/L). The average grade of the Proven and Probable Reserves is even higher at 580 mg/L, representing a flux-weighted composite of brine routed to the evaporation ponds. Lithium concentrations from individual production wells and the overall reserve average substantially exceed the applied cut-off, reinforcing the economic viability of the project.

Key factors that may influence the resource and reserve estimates include: the position and extent of aquifer boundaries; the lateral continuity of principal aquifer zones; potential dilution from fresh and brackish water sources within the wellfield; variability in aquifer parameters within specific hydrostratigraphic units; assumptions regarding commodity prices, hydrogeologic and metallurgical performance, and extraction efficiency; as well as the methods used to assign brine densities and assess reasonable prospects for eventual economic extraction.

1.8 MINING METHODS

1.8.1 Brine Processing

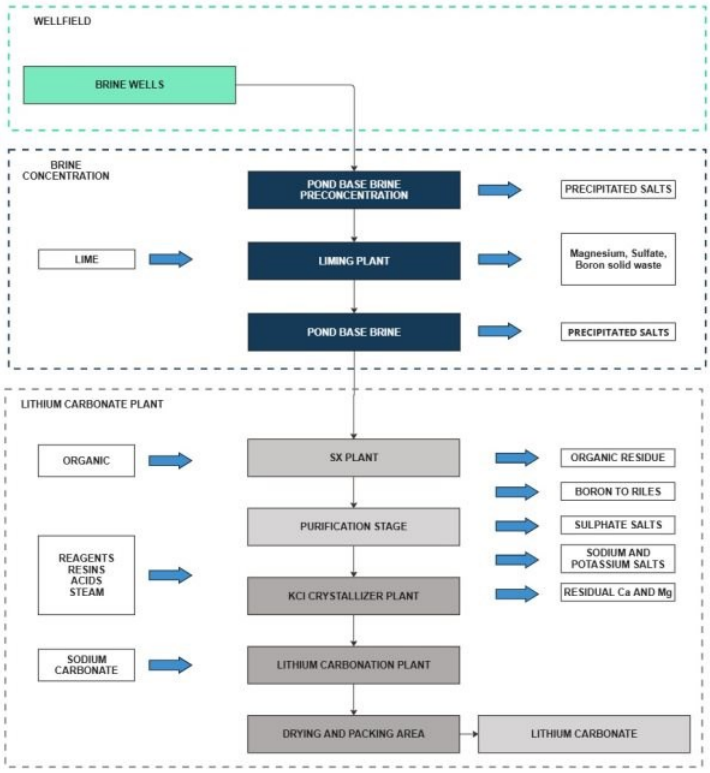
In 2019, Exar implemented a Feasibility Study based on new tests work and the 2012 Feasibility Study. With additional test information, Exar developed a process for converting brine to high-purity lithium carbonate. The proposed process follows industry standards: pumping brine from the salar, concentrating the brine through evaporation ponds, and taking the brine concentrate through a hydrometallurgical facility to produce high-grade lithium carbonate. While the 2012 process model employed proprietary, state-of-the-art physiochemical estimation methods and process simulation techniques for electrolyte phase equilibrium, the 2019 model uses a process model that has been further refined using the results of lab scale and pilot scale testing from Exar, Ganfeng Lithium, and equipment suppliers, the results of which are reflected in the 2019 Feasibility Study and implemented in the detail engineering of the facilities. The basis of the process methods has been tested and supported by laboratory test work, pilot testing facilities, and equipment vendor testing and design to support equipment guarantees.

1.8.2 Lithium Carbonate Plant Production

The process route simulated for the production of lithium carbonate from Cauchari brines resembles the flowsheet presented in Figure 1.2 Overall Process Block Diagram.

Primary process inputs include concentrated brine, water, lime, soda ash, SX organic, HCl, NaOH, $CaCl_2$ and $BaCl_2$. The evaporation ponds produce salts composed of Na, Ca, K, sulphate and borate salts. The brine concentrate from the terminal evaporation pond is further processed, through a series of polishing and impurity removal steps. Soda ash is then reacted with the purified brine concentrate to produce lithium carbonate that is dried and packaged for shipping.

FIGURE 1.2 OVERALL PROCESS BLOCK DIAGRAM



Design criteria for the Lithium Carbonate plant is presented in Table 1.3.

Table 1.3
Lithium Carbonate Plant Design Criteria

Description	Unit	Value
Li_2CO_3 production	tonnes per year	40,000
Annual operation days	days	292
Annual operation hours	hours	7008
Availability	%	80
Utilization (22 h/d)	%	91.7
Plant Overall Efficiency (lithium recovery)	%	53.7

Overall lithium recovery increased from 53.7% (plant design efficiency) in 2024 to 63% in 2025.

1.9 SITE INFRASTRUCTURE AND BUILDINGS

1.9.1 Wells

1.9.1.1 Well Production Equipment Selection

Screened wells target the largest lithium brine aquifers. Submersible electric pumps are used for brine pumping. These pumps send the brine to evaporation ponds through a network of pipelines and mixing pools.

1.9.2 Evaporation Ponds

An average water evaporation rate of 6.26 mm per day was used as criterion to design the pond system. This rate corresponds to measured evaporation rates observed at the site where the ponds are located.

Assuming the above-mentioned evaporation rate, the total evaporation area required for the production of 40,000 tpa of lithium carbonate is 1,200 ha when including consideration for harvesting of salt deposited in the ponds. The ponds are lined with multi-layer liner consisting of a polymer-based material and engineered granular bedding. The ponds configuration includes provision for uninterrupted production during salt harvesting and maintenance work.

Brine is transferred between the successive evaporation ponds using self-priming pumps.

1.9.3 Salt Harvest Equipment

In order to recover pond volume taken up by precipitated salt and recover lithium values entrapped with the brine; salt is harvested. Harvesting began after the third year of ponds operation.

The harvesting operation consists of draining the free brine from the pond, scraping the salt to a minimum depth, and making drainage trenches before removing salt.

1.9.4 Site Infrastructure and Support Systems

1.9.4.1 Natural Gas Pipeline

Natural gas is obtained from the Rosario gas compression station, which is on the Gas Atacama pipeline, 52 km north of the Project site.

Capital costs for this pipeline were US$7.2M. This pipeline can supply natural gas at capacities that are sufficient for a 40,000 tpa LCE facility.

1.9.4.2 Power Supply

Electricity is provided by a new 33 kV transmission line that interconnects with an existing 345 kV transmission line located approximately 60 km south of the Project. The interconnection consists of a sub-station with a voltage transformer (345/33 kV) and associated switchgear.

A stepdown 33/13.2 kV substation at the Project site, consist of two voltage transformers (33/13,2 kV, 15-20 MVA), one (1) 33 kV electrical room and one (1) 13.2 kV electrical room with suitable switchgears and auxiliary equipment for the 13.2 kV local distribution system.

The 13.2 kV local electrical distribution system provides power to the plant, camp, intermediate brine accumulation and homogenizing pools/lime pumps, wells, and evaporation ponds. In general, all the distribution is based on overhead lines, unless there are major restrictions then the underground distribution is adopted.

The estimated average load for the Project is around 16.4 MW or 123,461 MWh/y, assuming a plant and periphery utilization factor of 0.86. The power line has sufficient capacity for this load plus the existing users. The installed power energy is 16 MW.

The whole electrical system is designed for the maximum load condition plus a safety factor of 1.2.

A stand-by diesel generating station, located close to main substation, power selected equipment during outages. Also, the project has 2 UPS to sustain energy for a period and to stabilize power.

1.9.4.3 Permanent Camp

The permanent camp (called Operations Camp), and the Construction Camp are located 8,000 m south of National Highway 52. The Operations Camp is a complete housing and administrative complex to support all activities of the operation with a capacity of 762 people.

The Operations Camp includes office buildings, bedrooms, dining facilities, medical room, and recreation areas, consisting of a gym, an indoor sports center, a recreation room and an outdoor soccer field.

In the Construction Camp there are eight housing modules with a total capacity of 392 people, of which only three modules are currently in use. In addition, this camp includes the pilot plant facilities, water treatment plants and contractor workshops.

1.9.4.4 Other Buildings

Other buildings include:

- A warehouse for spare parts and consumables;
- A steel building for the storage of soda ash;
- A steel building for the storage of solvent extraction plant chemicals designed with appropriate ventilation, safety, and security features;
- Operating facilities for sheltering operators, electrical equipment, and central control rooms; and,
- Product storage facility designed for protecting the product against contamination and staging it for shipment.

1.9.4.5 Security

At the main entrance of the plant, there is a barrier and a security booth to grant access to the facilities. There is a second access control point upon reaching the main module of the camp. There, individuals' entry is registered again using facial and fingerprint recognition.

Given the remote location of the facilities, it is not necessary to enclose the plant with a metallic perimeter fence. The plant is illuminated to allow night work and improve security.

1.9.4.6 Access and Site Roads

Access to the plant site is via paved National Highways 9 and 52, which connect the site to San Salvador de Jujuy and Salta in Argentina. In addition, National Highway 52 connects to Paso Jama to the west, a national border crossing between Chile and Argentina, and provides connection to Chilean Route 27 and convenient access to Antofagasta.

Access within the site is possible through Route 70, a gravel road, which skirts the west side of the salars. This road is approximately 1 km from the plant site. Access roads to ponds, wells, and other infrastructure were part of the overall construction.

1.9.4.7 Fuel Storage

The plant includes a diesel storage and dispensing station for mobile equipment and transport vehicles. Diesel fuel can also be used in stand-by generators and back up for dryers in the plant. The main fuel for equipment operation will be natural gas.

1.9.4.8 Water Supply

A 53 km long water pipeline parallel to the gas pipeline was constructed to transport 105 L/s to the lithium plant.

Water for industrial use is supplied by groundwater wells adjacent to the salar and a water pipeline from the north. The actual water consumption is 70-80 L/s.

1.9.4.9 Pond Solid Wastes

The pond evaporation process leaves considerable amounts of salts on the bottom of the ponds. These salt piles may reach up to 15 m in height. It is estimated that approximately 740 ha of salt piles will be built over a 40-year period and these piles are built near the pond areas.

These discarded salts are classified as inert waste. The salts are generated from brines and do not introduce foreign compounds. It is estimated that sodium chloride and sulphate make up over 87% of this waste.

1.9.4.10 Tailings Liquid Disposal

Several possible sites for liquid industrial waste evaporation ponds were analyzed. These ponds are similar to the evaporation ponds, complete with liner. A 50 ha parcel located close to the plant was selected for the industrial waste evaporation ponds and presents no risks to distant populated areas.

1.10 MARKET STUDIES AND CONTRACTS

The outlook for lithium demand is positive, driven by the development of electromobility and the growing need for batteries in the electronics industry. Lithium consumption is expected to increase significantly in the coming years driven by a rapid increase in demand for EVs.

The global lithium mineral production is largely driven by spodumene operations in Australia, brine operations in Chile and Argentina and lithium chemical conversion in China.

A market review was performed to establish three pricing scenarios for lithium carbonate (per ton) used in the economic analysis.

Both Lithium Argentina and Ganfeng Lithium are entitled to a share of offtake from production at the Cauchari-Olaroz Project. The Company is entitled to 49% of offtake, which would amount to approximately 19,600 tpa of lithium carbonate assuming full capacity is achieved.

1.11 PERMITTING, ENVIRONMENTAL STUDIES AND SOCIAL OR COMMUNITY IMPACT

1.11.1 Permits and Authorities

Permitting processes for the Project are governed by Argentina's national and provincial laws, with oversight from the Jujuy provincial government. Recent updates under Decree No. 7751-DEyP-2023 have modernized permitting standards, including enhanced consultation protocols and mandatory financial assurances for closure. The Project's permits for exploration and exploitation activities are in full compliance, with biannual updates submitted as required.

Exploration permits require the submission of an Environmental Impacts Report ("IIA"), which details the scope of proposed exploration activities and their potential environmental impacts. The Provincial Government of Jujuy, through the Mining and Energy Resource Directorate, reviews and approves these reports. These permits require updates every two years.

On February 11, 2023, the Provincial Executive Government of Jujuy issued Decree No. 7751-DEyP-2023 (the "Decree"), which regulates the General Environmental Law No. 5063 and comprehensively updates provincial environmental protection norms for mining activities. This Decree replaces Decree No. 5772/2010, previously governing this domain.

On December 2025, an Environmental Impact Report for additional 45,000 tpa of LCE for new expansion plant has been submitted. In addition, the Biannual Environmental Impact Report for Exploitation has been submitted for the current operation.

1.11.2 Social or Community Impact

Community engagement and consultation processes have been ongoing since 2009, fostering trust and cooperation. Social impact assessments highlight the Project's contributions to local economic development, infrastructure improvements, and cultural preservation. Comprehensive studies have been completed to understand the Project's impacts, robust monitoring processes to track progress, and targeted investments in critical sectors such as infrastructure, education, and healthcare.

Project perceptions in the surveyed communities conclude a generally positive opinion of the mining industry as it has recently become an economic pillar of the region. Accordingly, the Project is viewed as a source of job opportunities.

The population directly impacted by the Project is mostly rural and self-identifies with the Atacama ethnic group. In general, their settlement patterns and spatial dispersion is based on the camelid's pasturage activity. The area of direct influence for the Project includes the communities of Susques, Huáncar, Pastos Chicos, Puesto Sey, Catua and Olaroz Chico. All these communities are in the department of Susques, Province of Jujuy, with the town of Susques being the head of the Department.

Exar has developed a program that promotes social and economic development within a sustainability framework and aims to address the evolving needs of local communities, focused employment, training, and equitable benefit-sharing while addressing concerns related to resource management and cultural heritage.

1.11.3 Environmental Baseline Studies

Environmental baseline data were compiled through extensive studies commissioned by Exar. Initial studies were conducted between 2010 and 2011, with regular updates and quarterly participatory monitoring from 2017 to 2025. Environmental Impacts Reports (EIRs) have been periodically updated and approved to account for evolving Project layouts and operational changes.

Quarterly follow-up campaigns since 2017 confirmed stable water quality conditions. For surface water, the natural concentrations of aluminum, boron, and iron exceed permissible limits for drinking water.

Air quality measurements of PM_{10}, SO_2, NO_2, O_3, and H_2S fall within permissible limits per provincial guidelines. Recent campaigns note reductions in PM_{10} levels at Vega Alegría and Vega Archibarca, consistent with stricter dust control measures.

The Project area has a low biodiversity although there are some zones within it that are more diverse than others, such as shrub steppes and meadows, the Archibarca cone being the zone with the greatest biodiversity within the Project area.

Follow up fauna and flora monitoring campaigns were carried out around the pilot plant in March 2015 and in October 2016 and quarterly monitoring from 2017 through 2025. Diversity results indicate that there is no significant change in the diversity parameters.

1.12 CAPITAL AND OPERATING COST ESTIMATE

1.12.1 Capital Cost Estimate

Capital costs for the Project (CAPEX) are based on the total engineering and construction work, having a design capacity of 40,000 tonnes per year of lithium carbonate.

The CAPEX is expressed in current US dollars on a 100% project equity basis. LAR contributed 49% of these costs, matching its shareholding in Exar and excluding JEMSE's 8.5% interest.

Capital costs include direct and indirect costs for:

- Brine production wells.
- Evaporation and concentration ponds.
- Lithium carbonate plant.
- General site areas, such as electric, gas, and water distribution.
- Stand-by power plant, roads, offices, laboratory and camp, and other items.
- Off-site infrastructure, including gas supply pipeline and high voltage power line and water pipeline; and
- Salaries, construction equipment mobilization, and other expenses.

The capital investment for the 40,000 tpa lithium carbonate project, including equipment, materials, indirect costs and contingencies after completion of the construction period is consolidated to US$979 million. This total excludes interest expense capitalized during the same period. Disbursements of these expenditures started in 2017 as part of the 25,000 tpa lithium carbonate project. These capital expenditures are summarized in Table 1.4.

Table 1.4 Capital Costs Summary	
Item	**US$ M**
Direct Cost	
Salar Development	51.0
Evaporation Ponds	175.5
Lithium Carbonate Plant and Aux.	361.7
Reagents	26.2
On-Site Infrastructure	108.7
Off-site Services	13.6
Total Direct Cost	**736.7**
Indirect Cost	
Total Indirect Cost	**224.5**
Total Direct and Indirect Cost	
Total Direct and Indirect	961.2
Others	17.8
Total Capital	**979**
Expended to date	**979**
Estimate to complete	-

1.12.2 Exclusions

The following items are not included in this estimate:

- Legal costs.
- Special incentives and allowances.
- Mineral license costs.
- Escalation; and
- Start-up costs beyond those specifically included.

1.12.3 Currency

All values are expressed in current US dollars. During the construction periods,Argentine peso denominated costs follow the exchange rate as a result of inflation, and there was a significant impact of the exchange rate fluctuation on CAPEX and OPEX.

1.12.4 Operating Cost Estimate

The operating cost (OPEX) estimate for a 40,000 tpa lithium carbonate facility has been prepared using data generated during the ramp up (Table 1.5). The OPEX that defined by Exar at this stage for a 40,000 tpa lithium carbonate is US $5,411 per tonne.

Reagent consumption rates that were determined by pilot plant, laboratory, and computer model simulation have been actualized based on data obtained during ramp up period. Reagent cost values, which represent 36% of OPEX, has been obtained from the suppliers servicing the actual plant operation. Energy consumption has been determined on an equipment-by-equipment basis and design utilization rate and confirmed with actual operational data. Labour levels are confirmed in accordance with Exar Management's operating the new facility. Salary and wage are based on the actual data being used by Exar in Argentina. Maintenance estimates were updated by Exar's management based on the actual maintenance cost and projected future cost based on their experience with similar operations.

Table 1.5
Operating Costs Summary

Description	Total (US$ 000 /Year)	Li_2CO_3 (US$/Tonne)	Allocation of Total OPEX (%)
Direct Costs			
Reagents	78,986	1,975	36%
Maintenance	16,300	408	8%
Electric Power	7,362	184	3%
Pond Salt Harvesting	20,259	506	9%
Solid Waste Management (Rises)	6,933	173	3%
Natural Gas	4,567	114	2%
Manpower	31,823	796	15%
Other Personnel Expenses	2,516	63	1%
Catering, Security & Third-Party Services	25,860	646	12%
Consumables	4,226	106	2%
Diesel	829	21	0%
Bus-in/Bus-out Transportation	938	23	0%
Direct Costs Subtotal	**200,598**	**5,015**	**93%**
Indirect Costs			
G&A	15,824	396	7%
Indirect Costs Subtotal	**15,824**	**396**	**7%**
Total Operating Costs	**216,423**	**5,411**	**100%**

1.12.5 Sustaining Capital Expenditures (Sustaining CAPEX)

A provision of US$971 million of the sustaining capital over the life of the Project was included in the economic model. The sustaining capital includes purchase of equipment or development of facilities which would otherwise be capitalized. The sustaining capital costs include processing equipment to be purchased in future years, replacement of equipment, drilling of replacement wells, capital repairs of ponds, equipment replacement for the processing plant, etc.

For the next 10 years, it is estimated that US$23.7 million will be allocated annually to sustainability capital, which is equivalent to US$601.4 per ton of lithium carbonate.

The capital expenditures schedule is presented in Table 1.6, which contains consolidated Sustaining CAPEX Expenditures Schedule from 2025 for the life of the Project.

Table 1.6 Sustaining CAPEX Expenditure Schedule			
Description	**2025-2035 (US$ 000)**	**2036-2060 (US$ 000)**	**Total (US$ 000)**
Total	237,000	734,000	971,000

1.13 OTHER RELEVANT DATA AND INFORMATION

Excerpts of the 2026 S-K 1300 Scoping Study Report, titled "Scoping Study Report Exar Expansion Project at Cauchari-Olaroz Salar, Jujuy Province, Argentina", with an effective date of September 30, 2026, by James Wang, P.Eng. has been included in this section. The Scoping Study outlines a proposed expansion project of the pre-existing project known as Cauchari Olaroz. The objective of the expansion project is to increase production capacity by 45,000 tpa LCE through new direct lithium extraction ("DLE") technology. The Scoping Study should be distinguished from the current operations discussed in other sections of this report. The report was prepared by WSP Golder, EXAR, and Deptford Geoscience.

1.13.1 Geological Setting and Deposit Types

There are two dominant structural features in the region of the Cauchari and Olaroz Salars: north-south trending faults and northwest-southeast trending lineaments. The high-angle north-south trending faults form narrow and deep basins, which are accumulation sites for numerous salars, including Olaroz and Cauchari. Basement rock in this area is composed of Lower Ordovician turbidites (shale and sandstone) that are intruded by Ordovician granitoids. Bedrock is exposed to the east, west and south of the two salars, and generally along the eastern boundary of the Puna Region. U-Pb zircon geochronology indicates that the modern closed basin and its flat-lying, halite-bearing fill are younger than ~3.5 Ma and overlie folded and faulted Neogene sediments (Section 6.3).

The salars are in-filled with flat-lying sedimentary deposits, including the following five primary informal lithological units that have been identified in drill cores:

- Red silts with minor clay and sand;
- Banded halite beds with clay, silt and minor sand;
- Fine sands with minor silt and salt beds;
- Massive halite and banded halite beds with minor sand; and
- Medium and fine sands.

Alluvial deposits intrude into these salar deposits to varying degrees, depending on location. The alluvium surfaces slope into the salar from outside the basin perimeter. Raised bedrock exposures occur outside the salar basin. The most extensive intrusion of alluvium into the basin is the Archibarca Fan, which partially separates the Olaroz and Cauchari Salars. National Highway 52 is constructed across this alluvial fan. In addition to this major fan, much of the perimeter zone of both salars exhibits encroachments of alluvial material associated with fans of varying sizes.

1.13.2 Mineralization

The Cauchari-Olaroz salar is characterized by a great heterogeneity of accumulated components, among which may be mentioned clays intercalated with sands, travertine of hydrothermal origin, concretions of borates, gypsum ($CaSO_4 \cdot 2H_2O$), and mirabilite ($Na_2SO_4 \cdot 10H_2O$).

In the Cauchari Salt Flat, gypsum ($CaSO_4 \cdot 2H_2O$) and glaserite ($3K_2SO_4 \cdot Na_2SO_4$) appear as accessory minerals in the southern area. Towards the center of the salt flat, the accessory minerals are halite and gypsum, and towards the north, ulexite, mirabilite, and trona appear.
The interstices of the clastic saline body of the Olaroz-Cauchari basin are saturated with brines. In the specific case of the Cauchari brines, they are saturated with sodium chloride, with a total dissolved solids (TDS) content of 27% (324 to 335 g/L) and an average density of 1.215 g/cm³. Other major components are potassium, lithium, magnesium, calcium, sulfate, HCO_3^-, and boron (as borates and as free H_3BO_3).

1.13.3 Mineral Processing and Metallurgical Testing

Key metallurgical testing was performed by Ganfeng Lithium to define the technology and engineering parameters required to design a direct extraction process for the Cauchari-Olaroz project.

The brine was only concentred to ~3 g/l lithium to feed a unique solvent extraction process to produce a pure concentrate that will report to the lithium carbonate plant at the Cauchari-Olaroz Salars. The process involved pre-concentration in solar ponds, solvent extraction, purification and product recovery.

- A traditional modelling commissioned to Adinf with extensive experience in design of solar evaporation ponds throughout Argentina and Chile. As often done for traditional technologies no test-work was performed for this step.
- Impurities, such as Ca, and B, will be removed in the several purification steps used in the lithium plant. All purification test-work was performed by GF at its R&D Centre in China.

When the synergistic extractant is contacted with the brine containing high concentration of Cl- after being preconditioned with an active agent, lithium can be extracted to form a relatively stable complex. In the stripping stage, due to ion concentration difference, the lithium chloride is stripped from the organic phase with water allowing for the regeneration of the organic phase.

Extractant #1, Extractant #2 and Extractant #3 in different are preloaded with an active agent. Analysis of the data showed Extractant #3 as best because of the lowest extraction of impurities at high lithium extraction. The solvent components were:

- 60% of main extractant.
- 10% synergistic agent.
- 30% diluent.

Operating parameters with Extractant#3 shows that:

1. During testing, 6-stage extraction, 6-stage washing and 13-stage stripping were adopted and ran for 694 hours. No abnormalities have been found.

2. Operating conditions:
   - organic flow rate of 170 ml/min, brine flow rate of 37.5-38.0 ml/min,
   - washing solution flow rate of 3.0 ml/min,
   - the stripping solution flow rate is 11-11.5 ml/min,
   - extraction phase ratio is 4.47-4.53,
   - washing phase ratio is 56.67, and
   - the stripping phase ratio is 14.78-15.45.

3. Main Results Achieved
   - Extraction efficiency is ≥ 90%,
   - Stripping efficiency ≥ 94%,
   - Strip solution analysis
     - lithium concentration of 19 ~ 20 g/L, and
     - sodium concentration 2 ~ 2.5 g/L.
     - iron concentration is about 0.12 ~ 0.20 g/L;
   - Lithium concentration of raffinate is about 0.25 ~ 0.35 g/L, and the iron concentration is about 0.2 g/L.

After purification steps, the purified brine is sent to the Li_2CO_3 plant.
Since these are traditional methods there is no test work. Exar will use their industrial experience to define the design parameters.

1.13.4 Mining Methods

1.13.4.1 LCE Production Schedule

The Expansion project will have the capacity to produce 45,000 tpa LCE for a nominal life of 40 years.

WSP Golder is comfortable with using 35% to 40% of Measured and indicated (M+I) Resources for production planning. It is common to apply 35% of aquifer efficiency factor to Measured and Resources to estimate pumpable resources for mine life planning in the lithium brine industry. The predictive groundwater flow and transport model simulations carried out for Cauchari-Olaroz support that the application of the 35% efficiency factor is reasonable.

Table 1.7 shows that 18% of Measured and Indicated (M+I) Resources will need to be extracted to meet the production schedule for Stages 1 and 2 (expansion) combined. It is the QP's opinion that the production rates and mine life are reasonable and conservative from the extractable resources perspectives.

Table 1.7
LCE Production Schedule for Both Stages

Items	Unit	Stage 1	Stage 2 Expansion
Measured+Indicated Resource_2026 S-K 1300 Report	t LCE	25,898,489	
Production wells	wells	39	56
Estimated average well brine output	L/s	17.45	17.5
Total brine from wells (average)	L/s	680.7	800
Average lithium concentration	mg/L	580	465 - 607
Processing efficiency	%	63%	75%
Average production rate (from the Process)	tpa LCE	40,419	45,000
Life of Mine	years	2026 - 2060 (35)	2030 - 2069 (40)
Resources extracted	t LCE	2,245,500	2,400,000
Accounting for M+I resources	%	8.7	9.3
Accounting for M+I resources (2 stages combined)	%	18	

The mining method will consist of pumping brine from wells drilled within the salar (salt flat), with the depth of each well depending on the depth of the aquifers. A submersible electric pump will be installed in each well to transport the brine through a network of pipelines (brine pipelines) to an intermediate storage station, and from there to the solar evaporation ponds.

The brine extraction well fields will be accessible by interconnected roads. A total of 56 brine production wells is planned. The brine production wells will have a 12-inch diameter stainless steel production casing and be equipped with 380V submersible pumping equipment.

1.13.5 Recovery Methods

Lithium recovery is based on a direct extraction process using brine pre-concentration followed by solvent extraction. Purification steps follow in order to produce 45,000 tpa of lithium carbonate. The following sections cover the details for the phased production.

The main activities involved in the process include extraction of brine from production wells, pre-concentration of the brine in solar ponds, solvent extraction of the pre-concentrated brine, raffinate treatment, primary purification, secondary purification, calcium and boron polishing with ion exchange, and lithium carbonate precipitation.

Lithium recovery is based on a direct extraction process using brine pre-concentration followed by solvent extraction. Purification steps follow in order to produce 45,000 tpa of lithium carbonate.

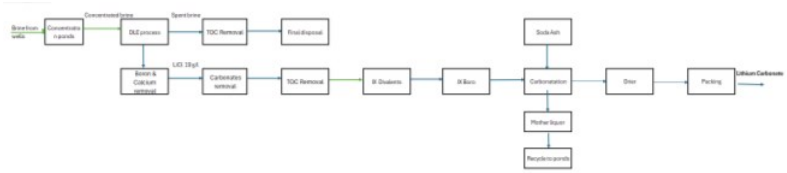
Lithium extraction is based on the concentration of brine from productive wells, in order to achieve saturation and precipitation of salts of low or no commercial interest such as NaCl (Halite) and $Na_2SO_4.10H_2O$ (Mirabilite) and increase the concentration of lithium in solution.

Table 1.8 describes the operating criteria considered for the process:

Table 1.8 Operating Criteria	
Description	**Value**
Days of operation wells and ponds	365 d/a
Hours per day	24 h/d
Well Availability	100%
Use of wells	80%
Lithium Carbonate Equivalent Design Capability	45,000 t/year
Plant Operation Days	300 d/a
Lithium concentration in well brine	465-607 mg/L
Overall Recovery	75%
Lithium Carbonate Grade (Battery)	99.50%

A simplified overall flowsheet of the process is shown in Figure 1.3.

Figure 1.3 Simplified Overall Process Flowsheet



The evaporation process in the ponds begins with a pre-concentration stage, where almost 90% of the sodium chloride (halite) crystallizes. In this concentration stage, the volume of brine is reduced by between 70% and 80%, depending on its composition. 50% of the sulphate found in the brine is also extracted during concentration.

The brine with a nominal lithium concentration of 3.05 g/L from the evaporation ponds is filtered and acidified to pH=1 with HCl. The filtrate after acidification is sent to a storage tank and then pumped to the solvent extraction plant. The extractant and diluent are mixed in a certain proportion to form an organic phase, which joins the acidified brine to extract lithium. The rich organic phase containing lithium is separated. The organic phase is then washed and stripped with water to obtain a lithium chloride product solution. The rich lithium chloride solution is then purified to remove calcium and boron, while the spent lithium raffinate is sent to a resin adsorption system to remove any entrained organic solvent and finally returned to the salar. The resin regeneration liquid from resin adsorption is sent to a wastewater treatment station for biochemical degradation, with clear wastewater is recycled for dilution of the brine during preconcentration.

The LiCl-rich solution from solvent extraction undergoes primary purification, consisting of boron and calcium removal.

The solution after boron removal is then reacted with Sodium Carbonate at a temperature of 75°C to reduce the Ca concentration down to 10 ppm. Solid calcium carbonate residue is disposed of in the storage yard.

The brine from primary purification plant is acidified to remove CO_3^{2-} and then neutralized to pH 7 before entering an organic removal resin adsorption system, to reduce TOC down to 10 ppm. The effluent brine enters then a chelating resin to remove calcium down to 1 ppm. The brine is then sent to the lithium carbonate plant.

The lithium chloride solution is reacted with a solution of sodium carbonate to form a lithium carbonate precipitate. The pulp resulting from this reaction is sent to a solid-liquid separation stage by centrifuges, where the lithium carbonate solids are sent to the drying process until a humidity of less than 0.4% is reached; and then they go to the packaging stage in a 1 tonne big bag, to finally be stored in the final product warehouse.

The mother liquor produced by the reaction is sent to an acidification and neutralization stage and sent to ponds for lithium concentration. The lithium-concentrated mother liquor will be used as a recycle to increase the overall recovery of the production process.

An overall recovery of 75% can be achieved with this process design.

1.13.6 Site Infrastructure and Support Systems

- Power Supply: Electricity will be provided by a new 66 kV transmission line that will interconnect with an existing 345 kV transmission line located approximately 60 km south of the Project at the NOA Transformer Station, node of the CAMMESA highland station. The interconnection consists of a sub-station with a voltage transformer (345/66 kV) and associated switchgear. Two 66/13.2 kV and 33/13.2 kV step-down substation at the Project site are composed of three voltage transformers (33/13.2 kV, 15-20 MVA). The 13.2 kV local electrical distribution system provides power to the plant, camp, intermediate brine accumulation and homogenizing ponds/lime pumps, wells, and evaporation ponds. In general, all the distribution is based on overhead lines, unless there are major restrictions then the underground distribution is adopted. The expansion project will have 40 MW of power as the main source of electrical power.
- Natural Gas Pipeline: A gas pipeline of 53,044.44 meters in length, of 8" nominal diameter (actual outer diameter: 219.08 mm), with a thickness of 4.8 mm in normal terrain and 7.04 mm in areas with the presence of water, river or stream crossings and at road crossings, will be laid.
- Water Supply: freshwater is provided by local wells within the basin, comprising of 8 wells and 1 piezometric control well. The water from wells is directed to a master collector, destined for the storage tanks located adjacent to the wells.
- Industrial water treatment system: reverse osmosis (RO) process will be used to produce high-quality water for the steam boiler and some processes that require pure water. This process is by using pressure to force water molecules through a semipermeable membrane.

- Sanitary water treatment system for the expansion project will be used the same facitilities as the pre-existing project (Stage 1) without the need for the construction of a new reverse osmosis plant, since the current plant covers the expected demand for the Expansion Project. The installed Reverse Osmosis Plant have 4 dedicated for sanitary water, which have the maximum supply capacity is 1400 people housed daily.
- Water will be consumed for the operation, service, and drinking etc. at the site. The main consumption of the raw (fresh) water is for diluting the brines during transfer to avoid crystallization inside pump and pipes. Based on the empirical experience, 1% of brine dilution or 1% of the transfer brine flow rate is enough to maintain the adequate operation of the pump. The water requirements for the project will be met by regionally available water wells.
- Steam: The plant will have a steam generation and distribution system to supply the different thermal consumption of the process, as well as certain auxiliary services that require indirect heat. Steam is an essential service for fluid heating, concentration, drying, and temperature conditioning operations within the plant.
- Fuel storage system: The expansion project will use the existing fuel storage system, as it is estimated that the current storage capacity can meet the new requirements of the expansion project by increasing the frequency of suppliers.
- Truck shops: Three truck shops consist of maintenance workshops for heavy and light machinery. The shops will have bays for heavy equipment and for light equipment; equipped with lubricants, greases, refrigerants, compressed air, water, energy, drain, epoxy floor, tools and lifting equipment systems.
- Two areas are provided for raw material storages, one outdoor and one indoor. The warehouse will be constructed by a metal structure in STEEL ASTM A-36 with suitable coating for climate and ventilation.
- Camps, office, and other buildings: The camp sector is divided into 4 terraces. The first terrace will house the maintenance and infrastructure areas of the camp. In the second and third, the housing and office modules, it includes office, dining room, etc. The construction will be modular according to the layout of the permanent camp and will be located to the east of the existing camp.
- Reagents used in the plant are lime, hydrogen peroxide, sodium carbonate, sodium hydroxide, hydrochloric acid and miscellaneous reagents and products used in solvent extraction and brine purification.

1.13.7 Market Studies and Contracts

Lithium has unique properties that enables its use in many applications. Lithium-ion batteries represent the most electrochemically mature and commercially proven technology for electric vehicles, battery energy storage systems ("BESS"), owing to their high energy density, efficiency, and scalability., lithium is also used in a variety of industrial applications, including glass and ceramics, lubricating greases, metallurgy, pharmaceuticals, and polymers.

Benchmark projects global lithium demand to increase by approximately 20% year-on-year in 2026, with incremental annual demand growth of roughly 250-300 kt LCE per year through 2030 under its base-case scenario. Benchmark estimates that BESS demand will expand by approximately 48% in 2026, reaching ~427 kt LCE, supported by accelerating global grid-scale and behind-the-meter deployments. Industrial and other non-battery uses are forecast to contribute a ~210 kt LCE of demand in 2026, with around half of this demand concentrated in China. Over the longer term, Benchmark forecasts lithium demand to grow at a ~9.7% compound annual growth rate from 2025 to 2040, with battery demand increasingly dominated by lithium-ion chemistries, reinforcing lithium's strategic importance in electric mobility, stationary energy storage, and high-energy-density applications.

Currently, Argentina has nine active lithium projects, collectively producing more than 100,000 metric tonnes of LCE. This growth highlights Argentina's increasing role in the global lithium market as demand for critical resources continues to rise.

WSP GOLDER's QP looked at the trailing 5-year average spot price of battery grade LCE as support for projected average LCE price over the next 5 to 10 years. The average prices are shown in Table 1.9 below. Most stock exchanges allow the use of the 5-year trailing averages for valuation of mineral assets.

Table 1.9
Five-Year Average Spot Price of Battery Grade LCE

LCE Price	From	To	LCE (CNY/t)	LCE (US$/t)
Average over the last 5 years	2021-8-30	2026-8-31	155,105	22,255

Note: CNY = Chinese yen.

The QP believes an FoB price forecast of US$18,000 per metric ton of Li_2CO_3 for years beyond 2028 is a reasonable figure for this Expansion report.

1.13.8 Permitting, Environmental Studies and Social or Community Impact

1.13.8.1 Permits and Authorities

Permitting processes for the Project are governed by Argentina's national and provincial laws, with oversight from the Jujuy provincial government. Recent updates under Decree No. 7751-DEyP-2023 have modernized permitting standards, including enhanced consultation protocols and mandatory financial assurances for closure. The Project's permits for exploration and exploitation activities are in full compliance, with biannual updates submitted as required.

Exploration permits require the submission of an Environmental Impacts Report ("IIA"), which details the scope of proposed exploration activities and their potential environmental impacts. The Provincial Government of Jujuy, through the Mining and Energy Resource Directorate, reviews and approves these reports. These permits require updates every two years.

On December 2025, an Environmental Impact Report for additional 45,000 tpa of LCE for Stage II Expansion plant has been submitted and under review.

Authorizations for mineral exploitation and water use for the Expansion will be obtained and maintained as part of the Project's regulatory approvals. Compliance will be ensured through the implementation of the Environmental Management Plan (EMP), monitoring programs, and periodic reporting to the competent authorities.

1.13.8.2 Environmental Impact Assessment

Environmental Impact Assessment (EIA) for the Expansion, incorporating DLE technology into existing Project operations, is based on baseline studies and operational monitoring data collected between 2010 and 2025. It identifies and evaluates potential environmental impacts associated with the Expansion and outlines the management and monitoring measures implemented to ensure impacts remain controlled, localized, and consistent with environmentally sustainable operation.

The EMP and associated monitoring programs provide a comprehensive framework for managing environmental impacts during Operations and Expansion. Impacts are expected to be predictable, localized, and manageable through the implementation of mitigation measures and continuous monitoring.

Environmental conditions are expected to evolve in accordance with predicted system behavior, taking into account the natural variability of the salar environment. Impacts are expected to remain confined within the Project area, without significant off-site effects. Overall, the project is considered compatible with environmentally safe and sustainable operation.

The Expansion will generate solid salts and liquid wastes, primarily hypersaline brines, which will be managed within the operational system. These streams are not expected to represent a contamination risk under standard operating conditions, and no storage facility is required.

The environmental framework integrates baseline environmental conditions, regulatory criteria, and technical judgement, consistent with applicable legislation and international standards.

The Expansion introduces additional pressure on water resources due to increased operational demand. Potential impacts include changes in surface water quality associated with effluents, and operational activities. Management systems for effluents and runoff, combined with continuous monitoring, ensure compliance with applicable regulations and ensure that impacts are controlled.

Groundwater impacts associated with the Expansion are related to increased pressure on the resource, potential changes in water quality, and modifications in brine levels. Hydrogeological assessments indicate that these impacts are predictable, controllable, and remain confined to the core of the salar, without affecting adjacent freshwater systems.

Environmental impacts including potential adverse and positive impacts are anticipated to be localized, of low to moderate magnitude, and manageable through mitigation measures.

1.13.8.3 Environmental Management Plan

The EMP of the Expansion is composed of air quality management, water management, waste and effluent management, biodiversity and habitat management, noise and vibration control, and emergency response plans.

Environmental monitoring programs and reporting are implemented as part of the EMP and include physical, chemical, and biological parameters to assess environmental conditions within the Project's area of influence. Environmental monitoring programs for the Expansion are integrated within the Project's environmental management framework and are designed to address both existing operations and new components associated with the expansion.

Overall, the monitoring framework supports the conclusion that environmental impacts remain controlled and compatible with environmentally safe and sustainable operation under the expansion scenario.

1.13.8.4 Social Management for the Expansion

The social management framework defined for the Expansion establishes a structured approach for managing potential social impacts through mitigation measures, monitoring programs, and stakeholder engagement mechanisms included in the EMP.

Potential social impacts are expected to be manageable through the implementation of these measures, with benefits associated with employment generation, local economic participation, and institutional engagement. Continued application of monitoring and adaptive management will be required to ensure effective social impact management throughout the Project lifecycle.

Social impacts associated with the Expansion are expected to differ in character and duration from those associated with earlier project stages. Short-term impacts related to construction activities may occur, while longer-term effects will be associated with employment generation, local economic participation, institutional engagement, and demand for services.

1.13.8.5 Closure and Reclamation Plans

Closure and reclamation planning for the Expansion has been carried out in accordance with applicable legislative requirements and recognized good practice. Provincial requirements for mine closure are defined under Decree No. 7751-DEyP-2023, which replaces Decree No. 5772/2010 and establishes updated provisions for environmental management, including closure planning, progressive rehabilitation, and associated financial assurance mechanisms.

As part of the EIA, a Conceptual Closure Plan has been developed and maintained to reflect the Project configuration and applicable regulatory requirements. This plan defines closure objectives, mitigation measures, and monitoring requirements to ensure that environmental and social considerations are addressed throughout the Expansion lifecycle.

Post-closure monitoring programs were defined as part of the Conceptual Closure Plan of the Expansion and include verification of environmental stability and effectiveness of rehabilitation measures. Monitoring duration and scope were established in accordance with regulatory requirements and site-specific conditions, ensuring that closure objectives are achieved prior to final relinquishment.

1.13.9 Capital and Operating Cost Estimate

1.13.9.1 Capital Cost Estimate

The CapEx is compliant with the American Association of Cost Engineers (AACE) International Recommended Practice with an accuracy of -15% to +25% (Class 4).

Capital and Operating Cost estimates were developed by WSP Golder for the production with an average capacity of 45,000 tpa LCE. A simple breakdown structure was developed to facilitate cost allocation of the different elements of the Salar and the process facilities.

Civil, structural, piping and mechanical costs were partially derived from available engineering, and the remaining costs are factored. Electrical and construction costs were obtained from in-house pricing for similar installations.

Capital Operating Cost estimates developed by WSP Golder are in conformance with the standards required by the Canadian Institute of Mining, Metallurgy and Petroleum unless specifically qualified in this report.

These estimates incorporate direct and indirect costs for the implementation of the entire Project, including:

- Brine production wellfield and pipeline delivery system;
- Evaporation ponds and liners;
- Solvent extraction plant;
- Purification plants;
- Lithium carbonate plant;
- General services;
- Infrastructure; and utilities
- Indirect and Operator's Costs.

No provision has been included to offset future cost escalation since estimated expenses, as well as expected revenue, are expressed in constant dollars. This value excludes interest expense that might be capitalized during the same period.

These values include the following estimates:

- Direct Project Costs.
- Indirect Project Costs.
- Project Contingencies.
- Operators Costs.
- Freight and Duties.
- VAT Taxes.

The CapEx summary for the Project is presented in Table 1.10.

Total CapEx for Expansion Project, including equipment, materials, indirect costs, contingencies, and Operator's cost is estimated to be US$1,013,675,846.

Table 1.10 Capital Costs Summar		
CAPEX for 45,000 tpa Total Installed		
Cost Area	**Total Installed Cost**	
General Project		
Wells and Ponds		$ 421,033,293
Salts Stockpile Areas	Initial	$ 23,377,718
Purification Plants		$ 47,368,630
Solvent Extraction		$ 200,648,657
Lce Plant		$ 107,935,857
Energy		$ 69,489,876
Infrastructure		$ 99,387,348
Utilities Plants		$ 16,135,210
Operator's Costs		$ 28,299,257
Total Capital Expenditures	USD	**$ 1,013,675,846**

1.13.9.2 Operating Cost Estimate

The operating cost estimate has been made with quantities developed by the QP and unit prices provided by Exar. The QP considers it to have an accuracy of ±15%. The estimate includes all site-related operating costs associated with the production of high purity lithium carbonate. The operating costs were developed by the QP in conjunction with Exar.

The operating expenditures (OpEx) have been calculated based on the following breakdown:

- Manpower.
- Electric power.
- Reagents.
- Consumables & miscellaneous.
- Camp operation & personnel transport.
- Product transportation.

Annual operating cost summaries for the Expansion Project production are shown in Table 1.11.

Table 1.11 Operating Costs Summary	
Operating Cost	
Production Tpa LCE	**45,000**
	$/Year
Labour	$ 27,420,000
Reagents	$ 78,050,496
Power and Energy	$ 21,248,125
G&A	$ 9,585,000
Salts Disposal	$ 34,902,653
Consumables	$ 3,510,000
Product Transportation	$ 8,325,000
Maintenance	$ 18,360,000
Services	$ 13,161,600
Contingency	$ 10,728,144
Total Annual Costs	**$ 225,291,018**
Cost/t LCE	$ **5,006**

Dollar inflation has a significant impact on the plant's OpEx, particularly on the local cost components. This OpEx does not account for the effects of inflation. Certain inputs and services required for operations are sourced from the local market, and their prices were presented in U.S. dollars in our OpEx estimate to mitigate the impact of currency exchange rate fluctuations.

A total production cost of US$5,006 per ton LCE is estimated for Expansion Project. VAT has been included in the cost of reagents, and consumables.

1.13.10 Economic Analysis

The analysis was prepared using an economic model and assesses both before-tax and after-tax cash flow scenarios. Capital (CapEx) and Operational (OpEx) Expenditures presented in previous sections have been used in this analysis. Prices for lithium carbonate and hydroxide was estimated by the WSP Golder. The results include Net Present Values (NPV) for 8% discount rate, Internal Rate of Return (IRR) and sensitivity analysis of key inputs.

1.13.10.1 RIGI Economics

This Expansion Project benefits from the Incentive Regime for Large Investments (RIGI, for its acronym in Spanish). The RIGI is a special framework introduced in Argentina under the "*Bases and Starting Points for the Freedom of Argentines Act*" (commonly known as the Bases Law), enacted in 2024. Its primary objective is to attract and promote large-scale, long-term investments by providing legal and fiscal stability, along with tax, customs, and foreign exchange incentives.

The economic analysis indicates an after-tax Net Present Value (NPV), discounted at 8%, of approximately US$3.064 billion with an Internal Rate of Return (IRR) of approximately 28.5%, Table 1.12.

Table 1.12
The Key Inputs to Economic Analysis

Overview	Units	Inputs
LCE Production	**tpa**	**45,000**
Mine Life	years	40
Capital Cost (CAPEX)	US$	1,013,675,846
Operating Cost (OPEX)	US$	225,291,018
Operating Cost (OPEX)	US$/t LCE	5,006
Average Selling Price LCE	US$	18,000
Annual Revenue	US$	810,000,000
Discount Rate	%	8
Net Present Value (NPV) Pre-Tax	US$ million	4,182
Internal Rate of Return (IRR) Pre-Tax	%	33%
Net Present Value (NPV) Post-Tax	US$ million	3,064
Internal Rate of Return (IRR) Post-Tax	%	28.5%

The following criteria have been used to develop the economic model:

- Project life: Life of mine (including construction and operation) is estimated to be 40 years.
- Pricing for lithium carbonate of US$18,000 per ton was used.
- Final production rate for Lithium carbonate is 45,000 tpa LCE, assuming a ramp up rate of 50% starting Q1 of the first year of operation and 75% in the second year.
- Discounted Cash Flow (DCF) analysis was based upon scheduling of the currently available Measured and Indicated (M+I) Resources with the assumption that 16.5% of M+I resources are pumpable as brine feed to the evaporation ponds and an overall lithium recovery efficiency of 75%.
- A discount rate of 8% was used.
- The Discounted Cash Flow (DCF) economic evaluation was carried out on a constant money basis so there is no provision for escalation or inflation on costs or revenue.
- For DCF evaluation purposes, it has been assumed that 100% of capital expenditures, including pre-production expenses, are financed with operators' equity.
- Pre-construction costs are not included in DCF analysis.
- VAT is included for both CapEx and OpEx.
- Lithium grades and recoveries stay constant for 40 years with no dilution.

The project is currently estimated to have a payback period of three years since production starts (or six years since investment starts).

1.13.11 Sensitivity Analysis

Sensitivity analysis indicates that the Project is highly profitable.

Project strengths are as follows:

- Brine: The Project pumps subsurface brine to extract lithium, which is a proven and cost-effective method compared to hard rock mining.
- Lithium: The Project has 25,898,489 tons of Measured and Indicated (M+I) LCE Resources, enough to support a production rate of 85,000 tpa LCE for a 40-year life.
- Convenient accessibility and available utilization: The Project site is located 70 km away from energy pipeline. The flat and featureless ground over which the feeder pipeline is to be built reduces pipeline construction cost and complexity.
- Pricing Estimate: Sensitivity analysis indicates that the Project is economically viable even under unfavorable pricing conditions.
- Low operation costs.
- SX (DLE) strengths vs conventional process.
- The application of RIGI results in US$3.064 billion of NPV, and an IRR of 28.5%.
- Some project risks list as follows:
- **Location:** Elevation: The Project site is at a high elevation, approximately 3,900 m above sea level, which can result in difficult work conditions for those not accustomed to high altitudes. Medical oxygen tanks are readily available for staff travelling to and working at the mine site.
- Difficulty for owners to construct the Project in a timely fashion.

1.14 CONCLUSIONS AND RECOMMENDATIONS

1.14.1 Conclusions

- Brine: The Mineral Resource and Mineral Reserves described in this report occur in subsurface brine. The brine is contained within the pore space of salar deposits that have accumulated in a structural basin.
- 2026 Mineral Reserve Estimate: Assuming a processing efficiency of 63 percent for forecasting an economic reserve over the 35-year life of mine plan, the total 2026 Mineral Reserve Estimate for Proven and Probable Mineral Reserves is 1,414,682 tonnes of LCE. The exploration in Cauchari South together with the updated information from the production wells has increased the M+I Mineral Resources to 25,898,489 t LCE. In addition, the Stage 1 numerical model shows a final concentration of 561.3 mg/L of lithium and maximum drawdowns above 20 m which leaves room for a future expansion project in Stage 2 of approximately 45,000 tpa additional capacity.

- To support the updated Mineral Reserve Estimate Aquatec developed a new hydrostratigraphic framework and numerical model and the expanded dataset. Following calibration with the historical operation and production data, the updated numerical model simulated the current production wellfield to evaluate the ability of the brine aquifer to sustain a minimum target of 40,000 tonnes per year (tpa) LCE over a 35-year operational period which is reported as Mineral Reserves, starting January 1 2026 and extending through the end of year 2060. Following the verification that the current production wellfield is capable of delivering sufficient brine to sustain the minimum Stage 1 target production rate of 40,000 tpa of LCE, ongoing updates to the calibrated numerical model are being undertaken to evaluate the maximum production rate from the entire Salar basin. These modeling efforts are designed to support the estimation of a Total Mineral Reserve to allow for a Stage 2 expansion reaching a total production of more than 80,000 tpa over a 40 year operating life. Stage 2 will be incorporating a new DLE technology that will help increase the Lithium recovery, reduce the land footprint and accelerate the Project schedule.
- Lithium Industry: Market studies indicate that the lithium industry has a promising future. The use of lithium ion batteries for electric vehicles and renewable energy storage applications are driving lithium demand.
- Project Capital Cost: The capital investment for the 40,000 tpa lithium carbonate Cauchari-Olaroz, including equipment, materials, indirect costs and contingencies during the construction period was defined at US$979 million. A production design capacity of 40,000 tpa of lithium carbonate, has been implemented and the facility has reached over 80% design capacity during the second year of the ramp up period.
- The main CAPEX drivers were the pond construction and the lithium carbonate plant, which represent 57% of total project capital expenditures.
- Operating Costs: The operating cost estimate (+/-15% accuracy) for the 40,000 tpa lithium carbonate facility is US$5,411 per tonne. This figure includes pond and plant chemicals, energy/fuel, labour, salt waste removal, maintenance, camp services, and transportation.

1.14.2 Recommendations

- Based on the conceptual hydrogeologic system and results of the numerical model, considering the production model since 2018 until the end of 2025, the authors believe it is appropriate to estimate that the Proven Mineral Reserve is what the QPs believe is feasible to be pumped to the evaporation ponds and recovered for the next ten years of operations.
- QA/QC: The QA/QC program, using regular insertions of blanks, duplicates, and standards was discontinued in 2024 and the average value for each production well was carefully monitored. All exploration samples should be analyzed at Alex Stewart and QA/QC sampling should continue when exploration activities resume.

- The QPs recommend investigating process modifications to the carbonation process step in order to reduce the sulphate content in the final product
- The on-site laboratory should obtain ISO 17025 certification for analytical laboratories.
- Financial Assurances: Establish and maintain the required financial guarantees for closure.
- Stakeholder Engagement: Continue proactive engagement to address environmental and social priorities to identify and address potential Project related issues at an early stage in collaboration with affected parties.

The estimated cost for the recommendations is summarized in Table 1.13.

TABLE 1.13
RECOMMENDATIONS BUDGET

Item	Budget (US$)
Mineral Resource and Reserve Expansion Update	$200,000
ISO 17025 Accreditation	$20,000
Permitting and Social Community Work	$200,000
Total	**$420,000**

2.0 INTRODUCTION

2.1 TERMS OF REFERENCE

Lithium Argentina AG ("Lithium Argentina" or "LAR") retained Deptford Geoscience Inc. ("Deptford") to complete an independent S-K 1300 compliant 2026 Technical Report - 2026 S-K 1300 Cauchari-Olaroz Technical Report, located in the Province of Jujuy in Argentina. The supervising Independent Qualified Person ("QP") for the Report is Mr. David Burga, P.Geo. of Deptford Geoscience Inc.

This report was prepared for LAR to support a Scoping Study which outlines a proposed expansion project of the pre-existing project known as Cauchari Olaroz. The objective of the expansion project is to increase production capacity by 45,000 tpa LCE through new direct lithium extraction ("DLE") technology. The Scoping Study is discussed under Other Relevant Data and Information, and should be distinguished from the current operations discussed in other sections of the report. This report updates the 2026 Cauchari-Olaroz S-K 1300 Technical Report, Jujuy Province, Argentina with an effective date of February 27, 2026.

This report was prepared by the authors, at the request of LAR, a Swiss registered company, trading under the symbol of "LAR" on the Toronto Stock Exchange and the New York Stock Exchange with its corporate office at:

DAMMSTRASSE 19
6300 ZUG
SWITZERLAND

This report is considered current as of September 15th, 2026.

2.2 QUALIFIED PERSONS SITE VISITS

Mr. David Burga, P.Geo. (Deptford), conducted a site visit of the Property on January 24, 2017, February 19 through 21, 2019, June 10 and 12, 2019 to review the drilling work from 2017 and 2018, the QA/QC procedures, interview geologists on site and conduct a verification sampling program. He most recently visited the site between November 20 and 21, 2024 to observe the status of the project and interview personnel. Dr. Mark King, P.Geo., (Groundwater Insight), conducted several site visits to the Property, with the most recent occurring on September 12-15, 2011., to review site conditions and to verify core logging and description methods. Mr. Marek Dworzanowski, C.Eng., visited the site on September 10, 2025, to inspect the liming plant and the lithium carbonate plant.

Jonathan Gibson, P.Eng., Dr. Alexander Cushing, P.Eng., and Dr. James Wang, P.E. have not visited the project. The client deemed their presence on site was not required for this update.

2.3 SOURCES OF INFORMATION

This report is based, in part, on internal company technical reports maps, published government reports, company letters, memoranda, public disclosure and public information, as listed in the References at the conclusion of this report. Sections from reports authored by other consultants have been directly quoted or summarized in this report and are so indicated where appropriate.

The 2026 Mineral Reserve Estimate was developed for the Project using MODFLOW-USG, a control volume finite difference code, coupled with the Groundwater Vistas modeling interface. The groundwater modeling was supported by geological, hydrogeological, geochemical, and geophysical data collected through field programs at the site.

2.4 UNITS AND CURRENCY

Unless otherwise stated all units used in this report are metric. Salt contents in the brine are reported in weight percentages or mass per volume.

All values are expressed in current US dollars; the exchange rate between the Argentine peso were adjusted at the time of the incurred cost. Argentine peso denominated costs follow the exchange rate as a result of inflation, and the impact of the exchange rate fluctuation on CAPEX and OPEX has been incorporated; no provision for currency escalation has been included.

The coordinate system used by Cauchari for locating and reporting drill hole information is the UTM system. The Property is in UTM Zone 19K and the WGS84 datum is used. Maps in this Report use either the UTM coordinate system or Gauss Kruger-Posgar 94 datum coordinates that are the official registration coordinates of the local registry.

The following list shows the meaning of the abbreviations for technical terms used throughout the text of this report, Table 2.1.

TABLE 2.1
ABBREVIATIONS TABLE

Abbreviation	Meaning
"	inches
>	greater than
<	less than
%	percent
°	degrees
°C	Celsius degrees
$	dollar(s)
$ M	millions of dollars
µg/m^3	micrograms per cubic meter
2-D	two-dimensional
3-D	three-dimensional
AA	atomic absorption
amsl	above mean sea level
AMT	Audiomagnetotelluric
AR$	Argentine Pesos
ASA	Alex Stewart Argentina S.A.
ASL	Alex Stewart Laboratories S.A.
ASTM	American Society of Testing and Materials
avg	average
B	boron
Bangchak	BCP Innovation Pte Ltd.
BESS	battery energy storage systems
bls	below land surface
Borax Argentina	Borax Argentina S.A.

CIM	Canadian Institute of Mining, Metallurgy and Petroleum
Ca	calcium
CaCl2	calcium chloride
CaCO3	calcium carbonate
CaO	calcium oxide
CAPEX	capital expenditure
Cauchari-Olaroz Project	Cauchari-Olaroz Salars that are the subject of this Technical Report
Cc	curvature coefficient
CEO	Chief Executive Officer
CIM	Canadian Institute of Mining, Metallurgy and Petroleum
CIS	Commonwealth of Independent States
Cl	chloride
cm	centimetre(s)
Company, the	Lithium Argentina AG
CRM	Certified Reference Materials
Cu	uniformity coefficient
CV	coefficient of variation
dBA or dB(A)	A-weighted decibels
DD	diamond drilling
DDH	diamond drill hole
Decree, the	Provincial Executive Government of Jujuy issued Decree No. 7751-DEyP-2023, issued on February 11, 2023
DEM	digital elevation model
Deptford	Deptford Geoscience Inc.
DFS	definitive feasibility study
DIA	Declarations of Environmental Impact
DLE	direct lithium extraction
DPRH	provincial water resources department
E	east
EC	electrical conductivity
EDA	Exploratory Data Analysis
EIA	Estudio de Impacto Ambiental (Environmental Impact Assessment)
EIR	Environmental Impacts Report
EMP	Environmental Management Plan
EP	Equator Principles
ET	evapotranspiration
EV	electric vehicles
Exar	Minera Exar S.A.
FPIC	free and prior informed consent
FS	Feasibility Study
G&A	General and Administration
g/cm^3	grams per cubic centimetre
g/L	grams per liter
Gangfeng	Ganfeng Lithium Co. Ltd.
Ganfeng Lithium	Ganfeng Lithium Co. Ltd.
GEC	Geophysical Exploration Consulting
GFL	Ganfeng Lithium Co. Ltd.
GRI	Global Reporting Initiative
h	hour
h/d	hours per day
H2S	hydrogen sulphide

H_3BO_3	boric acid
ha	hectares
HCl	hydrogen chloride
HCO_3	bicarbonate
HKEX	Hong Kong Stock Exchange
HMS	Hydrologic Modeling System
hPa	hectopascal
HSU(s)	hydrostratigraphic unit(s
HVAC	heating, ventilation, and air conditioning
ICP	inductively coupled plasma
ID	identification
ID	Inverse Distance
ID^2	Inverse Distance Squared
IFC	International Finance Corporation
IIA	Indicador de Impacto Ambiental (Environmental Impact Indicator, an Environmental Impacts Report)
IIT	Instituto de Investigaciones Tecnológicas (Technology Investigations Institute)
ILO	International Labour Organization
In	inches
IRR	internal rate of return
ISO	International Organization for Standardization
ITT	Instituto de Investigaciones Tecnológicas (Technology Investigation Institute) of the Universidad de Concepción
JEMSE	Jujuy Energía y Minería S.E.
JV	joint venture
k	thousand(s)
K	potassium
K	hydraulic conductivity
$K_2Mg(SO_4)_2 \cdot 4H_2O$	leonite
$K_2Mg(SO_4)_2 \cdot 6H_2O$	schoenite
K_2SO_4	potassium sulphate
$K_2SO_4.CaSO_4 \cdot H_2O$	syngenite
$K_3Na(SO_4)_2$	glaserite
KCl	potassium chloride, potash
kg	kilograms
km	kilometres
km^2	square kilometres
km/h	kilometres per hour
kMt	thousands of millions of tonnes
Kr	radial hydraulic conductivity
kt	kilotonne, 1,000 tonnes
ktpa	thousands of tonnes per annum or year
kriging	a Gaussian process regression method of interpolation governed by prior covariances
kW	kilowatts
kWh	kilowatt-hour
kV	kilovolts
Kx	Hydraulic Conductivity in the X direction
Ky	Hydraulic Conductivity in the Y direction
Kz	Hydraulic Conductivity in the Z direction

L or l	litres
L/s	litres per second
LAR	Lithium Argentina AG
LCE	lithium carbonate equivalent
Li	lithium
Li2CO3	lithium carbonate
Lithium Argentina	Lithium Argentina AG
LOM	life of mine
Los Boros	Grupo Minero Los Boros
LSGC	Lower Salt Generation Cycle
M	millions of dollars
m	the second fitting exponent for the capillary head curve
m	metres
m/d	metres per day
m_{-1}	1/metre
m^2	square metres
m^3	cubic metres
m^3/h	cubic metres per hour
Ma	millions of years
masl	metres above sea level
Max	maximum
m b.g.l.	meters below natural ground level
mbgs	metres below ground surface
mbtw	metres below top of well
ME	Minera Exar S.A.
Mg	manganese
mg/L or mg/l	milligrams per liter
mGal	10^{-3} gal, also called galileo (10^{-3} cm/s^2)
MgCl2	magnesium chloride
MgCl2·6H2O	bischofite
MgCl2·KCl·6H2O	carnalite
Mg(OH)2	magnesium hydroxide
MgSO4·7H2O	epsomite
MgSO4·KCl·3H2O	kainite
Min	minimum
MJ/m²	megajoules per square meter
Mdl	minimum detection limit
mm	millimeters
MMBTU	million(s) British Thermal Units (BTU)
mm/yy	month/year
mol%	mole percent
Montgomery	Montgomery & Associates
MVA	megavolt-ampere
MW	mega watt
MWh/y	mega watt hours per year
n	the fitting exponent for the capillary head curve
n	sample size as in number of samples
N	north
Na	sodium
Na2Mg(SO4)2·4H2O	astrakanite
NAAQS	US National Association of Environmental Quality Standards

NaCl	sodium chloride
Na2CO3	sodium carbonate, soda ash
NaOH	sodium hydroxide or caustic soda
NI 43-101	Canadian National Instrument 43-101
NMR	nuclear magnetic resonance
No. or no.	number
NPV	net present value
NYSE	New York Stock Exchange
φe	effective porosity
OPEX	operating costs
Option Agreement	Exar entered into a purchase option agreement with Los Boros, March 28, 2016
Orocobre	Orocobre Limited
OSC	Ontario Securities Commission
Pe	effective porosity
PEA	Preliminary Economic Assessment
PFS	Preliminary Feasibility Study
ppm	parts per million
Project, the	the Cauchari-Olaroz Salars Project, Jujuy Province, Argentina
Property, the	the Cauchari-Olaroz Salars Property that is the subject of this Technical Report
PVC	polyvinyl chloride
Q1, Q2, Q3	first quartile, second quartile, third quartile
QAQC or QA/QC	quality assurance quality control
QC	quality control
QP	Qualified Person
RBRC	relative brine release capacity
RC	reverse circulation
Report, the	this Technical Report
RMS	root mean square
S	south
S	storativity
S-K 1300	Regulation S-K Item 1300 is a set of rules from the U.S. Securities and Exchange Commission (SEC) that governs how mining companies report their mineral properties, resources, and reserves in public filings, Regulation S-K of the US Securities Act of 1933
SDG	sustainable development goals
SDJ	Sales de Jujuy
Sm^3/h	standard cubic metres per hour
SQM	Sociedad Quimica y Minera de Chile
Sr	strontium
Ss	specific storage
Std Dev	standard deviation
SX	solvent extraction
Sy	specific yield
t	tonne(s), metric tonne(s)
t/h	tonnes per hour
TDS	total dissolved solids
Technical Report, the	this Technical Report
TEM	Time Domain Electromagnetic
TOC	total organic carbon

tpa	tonnes per annum (tonnes per year)
TSX	Toronto Stock Exchange
UGAMP	Provincial Mining Environmental Management Unit
UPS	uninterruptible power supply
US$	United States dollar(s)
US$ 000	thousands of US dollars
US-EPA or USEPA	United States Environmental Protection Agency
USGC	Upper Salt Generation Cycle
USGS	United States Geological Survey
UTM	Universal Transverse Mercator (grid)
VES	Vertical Electrical Sounding
W	west
W/m^2	watts per square meter
WB	World Bank
WGS84	World Geodetic System 1984
WHO	World Health Organization
wt% or wt.%	weight percent
y or yr	year

3.0 PROPERTY DESCRIPTION

3.1 PROPERTY DESCRIPTION

The Cauchari and Olaroz Salars are located in the Department of Susques in the Province of Jujuy in northwestern Argentina. The salars extend in a north-south direction from S23°18' to S24°05', and in an east-west direction from W 66° 34' to W 66° 51'. The average elevation of both salars is approximately 3,950 m.

Figure 3.1 shows the locations of both salars, approximately 270 km northwest of San Salvador de Jujuy, the provincial capital. The midpoint between the Olaroz and Cauchari Salars is located directly on National Highway 52, 55 km west of the Town of Susques where the Project field offices are located. The nearest port is Antofagasta, Chile, located 530 km west of the Project by road.

FIGURE 3.1 LOCATION OF CAUCHARI-OLAROZ



Source: Burga et al. (2019)

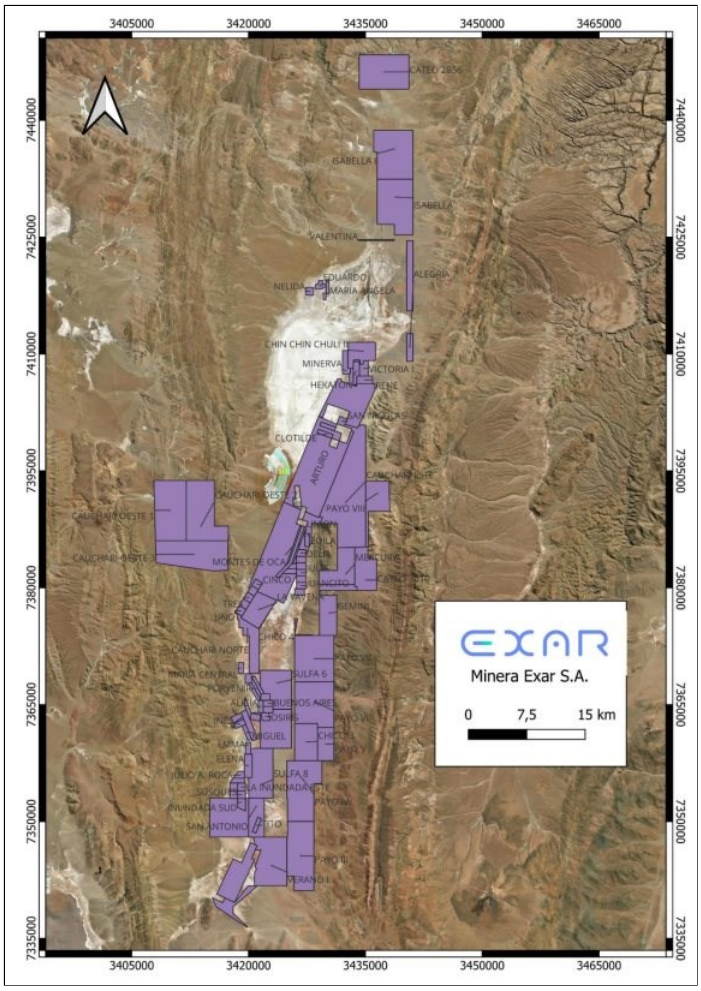
3.2 PROPERTY AREA

Minera Exar S.A. ("Exar") has acquired mining and exploration permits applications through acquisition of such permits applications, direct request of permits from the applicable provinicial mining authority and/ or through brines usufruct agreements in the Province of Jujuy, Argentina, covering a total of 77,623 ha in the Department of Susques presented on Table 3.1. Some of the claims are still in the process of being granted by the Jujuy Mining Court and in order to present a conservative figure, the smaller figure in the 'received' column was used to calculate the property area. Figure 3.2 shows the location of the Exar claims in Cauchari-Olaroz. As shown in the figure, the claims are contiguous and cover most of the Cauchari Salar and the eastern portion of the Olaroz Salar.

The aggregate annual property payment required by the Argentine Mining Code to the Province of Jujuy that Exar needs to attend in order to maintain the tenements claims referenced in Figure 3.2 in good standing is approximately US$268,346 per year.

Under Exar's usufruct agreement with Borax Argentina S.A. ("Borax Argentina") signed on May 19th, 2011, Exar acquired Borax Argentina's usufruct rights on properties in the area in exchange for an annual royalty of US$200,000 payable in May of each year plus annual canon rent property payments to Jujuy Province.

Figure 3.2 Exar Property Claims at Cauchari-Olaroz



Source: Exar (2026)

Table 3.1
Exar Mineral Claims

Claim ID	File	Owner	Claim Type	Requested Area (ha)	Received	Claim Status	Contract Status
LA YAVEÑA	27-R-00	Minera Exar S.A.	Pedido de Mina	1119.66	1119.66	Active	Rights acquired
LUISA	61-I-98	Grupo Minero Los Boros S.A.	Mina	4706.65	4076.65	Active	Rights acquired
ARTURO	60-I-98	Grupo Minero Los Boros S.A.	Mina	5049.85	5049.85	Active	Rights acquired
ANGELINA	059-I-98	Grupo Minero Los Boros S.A.	Mina		2346	Active	Rights acquired
CAUCHARI ESTE	1149-L-09	Minera Exar S.A.	Pedido de Mina	5860	5860	Active	Rights acquired
IRENE	140-N-92	Minera Exar S.A.	Mina	200	200	Active	Rights acquired
MINERVA	37-V-02	Minera Exar S.A.	Pedido de Mina	229.52	229.52	Active	Rights acquired
CHIN CHIN CHULI II	201-C-04	Vicente Costa y otros	Pedido de Mina	910.81	910.81	Active	Opted/Usufruct agreement
Hekaton	150-M-92	Minera Exar S.A.	Mina	200	200	Active	Rights acquired
Victoria I	65-E-02	Minera Exar S.A.	Mina	300	300	Active	Rights acquired
SAENZ PEÑA (Grupo Minero Boroquímica)	354-C-44	South America Salars S.A.	Mina	300	100	Active	Ususfruct Rights acquired
DEMASIA SAENZ PEÑA (Grupo Minero Boroquímica)	354-C-44	South America Salars S.A.	Mina	100	59	Active	Ususfruct Rights acquired
LINDA (Grupo Minero Boroquímica)	160-T-44	South America Salars S.A.	Mina	100	100	Active	Ususfruct Rights acquired
MARIA TERESA (Grupo Minero Boroquimica)	378-C-44	South America Salars S.A.	Mina	100	100	Active	Ususfruct Rights acquired
ARCHIBALD (Grupo Minero Boroquimica)	377-C-44	South America Salars S.A.	Mina	100	100	Active	Ususfruct Rights acquired

Table 3.1
Exar Mineral Claims

Claim ID	File	Owner	Claim Type	Requested Area (ha)	Received	Claim Status	Contract Status
San Nicolas (Grupo Minero Boroquimica)	191-R-44	South America Salars S.A.	Mina	100	100	Active	Ususfruct Rights acquired
CLOTILDE	121-D-44/1642-M-10	Minera Exar S.A.	Mina	100.18	100	Activo	Rights acquired
EDUARDO DANIEL	120-M-1944	Minera Exar S.A.	Pedido de Mina Vacante	100.15	100	Active	Purchased
CAUCHARI NORTE	2892-M-2022	Minera Exar S.A.	Mina	1038.77	1038.77	Active	Purchased
DELIA (Grupo Minero Boroquimica)	42-E-1944	South America Salars S.A.	Mina	100	100	Active	Ususfruct Rights acquired
GRAZIELLA (Grupo Minero Boroquimica)	438-G-1944	South America Salars S.A.	Mina	100	100	Active	Ususfruct Rights acquired
MONTES DE OCA (Grupo Minero Boroquimica)	340-C-1944	South America Salars S.A.	Mina	100	99	Active	Ususfruct Rights acquired
JUANCITO (Grupo Minero Boroquimica)	339-C-1944	South America Salars S.A.	Mina	100	100	Active	Ususfruct Rights acquired
UNION (Grupo Minero Boroquimica)	336-C-1944	South America Salars S.A.	Mina	300	100	Active	Ususfruct Rights acquired
JULIA (Grupo Minero Boroquimica)	347-C-1944	South America Salars S.A.	Mina	300	100	Active	Ususfruct Rights acquired
MASCOTA (Grupo Minero Boroquimica)	394-B-1944	South America Salars S.A.	Mina	300	300	Active	Ususfruct Rights acquired
UNO (Grupo Minero Boroquimica)	345-C-1944	South America Salars S.A.	Mina	100	100	Active	Ususfruct Rights acquired
TRES (Grupo Minero Boroquimica)	343-C-1944	South America Salars S.A.	Mina	100	100	Active	Ususfruct Rights acquired

Table 3.1
Exar Mineral Claims

Claim ID	File	Owner	Claim Type	Requested Area (ha)	Received	Claim Status	Contract Status
DOS (Grupo Minero Boroquimica)	344-C-1944	South America Salars S.A.	Mina	100	100	Active	Ususfruct Rights acquired
CUATRO (Grupo Minero Boroquimica)	352-C-1944	South America Salars S.A.	Mina	100	100	Active	Ususfruct Rights acquired
CINCO (Grupo Minero Boroquimica)	351-C-1944	South America Salars S.A.	Mina	100	100	Active	Ususfruct Rights acquired
ZOILA (Grupo Minero Boroquimica)	341-C-1944	South America Salars S.A.	Mina	100	100	Active	Ususfruct Rights acquired
SARMIENTO (Grupo Minero Boroquimica)	190-R-1944	South America Salars S.A.	Mina	100	100	Active	Ususfruct Rights acquired
PORVENIR (Grupo Minero Boroquimica)	116-D-1944	South America Salars S.A.	Mina	100	100	Active	Ususfruct Rights acquired
ALICIA (Grupo Minero Boroquimica)	389-B-1944	South America Salars S.A.	Mina	100	100	Active	Ususfruct Rights acquired
CLARISA (Grupo Minero Boroquimica)	402-B-1944	South America Salars S.A.	Mina	100	100	Active	Ususfruct Rights acquired
DEMASIA CLARISA (Grupo Minero Boroquimica)	402-B-1944	South America Salars S.A.	Mina	19	19	Active	Ususfruct Rights acquired
INES (Grupo Minero Boroquimica)	220-S-1944	South America Salars S.A.	Mina	100	100	Active	Ususfruct Rights acquired
MARIA CENTRAL (Grupo Minero Boroquimica)	43-E-1944	South America Salars S.A.	Mina	100	100	Active	Ususfruct Rights acquired
MARIA ESTHER (Grupo Minero Boroquimica)	259-M-1944	South America Salars S.A.	Mina	100	100	Active	Ususfruct Rights acquired
SAHARA (Grupo Minero Boroquimica)	117-D-1944	South America Salars S.A.	Mina	300	300	Active	Ususfruct Rights acquired

Table 3.1
Exar Mineral Claims

Claim ID	File	Owner	Claim Type	Requested Area (ha)	Received	Claim Status	Contract Status
PAULINA (Grupo Minero Boroquimica)	195-S-1944	South America Salars S.A.	Mina	100	100	Active	Ususfruct Rights acquired
SIBERIA (Grupo Minero Boroquimica)	206-B-1944	South America Salars S.A.	Mina	24	24	Active	Ususfruct Rights acquired
SAN ANTONIO	72-M-1099	Minera Exar S.A.	Mina	900	-	Active	Rights acquired, area under dispute. Expecting 2400.
TITO	48-P-1998	Minera Exar S.A.	Mina	100	100	Active	Rights acquired
MIGUEL	381-M-2005	Minera Exar S.A.	Mina	100.06	100.06	Active	Rights acquired
VERANO I	299-M-2004	Minera Exar S.A.	Mina	2448.25	2488.25	Active	Rights acquired
CHICO 3	1251-M-09	Minera Exar S.A.	Mina	1400	1400	Active	Rights acquired
CHICO 4	1252-M-09	Minera Exar S.A.	Pedido de Mina	773.02	773.02	Active	Area under dispute
SULFA 6	70-R-1998	Minera Exar S.A.	Mina	1682.89	1682.89	Active	Rights acquired
SULFA 7	71-R-1998	Minera Exar S.A.	Mina	1824.44	1824.44	Active	Rights acquired
SULFA 8	72-R-1998	Minera Exar S.A.	Mina	1841.59	1841.59	Active	Rights acquired
SULFA 9	67-R-1998	Minera Exar S.A.	Mina	1580.19	1580.19	Active	Rights acquired
BECERRO DE ORO (Grupo Minero Osiris)	264-M-1944	Minera Exar S.A.	Mina	100	100	Active	Rights acquired
OSIRIS (Grupo Minero Osiris)	263-M-1944	Minera Exar S.A.	Mina	100	100	Active	Rights acquired
Grupo Minero Osiris	104- I-90	Minera Exar S.A.	Mina	300.29	300.29	Active	Rights acquired
JORGE	62-L-1998	Minera Exar S.A.	Mina	2352.24	2352.24	Active	Rights acquired
LA INUNDADA (GRUPO LA INUNDADA)	669-G-1956	Minera Exar S.A.	Mina	100	100	Active	Rights acquired
Grupo Minero La Inundada	101-C-1990	Minera Exar S.A.	Mina	536.37	536.37	Active	Rights acquired

Table 3.1
Exar Mineral Claims

Claim ID	File	Owner	Claim Type	Requested Area (ha)	Received	Claim Status	Contract Status
Inundada Este (Grupo Minero La Inundada)	721-G-1957	Minera Exar S.A.	Mina	100	100	Active	Rights acquired
Jujuy (Grupo Minero La Inundada)	725-G-1957	Minera Exar S.A.	Mina	100	100	Active	Rights acquired
Inundada Sur (Grupo Minero La Inundada)	789-G-1957	Minera Exar S.A.	Mina	100	100	Active	Rights acquired
Susques (Grupo Minero La Inundada)	726-G-1957	Minera Exar S.A.	Mina	100	100	Active	Rights acquired
ALEGRIA 7	1343-M-2009	Minera Exar S.A.	Pedido de Mina	1277	1036	Active/Recourse to be Resolved	Area under review
CAUCHARI SUR	2900-M-2022	Minera Exar S.A.	Pedido de Mina	1501	612.81 Expected	Active	Not yet granted. Mine requested over Cateo Cauchari Sur 1072-L-2008.
CAUCHARI OESTE I	2941-M-2022	Minera Exar S.A.	Cateo	3140	3140	Active	Interest
CAUCHARI OESTE II	2942-M-2022	Minera Exar S.A.	Pedido de Mina	3133.42	3133.42	Active	Interest
CAUCHARI OESTE III	2943-M-2022	Minera Exar S.A.	Pedido de Mina	3205.23	3205.23	Active	Interest
Grupo Minero Boroquimica	090-B-1994	South America Salars S.A.	Mina	4103	4103	Active	Ususfruct Rights acquired
JULIO A. ROCA (Grupo Minero Boroquimica)	444-P-44	South America Salars S.A.	Mina	100	100	Active	Ususfruct Rights acquired
ELENA (Grupo Minero Boroquimica)	353-C-44	South America Salars S.A.	Mina	300	301	Active	Ususfruct Rights acquired
EMMA (Grupo Minero Boroquimica)	350-C-44	South America Salars S.A.	Mina	100	100	Active	Ususfruct Rights acquired
URUGUAY (Grupo Minero Boroquimica)	89-N-44	South America Salars S.A.	Mina	100	100	Active	Ususfruct Rights acquired

Table 3.1
Exar Mineral Claims

Claim ID	File	Owner	Claim Type	Requested Area (ha)	Received	Claim Status	Contract Status
AVELLANEDA (Grupo Minero Boroquimica)	365-V-44	South America Salars S.A.	Mina	100	100	Active	Ususfruct Rights acquired
BUENOS AIRES (Grupo Minero Boroquimica)	122-D-44	South America Salars S.A.	Mina	100	100	Active	Ususfruct Rights acquired
MORENO (Grupo Minero Boroquimica)	221-S-44	South America Salars S.A.	Mina	100	100	Active	Ususfruct Rights acquired
Payo III	1517-M-2010	Minera Exar S.A.	Mina	2890.39	2890.39	Active	Rights acquired
Payo IV	1518-M-2010	Minera Exar S.A.	Mina	2981.17	2981.17	Active	Rights acquired
Payo V	1519-M-2010	Minera Exar S.A.	Mina	896.61	896.61	Active	Rights acquired
Payo VI	1520-M-2010	Minera Exar S.A.	Mina	2800.14	2800.14	Active	Rights acquired
Payo VII	1521-M-2010	Minera Exar S.A.	Mina	2999.52	2999.52	Active	Rights acquired
Payo VIII	1522-M-2010	Minera Exar S.A.	Mina	1337.11	1337.11	Active	Rights acquired
Nelida	56-C-1995	Minera Exar S.A.	Mina	100	100	Active	Rights acquired
Eduardo	183-D-1990	Minera Exar S.A.	Mina	100.15	100.15	Active	Rights acquired
Maria Angela	177-Z-1903	Ceballos Oscar	Mina	100	100	Active	Rights acquired
Valentina	2432-M-2018	Minera Exar S.A.	Pedido de mina	100	-	Active	Pending concession. To be resolved by court.
Isabela	2433-M-2018	Minera Exar S.A.	Pedido de mina	2986.25	-	Active	Pending concession. To be resolved by court.
Isabela I	2434-M-2018	Minera Exar S.A.	Pedido de mina	3000	-	Active	Pending concession. To be resolved by court.
Cateo 2856-M-2021	2856-M-2021	Minera Exar S.A.	Cateo	2812.8	-	Active	Pending
Cateo 3010-M-2022	3010-M-2022	Minera Exar S.A.	Cateo	1382.74	-	Active	Pending

3.3 SQM JOINT VENTURE

On March 28, 2016, Sociedad Quimica y Minera de Chile ("SQM") made a US$25M capital contribution in the Company for a 50% interest in Exar, and the parties executed a Shareholders Agreement that established the terms by which the parties plan to develop Cauchari-Olaroz. Following receipt of the contribution, Exar repaid loans and advances from Lithium Argentina in the amount of US$15M. The remaining US$10M was for project development costs in the Joint Venture.

3.4 GANFENG JOINT VENTURE

On October 31, 2018, the Company announced the closing of a transaction with Ganfeng Lithium Group Co., Ltd. ("Ganfeng") and SQM. Under the transaction Ganfeng Lithium agreed to purchase SQM's interest in Cauchari-Olaroz. LAR increased its interest in the Project from 50% to 62.5% with Ganfeng holding the remaining 37.5% interest. Ganfeng also provided the Company with a US$100 million unsecured, limited recourse subordinated loan facility to fund its 62.5% share of the project expenditures.

On August 19, 2019, the Company anounced that it had closed the previously announced Project Investment in which a subsidiary of Ganfeng subscribed for newly issued shares of Exar, the holding company for the Caucharí-Olaroz lithium brine project. The parties executed an updated Shareholders Agreement that established the terms by which the parties plan to develop Cauchari.

In consideration for the newly issued shares, Exar received US$160 million in cash to continue to fund the Project's construction activities. Upon closing, Ganfeng increased its interest in Caucharí-Olaroz from 37.5% to 50%, with Lithium Argentina holding the remaining 50% interest.

On August 27, 2020, LAR and Ganfeng closed a transaction whereby Ganfeng increased its participating interest in Exar to 51% by completion of US$16 million capital contribution in Exar. At such transaction closing, Ganfeng owned a 51% equity interest in Exar and LAR a 49%. The parties made certain consequential amendments to the shareholders agreement governing their relationship to refer to the new equity ownership structure in Exar.

3.4.1 Los Boros Option Agreement

On September 11, 2018, the Joint Venture exercised a purchase option agreement ("Option Agreement") with Grupo Minero Los Boros, entered into on March 28, 2016, for the transfer of title to the Joint Venture for certain mining properties that comprised a portion of Cauchari-Olaroz.

Under the terms of the Option Agreement, the Joint Venture paid US$100,000 upon signing and exercised the purchase option for the total consideration of US$12,000,000 to be paid in sixty quarterly instalments of US$200,000. The first installment becomes due upon occurrence of one of the following two conditions, whichever comes first: the third anniversary of the purchase option exercise date or the beginning of commercial exploitation with a minimum production of 20,000 tonnes of lithium carbonate equivalent. As security for the transfer of title to the mining properties, Los Boros granted to the Joint Venture a mortgage over those mining properties for US$12,000,000. In accordance with the Option Agreement, on November 27, 2018, Exar paid Los Boros a US$300,000 royalty which was due within 10 days of the commercial plant construction start date.

According to the Option Agreement, a 3% net profit interest royalty will have to be paid to Los Boros by the Joint Venture for 40 years, payable in Argentinian pesos, annually within the 10 business days after calendar year end.

The Joint Venture can cancel the first 20 years of net profit interest royalties in exchange for a one-time payment of US$7,000,000 and the next 20 years for an additional payment of US$7,000,000.

3.4.2 Borax Argentina S.A. Agreement

Under Exar's usufruct agreement with Borax Argentina S.A. ("Borax Argentina"), on May 19th, 2011, Exar acquired its usufruct rights to Borax Argentina's properties in the area. On execution, the agreement requires Exar to pay Borax Argentina an annual royalty of US$200,000 in May of each year.

3.4.3 JEMSE Arrangement

On August 26, 2020, Ganfeng, LAR and Exar entered into a Share Acquisition Option Execution Agreement with Jujuy Energía y Minería S.E. ("JEMSE") a Province of Jujuy state company, setting the guidelines of JEMSE acquisition of an 8,5% participating interest in Exar, proportionally diluting Ganfeng and LAR participating interest accordingly. The JEMSE incorporation was completed in 2020. JEMSE acquired the Exar shares for a consideration of US$1 plus an amount equal to 8.5% of the capital contributions in Exar. JEMSE paid for this amount to the shareholders through the assignment of one-third of the dividends to be received by JEMSE from Exar after taxes. In accordance with the agreement, for future equity contributions Ganfeng and LAR are obliged to loan to JEMSE 8.5% of the contributions necessary for JEMSE to avoid dilution, which loans also would be repayable from the same one-third dividends assignment, after taxes.

The above-mentioned agreements with private mineral rights owners are independent of, and do not impinge upon the Provincial Government royalty of up to 2% of the value of the mineral at well head.

On April 4, 2021, JEMSE completed the exercise of its right to acquire an 8.5% equity interest in Exar. LAR now holds an approximate 44.8% interest in the Caucharí-Olaroz Project, while Ganfeng holds an approximate 46.7% interest. JEMSE will pay for the amount owed to the shareholders through the assignment of one-third of the dividends to be received by JEMSE from Exar after taxes. In accordance with the agreement, for future equity contributions GFL and the Company are obliged to loan to JEMSE 8.5% of the contributions necessary for JEMSE to avoid dilution, which loans also would be repayable from the same one-third dividends assignment, after taxes. LAR and Ganfeng are entitled to receive 100% of production output from Caucharí-Olaroz proportionate to their respective 49%/51% net interests.

A summary of royalties and payments is presented in Table 3.2.

Table 3.2 Annual Royalties and Payments	
Royalties	**Value**
Borax Argentina S.A.	US$200,000
Los Boros	3% Net Profit or US$7M payment every 20 years
Provincial Government of Jujuy	2% Value of Mineral at Well Head
Neighboring Communities Program Payments	**US$**
2017-2019 Total Payment	**239,417**
2020 - Onwards Annual Payments (estimated)	**552,000**

3.4.4 Corporate History of LAR

Lithium Argentina was incorporated in British Columbia, Canada on November 27, 2007 under the name "Western Lithium Canada Corporation" and changed its name to "Western Lithium USA Corporation" on May 31, 2010. On March 21, 2016, the Company changed its name to "Lithium Americas Corp."

On October 3, 2023, Lithium Americas Corp. separated into two independent public companies, Lithium Americas (Argentina) Corp retained Cauchari-Olaroz as well as the Pastos Grandes and Sal de la Puna projects in Argentina. On January 23, 2025, Lithium Argentina completed a corporate migration from British Columbia, Canada to Switzerland, establishing corporate domicile in Switzerland and changing its name from Lithium Americas (Argentina) Corp. to Lithium Argentina AG ("LAR").

3.5 TYPE OF MINERAL TENURE

There are two types of mineral tenure in Argentina: Mining Permits and Exploration Permits ("cateos"). Mining Permits are licenses that allow the property holder to exploit the property, provided environmental approval is obtained. Exploration Permits are licenses that allow the property holder to explore the property for a period of time that is proportional to the size of the property (approximately 3 years per 10,000 ha). Exploration activity under Exploration Permits also require Environmental Permits. An Exploration Permit can be transformed into a Mining Permit any time before the expiry date of the Exploration Permit by filing a mineral discovery claim. Mining or Exploration can start only after obtaining the environmental impact assessment permit for the activity such permit is required.

Exar acquired its interests in the Cauchari and Olaroz Salars through either direct staking or exploration/usufruct of brines contracts with third party property owners (mainly Borax Argentina S.A.).

3.6 PROPERTY BOUNDARIES

The Exar claims follow the north-northeast trend of the Cauchari and Olaroz Salars. Figure 3.2 shows that the boundaries of the claims are irregular in shape (a reflection of the mineral claim law of the Province of Jujuy). All coordinates are recorded in the Gauss Krueger system with the WGS 84 datum. The coordinates of the boundaries of each claim are recorded in a file in the claims department of the Jujuy Provincial Ministry of Mines and are also physically staked on the ground with metallic pegs in concrete pillars. The entire area of exploitation has been surveyed and physically staked.

3.7 ENVIRONMENTAL LIABILITIES

Exar has developed a plan that promotes social and economic development within a sustainable framework. Exar began work on the Communities Relations Program with the Susques Department in 2009. This plan was created to integrate local communities into the Project by implementing programs aimed at generating positive impacts on these communities.

The Communities Relations Program has been divided into several sub-programs: one dealing with external and internal communications to provide information and transparency; a second is a consultation program that allows Exar to acknowledge community perceptions of their mining activities; a third program deals with service and supply contracts to be signed with the communities. The intended outcome of the program is to deliver on social, cultural, and environmental initiatives.

Exar has signed formal contracts with neighbouring communities that own the surface rights where the Project is developed. According to these contracts, the communities agree to grant Exar traffic and other rights in exchange for cash payments to be used based on decisions made at community assemblies.

The potential impacts to local fauna due to mine development must be managed to ensure they are minimal. Vicuñas are common in the region. The vicuña was traditionally exploited by local inhabitants for its wool. Past unrestricted hunting resulted in near extinction of the vicuña, which is now protected under a 1972 international agreement signed between Argentina, Chile, Bolivia, Peru, and Ecuador. It has been observed that vicuñas are present on the Archibarca Fan, part of which would be partially affected by Project development. The impact to vicuñas can be minimized by implementing the actions provided in the Project management plan in the IIA ("Informe de Impacto Ambiental").

With regard to potential development effects on other species in the area, such as ocultos, small lizards, and birds, a primary concern is the danger associated with accidental confinement in the large processing ponds. This potential should be minimized by methods such as: rescuing animals that may become entrapped, and relocation of animals to appropriate areas nearby.

Exar has prepared an inventory of known archaeological sites in the Department of Susques. An archeological survey of the Property identifies all findings that need to be managed in order to minimize any impact from the Project. This information is also filed with the authorities. Additional information is provided in Section 17.1.

The IIA expressly considers the closing mechanism and the post-closure monitoring of the proposed mine. The federal environmental legislation in Argentina and the provincial environmental legislation in Jujuy require a closure guarantees on which Exar has already submitted a proposal to the provincial mining authority

3.8 PERMITS

The Provincial Government of Jujuy (Direccion Provincial de Mineria y Recursos Energéticos) approved the Exar Environmental Impacts Report (the "IIA") for Cauchari-Olaroz exploration work, by Resolution No. 25/09 on August 26, 2009. Updates are required every two years to accurately reflect the ongoing exploration program. For Cauchari-Olaroz these included a 2009 update for IIA reports ("Actualización de Impacto Ambiental") incorporating topographic and geophysical studies, opening supply wells and new exploration wells. In addition, there was an IIA for the installation of a brine enrichment pilot plant, and in 2011 the renewal of the IIA was presented for the exploration stage, specifying all activities undertaken, and planned exploration activities for the 2012-2013 period. An addendum to the IIA for Exploration was submitted in May 2014 for the installation, implementation and subsequent operation of a Posco lithium phosphate plant which was approved in July 2014 (Resolution No. 011/2014). In June 2015 and June 2016 two separate IIA exploration permit addenda were submitted for on-going exploration work (Table 3.3). These remained in the approval process and, in agreement with the authority, were replaced in the approval process by the update of the IIA for exploration submitted in February 2017, and was approved for exploration works, by Resolution No. 008/17 on September 19, 2017. The IIA was updated again in Jun 2020 and December 2021 through Resolution No. 017/2021 to reflect ongoing exploration activities. The most recent update, submitted in March 2024, is still pending. A new update is in preparation and will be presented in 2026 to cover the period 2026 - 2028. Details are presented in Table 3.3.

Table 3.3
Exploration Permits for Cauchari-Olaroz Exploration Work

Report Submitted	Date Presented	Approvals	Observations
Environmental Impacts Report for Exploration (IIA Exploration)	2009	Resolution No. 25/09, August 26, 2009	Original exploration permit for Project
Environmental Impacts Report for Exploration (AIIA Exploration 2009)	2009		Included topographic and geophysical studies, opening supply wells and new exploration wells
Environmental Impacts Report for Exploration (AIIA Exploration 2011)	September 2011	Resolution No. 29/2012, November 08, 2012	Approval of activities for the 2012-2013 period
Addendum to Environmental Impacts Report for Exploration, Posco Pilot Plant	May 2014	Resolution No. 011/2014, July 15, 2014	Pilot lithium phosphate plant installation approved
Environmental Impacts Report for Exploration (AIIA Exploration 2015)	June 2015	Update cancelled and filed: DMyRE Note No. 101/2019	Operation of the pilot plant and the continuation of exploration including drilling of brine wellfield for the trial to test the hydraulic properties of the different aquifers. Drilling plan for the drilling of 49 wells was also presented including update of the 4 wells drilled up to the time of the presentation of the report.

Table 3.3
Exploration Permits for Cauchari-Olaroz Exploration Work

Report Submitted	Date Presented	Approvals	Observations
Environmental Impacts Report for Exploration	June 2016	Update cancelled and filed: DMyRE Note No. 101/2019	Presentation of the proposed work to be carried out over the following months: Phase 1: measurement of hydrogeological variables; Phase 2: pond construction and impermeability tests; Phase 3: drilling of deep wells; Phase 4: pilot plant tests and trials.
Update to Environmental Impacts Report for Exploration	February 2017	Resolution No.008/2017, September 19, 2017	It was agreed with the Authority that the Environmental Impacts Report for exploration (June 2016) would not be evaluated by the Authority and that this latest Environmental Impacts Report (Exploration, February 2017) would replace it. Update of the proposed works to be carried out during next years. This consisted of seismic reflection, SEV, trenches, measurement of hydrogeological variables; pond construction, impermeability tests; drilling of deep wells; pilot plant tests, construction of embankments, auxiliary roads and drilling platforms, drilling of wells, construction of facilities and camp. It also described the exploration works that were to be developed, consisting of geochemical sampling and exploration wells.
Update to Environmental Impacts Report for Exploration 2019 -2021	June 2020	Resolution No. 017/2021, December 17, 2021	Reflecting the ongoing exploration activities, 2019-2021.
Update to Environmental Impacts Report for Exploration 2021 - 2023	December 2021	Resolution No. 017/2021, December 17, 2021. (the previous resolution was maintained)	The authorities established that the same approving resolution be maintained in the current bi-annual renewal because the activities in this report correspond to the same ones from the previous renewal.
Update to Environmental Impacts Report for Exploration 2023 - 2025	February 2026	Resolution No. 028/2026	Presentation of the new activities to be carried out in the period which include the drilling of new brine wells and vertical electrical surveys focused on the southern area of the salt flat.

An Environmental Impacts Report ("IIA") for the exploitation phase was presented in December 2011 and approved by Resolution No. 29/2012 on 08 November 2012 based on an initial annual production of 20,000 tonnes of lithium carbonate with a second expansion phase to 40,000 tonnes/year.

A report for the update of the permit was submitted in March 2015 (AIIA Exploitation March 2015) based on the same Project description as in the initial 2011 filing. A further update was submitted in February 2017 based on updated Project parameters (AIIA Exploitation February 2017) and it was agreed with the Authority that this would replace the AIIA Exploitation March 2015 submission and was approved by Resolution No. 010/2017 on 05 October 2017.

The permit for exploitation issued in 2012 for the Project (IIA Exploitation December 2011) was still valid during this approval process, as ratified by a letter issued by the Gobierno de Jujuy (NOTA SMeH No 043/2017, issued 16 March 2017), which stated that "construction may commence on the necessary infrastructure approved in this permit, without prejudice to future adaptations and updates that the mining operator performs with respect to the mining project, which are subject to the analysis of this authority."

A further biannual update to the Environmental Impacts Report for Exploitation (AIIA Exploitation 2019) for Cauchari-Olaroz has been submitted for evaluation by the Authority and was approved by Resolution No. 080/2020. Subsequently, three more updates were presented, in 2021, 2023 and 2025. The 2021 update was approved by Resolution No. 103/2025 and the last two updates are still under evaluation.

Exploitation permits and reports submitted are summarized in Table 3.4.

The IIA expressly considers the closing mechanism and the post-closure monitoring of the proposed mine. The federal environmental legislation in Argentina and the provincial environmental legislation in Jujuy require a closure guarantee and as a result, Exar has already submitted a proposal to the provincial mining authority. The cash flow model includes estimated closure and remediation cost of US$86.4 million at the end of the mine life for Exar's environmental and closure obligations in order to comply with the considerations in the IIA and the legislation.

Exar has paid the water tariff since the granting of the water concession permit (160 L/s) was approved in 2018.

Table 3.4
Exploitation Permits for Cauchari-Olaroz

Report Submitted	Date Presented	Approvals	Observations
Environmental Impacts Report for Exploitation (IIA Exploitation December 2011)	December 2011	Resolution No. 29/2012, November 08, 2012	Production of 20,000 tonnes/year of lithium carbonate with a second expansion phase to 40,000 tonnes/year
Biannual Environmental Impacts Report for Exploitation (AIIA Exploitation March 2015)	March 2015	Update cancelled and filed: DMyRE Note No. 101/2019	Biannual update of the Environmental Impacts Report (AIIA) approved in 2012, based on exactly the same project approved in 2012

Table 3.4
Exploitation Permits for Cauchari-Olaroz

Report Submitted	Date Presented	Approvals	Observations
Biannual Environmental Impacts Report (Exploitation) (AIIA Exploitation February 2017)	February 2017	Resolution No. 010/2017, October 05, 2017	It was agreed with the Authority that the Environmental Impacts Report for exploitation (AIIA March 2015) would not be evaluated by the Authority and that this document (AIIA Exploitation, February 2017) would replace it. Production of 25,000 tonnes/year of lithium carbonate with a second expansion phase to 50,000 tonnes/year
Biannual Environmental Impacts Report (Exploitation) (AIIA Exploitation 2019)	September 2019	Resolution No. 080/2020, December 18,2020.	Detailed ongoing exploitation activities.
Biannual Environmental Impacts Report (Exploitation) (AIIA Exploitation 2021)	March, 2022	Resolution No. 103/2020, April 08,2020.	Initially included modifications for an expansion in production. This expansion request was subsequently retracted by the company, leaving the AIIA Exploitation 2021 activities as per AIIA Exploitation 2019.
Biannual Environmental Impacts Report (Exploitation) (AIIA Exploitation 2023)	December, 2023	Pending	The AIIA 2023, was presented to respect the bi-annual submission requirement, although the authority had not issued a permit for the previous (AIIA Exploitation 2021) report. Changes were added that are intended to be made with respect to ponds and harvest salts. Update submitted under Decree No. 7751-DEyP-2023
Biannual Environmental Impacts Report (Exploitation) (AIIA Exploitation 2025)	December, 2025	Pending	The AIIA 2025 was presented to respect the bi-annuity although the authority is not issued with the previous report. The changes remain in place with respect to ponds and harvest salts
Environmental impact report for expansion to 85.000 tonnes/year.	December, 2025	Pending	Environmental impact report for new expansion plant with DLE technology presented

3.9 NEIGHBOURING COMMUNITIES

The surface rights of the area subject to exploitation are owned by the local neighboring communities of Pastos Chicos (10-23-2011), Olaroz Chico (12-20-2011), Huancar (12-20-2011), Puesto Sey (12-14-2011), and a part of El Toro (as an easement for the water and gas pipelines), some locations are shown in Figure 4.1. Ownership of the ground that is not currently proposed for exploitation also includes Portico de los Andes and Catua (2-23-2012).

Exar has completed contracts with each local community to have the right to develop the mine and use local water resources and transit. The arrangements vary between communities, but they all include the following (see Section 17.5.4 Community Relations Program):

- Aggregate payments of approximately US$239,417 per year between 2017-2019;
- Aggregate payments of approximately US$552,000 per year in 2020 and after;
- Joint environmental monitoring programs;
- Priority rights for any job for which a person from the community is qualified;
- Training on site to qualify for employment;
- A school of business training in each community to assist in setting up businesses for the provision of services during construction; and
- Individual infrastructure programs in each community.

4.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE, AND PHYSIOGRAPHY

4.1 TOPOGRAPHY

The Cauchari and Olaroz Salars are bounded on the east and west by mountains that range in elevation from 4,600 m to 4,900 m (Figure 4.1). The Cauchari Salar forms an elongated northeast-southwest trending depression extending 55 km in a north-south direction and approximately 6 km to 10 km in an east-west direction. The Olaroz Salar extends 40 km north-south and 10 km to 15 km east-west. The elevation of the floor of the salars ranges from 3,910 m to 3,950 m. There is negligible vegetation on the surface of the salars.

4.2 ACCESS

The main access to the Olaroz and Cauchari Salars from San Salvador de Jujuy is via paved National Highways 9 and 52, as shown in Figure 4.1. The midpoint between the two salars is located along National Highway 52 (Marker KM 192). Paso Jama, a national border crossing between Chile and Argentina (also on National Highway 52) is 100 km west of the Project. These highways carry significant truck traffic, transporting borate products to market from various salars in northern Argentina. Access to the interior of the Olaroz and Cauchari Salars is possible through a gravel road, Highway 70, which skirts the west side of the salars.

4.3 POPULATION

The Town of Susques, (population of 1,374 according to a 2022 census), 45 km east of the Olaroz Salar, is the nearest population centre Figure 4.1). Further east lies the provincial capital of San Salvador de Jujuy (population of 308,950 according to a 2022 census) and the settlement of Catua (population of 442 according to a 2022 census) to the southwest. LAR utilizes local employees for approximately 74% of the Project workforce (from Salta and Jujuy), of which 24% are from the local communities. The company transports them to and from the site by bus.

Figure 4.1 Regional Topography and Population Centres Near Cauchari-Olaroz



Source: Burga et al. (2019)

4.4 CLIMATE

The region's climate is classified as Andean continental. reaching desert-like conditions (Etcheverría M. P., 2003).

The area is a high mountain zone, with its own distinct local variations, and is generally called Puna, referring to a markedly dry climate with intense solar radiation. where cloud cover is mainly nonexistent, with scarce rainfall, strong and frequent winds, and a high daily temperature range. typical of the local geography, with minimum temperatures that can reach -10°C at night and maximum temperatures of up to 30°C during the day (Bianchi, 1996).

According to the climate classification proposed by Köppen (1900), the climate of the study area is Bwk (arid and cold), characterized by low annual rainfall and an average annual temperature below 18°C.

The Puna region is characterized by marked aridity and low relative humidity, with an average annual temperature of 7 °C (Bianchi, 1996). It experiences harsh winters where temperatures can drop to -30 °C, and strong daily temperature ranges that can reach up to 50 °C between day and night. Dry, intense winds, high levels of sunshine, and intense solar radiation are also present due to the lack of clouds and the altitude. Rainfall is scarce in the summer, while heavy snowfall occurs during the winter (although this varies during El Niño/La Niña years). These factors, along with others, make it an inhospitable region with a harsh climate (Alonso, 2006; Strecker et al., 2007; Alonso. 2017).

Summer rainfall in the region is infrequent, typically not exceeding 100 mm annually, and usually occurs during a short period of the year, Snowfall is common from June to August, while hailstorms occur more frequently in April-May and September-October.

For the climatic characterization of the study area, records from local meteorological stations located within Cauchari-Olaroz were used (Table 4.1). The recorded parameters include precipitation, evaporation, temperature, relative humidity, atmospheric pressure, winds, and solar radiation.

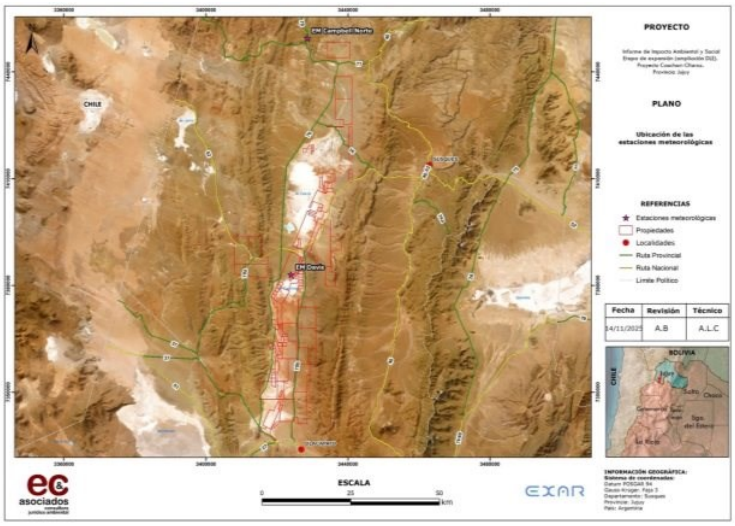
Table 4.1
Location Coordinates of the Meteorological Stations of Cauchari-Olaroz

Weather Station	Gauss-Krüger Coordinates - Zone 3		Registration Period
	East	North	
Davis	3,424,003	7383,197	2023 - 2025
Campbell North	3,428,577	7,449,506	2024 - 2025

Source: Exar Mining Company

The Figure 4.2 shows the location map of the local weather stations.

FIGURE 4.2 LOCATION OF LOCAL METEOROLOGICAL STATIONS



Source: Exar

4.5 PRECIPITATION

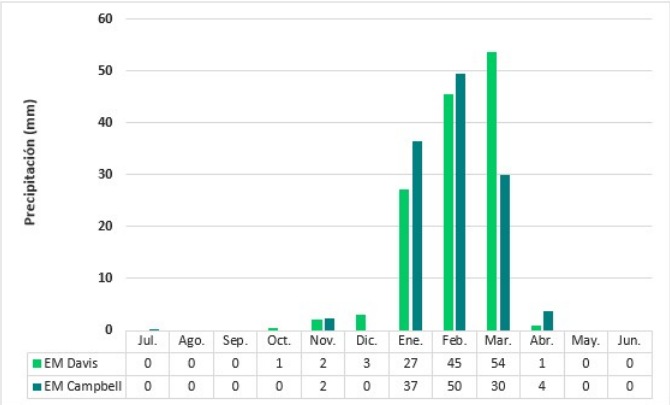
According to existing records, precipitation is scarce and irregularly distributed throughout the year, under a monsoon-type regime, concentrated between the summer months (January to March), with an average annual rainfall of 133 mm for the Davis Pumping Station located in Cauchari-Olaroz's operational area; and 122 mm for the Campbell Norte Pumping Station, located towards the northern end of the Cauchari-Olaroz basin, near the community of El Toro.

The highest rainfall totals were recorded in March, making it the wettest month, with average monthly values of 54 mm at the Davis Pumping Station during the period 2023-2025, representing 40.6% of the average annual rainfall and 50 mm at the Campbell North weather station for the month of February, according to available records (2024-2025), representing 41% of the annual rainfall, with over 90% of the annual precipitation concentrated in the warmer months.

During the dry season, from May to October, rainfall is generally scarce to nonexistent.

Figure 4.3 shows the average monthly rainfall for the weather stations considered.

Figure 4.3 Record of Average Monthly Rainfall for the Study Area

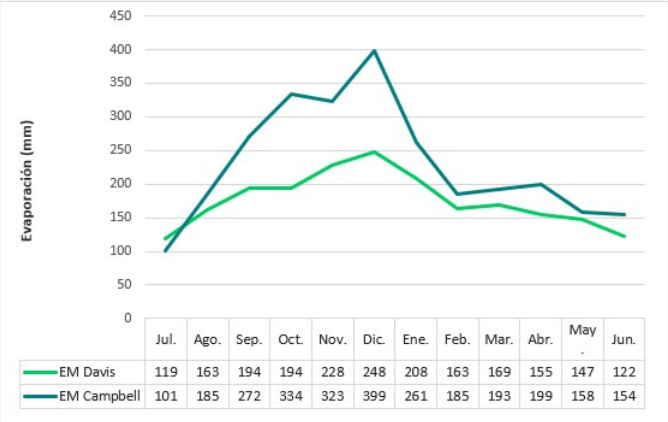


	Jul.	Ago.	Sep.	Oct.	Nov.	Dic.	Ene.	Feb.	Mar.	Abr.	May.	Jun.
EM Davis	0	0	0	1	2	3	27	45	54	1	0	0
EM Campbell	0	0	0	0	2	0	37	50	30	4	0	0

The Puna region is exposed to substantial warming due to the enormous amount of radiation it receives and the limited availability of moisture to utilize this energy in atmospheric transformation processes. These extreme conditions favor evaporative processes, especially since rainfall is typically less than 100 mm per year.

A particular characteristic of the Puna region is that the scant rainfall during the summer does not contribute to surface runoff or soil recharge, as it is only sufficient to meet evapotranspiration demands, resulting in a deficit in many areas, even during the months with the highest rainfall. The accumulated monthly evaporation records for Cauchari-Olaroz area are presented in the Figure 4.4.

FIGURE 4.4 MONTHLY EVAPOTRANSPIRATION



	Jul.	Ago.	Sep.	Oct.	Nov.	Dic.	Ene.	Feb.	Mar.	Abr.	May.	Jun.
EM Davis	119	163	194	194	228	248	208	163	169	155	147	122
EM Campbell	101	185	272	334	323	399	261	185	193	199	158	154

Clarification: In July 2025, there was an error in the evaporator (water loss) at the Campbell weather station, which is why it is the only month in which the evapotranspiration record was lower than that obtained at the Davis weather station.

The recorded periods have precipitation lower than the potential evapotranspiration, meaning that precipitation does not satisfy the monthly evapotranspiration demand (EP) at any point during the year. This indicates that not enough water is stored in the soil to cover its entire water demand, and all precipitation is consumed in the actual evapotranspiration (ER) process.

The characteristics of the thermal regime determine the necessary conditions for evapotranspiration values to be high enough to offset the volumes of precipitated water.

4.6 TEMPERATURE

Temperatures are harsh, even during the summer season, due to the altitude and atmospheric dryness, where cloud cover is low, resulting in high sunshine and a significant daily temperature range.

According to available records, the average annual temperature for the study area varies from 6.2°C (Campbell Norte Station) to 8°C (Davis Station), with minimum monthly temperatures dropping to between -15°C and -20°C during the winter, while maximum monthly temperatures in summer reach between 25°C and 30°C.

The average monthly maximum temperature for the Campbell North Station is recorded in February with a value of 10.1°C, and the average monthly minimum is 2.3°C in July. For the Davis Station, the average monthly maximum is 12.9°C in December, and the average monthly minimum is 1.7°C in July. The highest temperatures are recorded during the summer period, coinciding with the months of greatest rainfall.

Figure 4.5 and Figure 4.6 show the variation in average monthly temperature for the analyzed period, exhibiting a marked seasonality.

Figure 4.5 Record of Average Monthly Temperatures - Davis Station

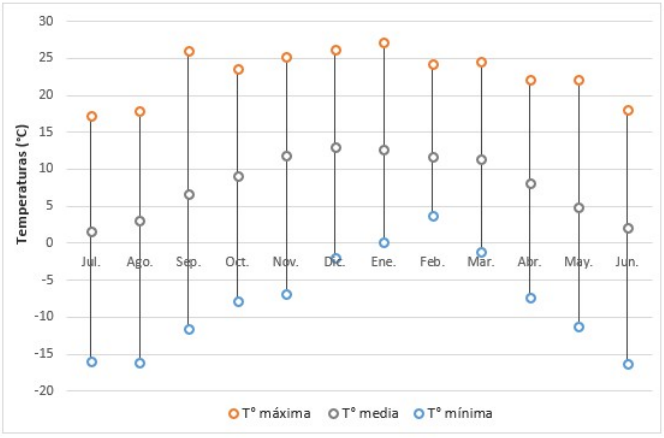
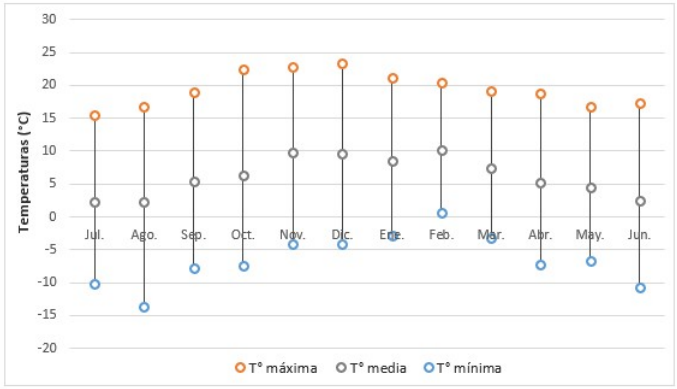


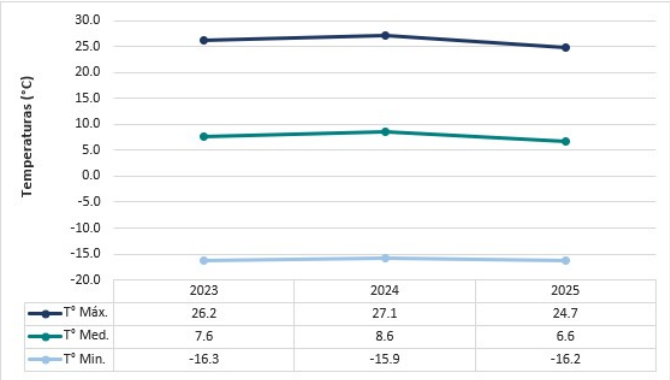
Figure 4.6 Record of Average Monthly Temperatures - Campbell North Station



Regarding extreme temperatures (average and absolute), these are described based on the available records for the measurement period considered.

The highest absolute temperature recorded for Cauchari-Olaroz (Davis Station) operations area was 27.1°C in January 2024, while the lowest absolute temperature was -16.3°C in June 2023. The average annual temperatures range from 6 to 9°C (Figure 4.7).

Figure 4.7 Annual Maximum and Minimum Temperatures - Davis Weather Station



	2023	2024	2025
T° Máx.	26.2	27.1	24.7
T° Med.	7.6	8.6	6.6
T° Min.	-16.3	-15.9	-16.2

Towards the northern end of the Cauchari-Olaroz basin, near the community of El Toro, the Campbell Norte weather station recorded an absolute maximum temperature of 23.3°C in December 2024 and an absolute minimum temperature of -13.7°C in August 2025. The average annual temperatures range from 5 to 6°C (Figure 4.8).

FIGURE 4.8 ANNUAL MAXIMUM AND MINIMUM TEMPERATURES - CAMPBELL NORTH WEATHER STATION



	2024	2025
T° Máx.	23.3	21.1
T° Med.	6.1	5.1
T° Min.	-11.0	-13.7

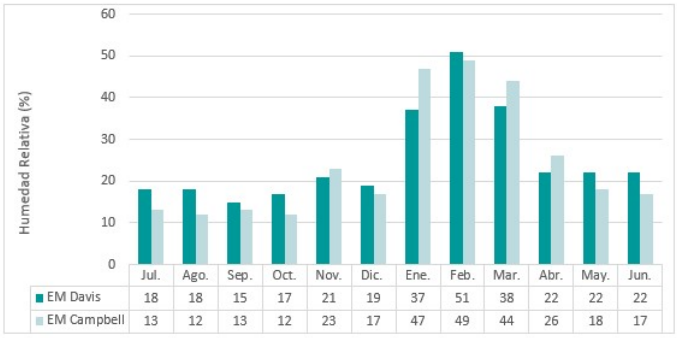
4.7 RELATIVE HUMIDITY

The air masses that reach the region generally have a relatively low moisture content, due to a combination of atmospheric flow patterns, the region's topographic characteristics, and high altitude. Furthermore, the prevailing cold environment, due to the altitude, results in a lower capacity to retain water vapor. Sunshine duration and air dryness are high, with 85% of possible sunshine hours during the winter months, and the maximum relative humidity occurs during the summer, which coincides with the rainy season.

In the study area, according to data from the meteorological stations considered, relative humidity is very low, averaging around 21% (EM Campbell Norte) and 25% (EM Davis). The average monthly relative humidity is highest in February, reaching values of 50%, and lowest during the spring period (September to October), with values between 10% and 20%.

Figure 4.9 presents the average monthly relative humidity values recorded for Cauchari-Olaroz area, according to local meteorological stations.

FIGURE 4.9 AVERAGE MONTHLY RELATIVE HUMIDITY FOR THE STUDY AREA

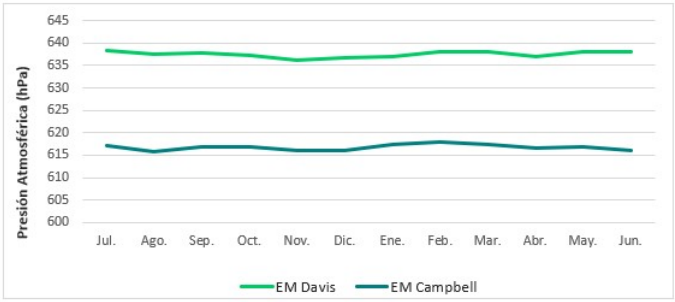


4.8 ATMOSPHERIC PRESSURE

Atmospheric pressure at the surface of the Altiplano is approximately 40% lower than the corresponding value at sea level. The thinner atmospheric column explains why atmospheric pressure variability is relatively small across all time scales. Furthermore, considering altitude, pressure decreases with elevation because the atmospheric layer exerting its weight on the surface diminishes.

In the study area, the average annual atmospheric pressure was recorded at between 637 hPa (Davis Station) and 617 hPa (Campbell North Station). Figure 4.10 presents the average monthly data from local meteorological stations.

FIGURE 4.10 AVERAGE MONTHLY ATMOSPHERIC PRESSURE FOR THE STUDY AREA



4.9 WINDS

The wind regime in the Puna is subject to significant local variations, as circulation is strongly controlled by topography. The air rising over the Puna surface must be counterbalanced by air from the lower-lying neighboring areas. Local wind systems are strong during the day, particularly up the valleys descending from the Puna.

Wind direction depends directly on the pressure distribution, as it tends to blow from high-pressure areas towards lower-pressure areas. Winter winds come from the south and west, while summer winds come from the north and northeast, with the latter reaching the greatest intensities. These winds sometimes lift sand and snow, creating whiteout conditions (Nadir and Chafatinos, 1990).

Due to its particular climatic conditions (high aridity, sunshine, and a wide temperature range), physical weathering phenomena dominate, with wind being the main agent of erosion, transport, and accumulation. Strong westerly winds give rise to sandstorms and dust clouds that reach heights of 7,000 m and extend beyond the high peaks of the Eastern Cordillera (Alonso, 2008).

It is estimated that the wind in the region reaches its greatest intensity during spring, with the lowest readings occurring in mid-autumn. Winds generally occur between midday and the early afternoon, are extremely dry, and are accompanied by temperatures ranging from 5° to 20° C. To characterize the winds in the study area, the free software WRPLOT View was used, utilizing wind direction and speed records provided by reference meteorological stations.

Table 4.2 presents the frequency distributions of winds according to direction and average speed, based on the Davis Station data.

Table 4.2
Distribution of Wind Frequencies by Direction and Speed
from 2023 to 2025 - Davis Weather Station

Wind Direction		Wind Speed Classes (km/h)						
		2 - 8	**8 - 13**	**13 - 21**	**21 - 32**	**32 - 40**	**>= 40**	**Total (%)**
1	N	2.663	2.150	0.750	0.101	0.007	0.000	**5.67**
2	NNE	1.866	2.055	0.656	0.115	0.020	0.000	**4.71**
3	NE	1.487	1.196	0.534	0.128	0.014	0.000	**3.36**
4	ENE	0.933	0.534	0.318	0.047	0.000	0.000	**1.83**
5	E	0.831	0.345	0.338	0.115	0.000	0.000	**1.63**
6	ESE	0.561	0.230	0.412	0.101	0.000	0.000	**1.30**
7	SE	0.973	0.541	0.297	0.068	0.000	0.000	**1.88**
8	SSE	1.399	0.588	0.101	0.007	0.000	0.000	**2.10**
9	S	2.636	1.257	0.406	0.122	0.088	0.041	**4.55**
10	SSW	2.704	0.723	0.581	0.169	0.000	0.000	**4.18**
11	SW	3.501	0.662	0.615	0.392	0.014	0.000	**5.18**
12	WSW	2.089	0.629	0.926	1.203	0.135	0.000	**4.98**
13	W	1.697	1.190	2.501	3.326	0.804	0.318	**9.84**
14	WNW	1.730	2.156	5.678	6.814	2.839	1.041	**20.26**

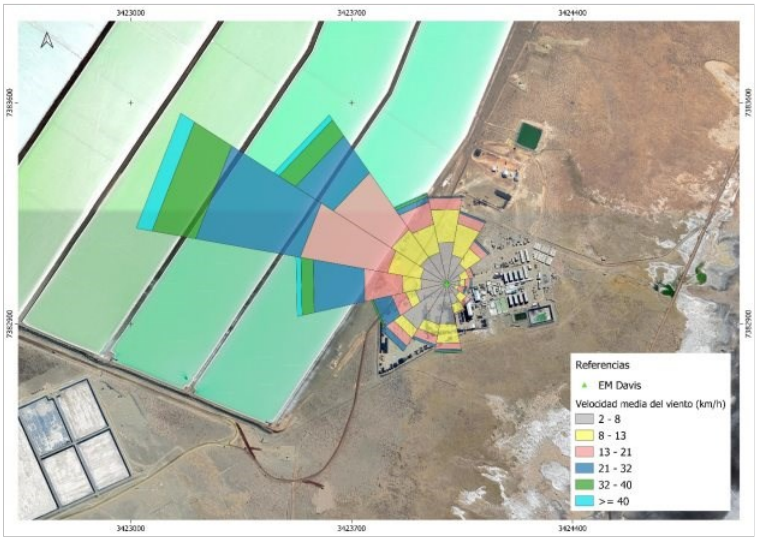
Table 4.2
Distribution of Wind Frequencies by Direction and Speed from 2023 to 2025 - Davis Weather Station

Wind Direction		Wind Speed Classes (km/h)						
		2 - 8	**8 - 13**	**13 - 21**	**21 - 32**	**32 - 40**	**>= 40**	**Total (%)**
15	NW	2.048	2.170	4.434	2.880	1.264	0.379	**13.17**
16	NNW	2.048	1.845	1.440	0.372	0.176	0.068	**5.95**
Sub-Total		**29.17**	**18.27**	**19.99**	**15.96**	**5.36**	**1.85**	**90.59**
Calm								**9.41**
Total								**100**

As a result, wind speed ranges were defined, and 16 wind direction classes were obtained (N, NNE, NE, ENE, E, ESE, SE, SSE, S, SSW, SW, WSW, W, WNW, NW, NNW). Each speed frequency value, in each direction, was converted into percentages for easier reading and interpretation.

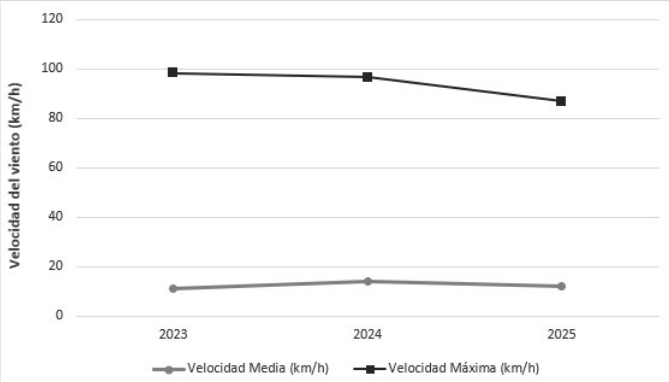
According to records from the Davis weather station, during the period 2023-2025, the prevailing winds originated from the west quadrant, from WNW (20.26%), NW (13.17%), and W (9.84%) directions, with maximum average speeds (gusts) reaching 50 km/h (Figure 4.11). Among the average speed ranges, the highest percentages (29.17% and 19.99%) corresponded to light to breezy winds, and ranging from 2 to 8 km/h and 13 to 21 km/h, respectively. Strong to very strong winds, with high intensities exceeding 40 km/h, originated from the west (1.80%). Calm winds accounted for 9.41%, with speeds below 2 km/h.

Figure 4.11 Wind Rose Plot - Davis Weather Station



Data available for the Davis Weather Station indicates that the average wind speed ranges from 11 to 14 km/h, with a maximum recorded speed of 98.2 km/h in November 2023. Figure 4.12 shows the average and maximum wind speeds recorded during the period 2023-2025.

Figure 4.12 Wind Speeds (km/h) 2023-2025 - Davis Weather Station



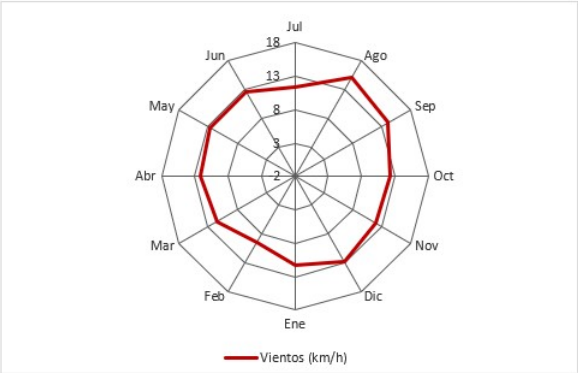
Regarding seasonality, although winds occur throughout the year, the highest average wind speeds are recorded between August and October, with an average annual speed of 12.24 km/h (Table 4.3).

Table 4.3
Average Monthly and Average Annual Wind Speed (km/h) from 2023 to 2025 - Davis Weather Station

Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Yearly Avg.
11.24	9.30	11.42	12.08	12.60	12.56	11.30	15.21	14.16	12.22	11.98	12.75	**12.24**

Figure 4.13 shows the average monthly speeds for the Davis weather station.

Figure 4.13 Average Wind Speed Records (km/h) - Davis Weather Station



For Campbell North Weather Station, the distribution of wind frequencies according to their direction and average speed for the period 2024-2025 is presented in Table 4.4.

Table 4.4
Distribution of Wind Frequencies by Direction and Speed from 2024 to 2025 - Campbell North Weather Station

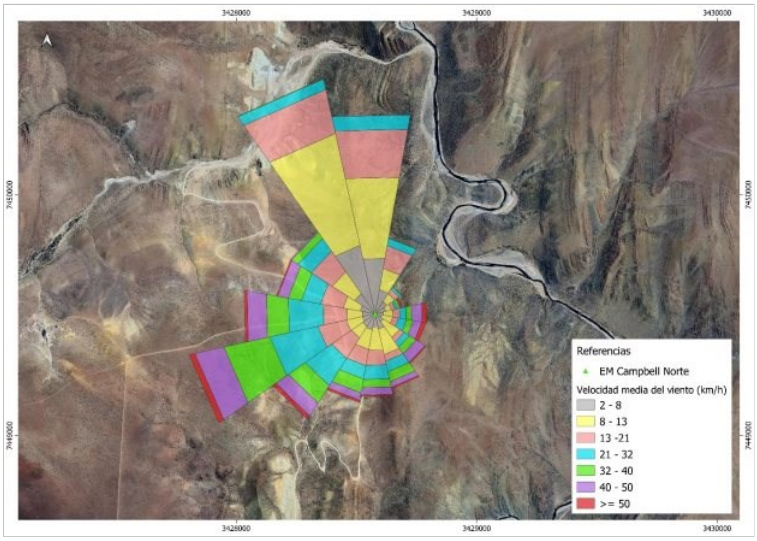
Wind Direction		Wind Speed Classes (km/h)							
		2 - 8	**8 - 13**	**13 - 21**	**21 - 32**	**32 - 40**	**40 - 50**	**>= 50**	**Total (%)**
1	N	2.376	3.491	2.067	0.618	0.000	0.000	0.000	**8.55**
2	NNE	1.033	0.911	0.985	0.317	0.024	0.000	0.000	**3.27**
3	NE	0.618	0.391	0.236	0.114	0.024	0.000	0.000	**1.38**
4	ENE	0.472	0.236	0.163	0.106	0.106	0.041	0.073	**1.20**
5	E	0.358	0.415	0.285	0.285	0.228	0.456	0.212	**2.24**
6	ESE	0.293	0.472	0.244	0.358	0.285	0.358	0.179	**2.19**
7	SE	0.415	0.822	0.236	0.269	0.334	0.439	0.057	**2.57**
8	SSE	0.667	1.115	0.285	0.456	0.431	0.244	0.057	**3.25**
9	S	0.578	0.993	0.643	0.618	0.342	0.325	0.065	**3.56**
10	SSW	0.692	0.846	0.700	0.578	0.594	0.317	0.098	**3.82**
11	SW	0.643	0.578	1.033	1.367	0.871	0.659	0.163	**5.31**
12	WSW	0.553	0.700	1.237	2.091	1.993	1.261	0.244	**8.08**
13	W	0.545	0.667	1.017	1.505	0.944	0.838	0.122	**5.64**
14	WNW	0.651	0.724	0.976	0.830	0.570	0.448	0.057	**4.25**
15	NW	1.033	1.131	1.058	0.667	0.325	0.057	0.000	**4.27**

Table 4.4
Distribution of Wind Frequencies by Direction and Speed from 2024 to 2025 - Campbell North Weather Station

Wind Direction		Wind Speed Classes (km/h)							
		2 - 8	8 - 13	13 - 21	21 - 32	32 - 40	40 - 50	>= 50	Total (%)
16	NNW	2.970	4.849	1.912	0.448	0.024	0.000	0.000	**10.20**
Sub-Total		**13.90**	**18.34**	**13.07**	**10.62**	**7.09**	**5.44**	**1.33**	**69.79**
Calm									**30.21**
Total									**100**

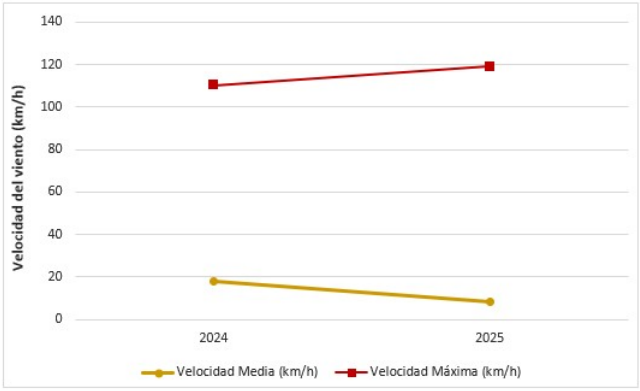
According to records from the Campbell North weather station, during the period 2024-2025, the prevailing winds originated from the north quadrant, blowing north (8.55%), and from the west quadrant, blowing north-northwest (10.20%) and west-southwest (8.08%), with maximum average speeds (gusts) reaching 80 km/h. Among the average speed ranges, the largest percentage (18.34%) consisted of light winds, ranging from 8 to 13 km/h. Strong to very strong winds, with high intensities exceeding 40 km/h, originated from the south quadrant (4.47%). Calm winds accounted for 30.21% of the time, with speeds below 2 km/h (Figure 4.14).

Figure 4.14 Wind Rose Plot - Campbell North Weather Station



Furthermore, it was found that the average wind speed ranged from 8 to 18 km/h and the maximum speed recorded was 118.9 km/h, in the month of August 2025. The Figure 4.15 shows the average and maximum values ecorded in the period 2024 - 2025.

Figure 4.15 Wind Speeds (km/h) Period 2024 to 2025 - Campbell North Weather Station



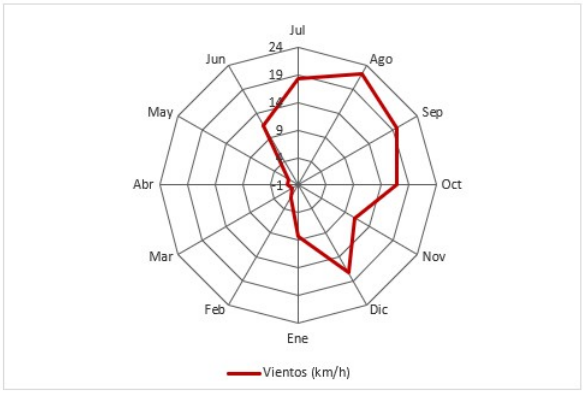
Regarding seasonality, the highest average wind speeds are recorded between August and September, with an average annual speed of 10.7 km/h (Table 4.5).

Table 4.5
Average Monthly and Average Annual Wind Speed (km/h) Period 2024 to 2025, EM Campbell Norte

Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Yearly Avg.
8.34	1.54	0.23	0.96	0.81	11.32	18.28	22.18	19.71	16.82	10.92	17.27	**10.70**

Figure 4.16 shows the average monthly speeds for the local weather station.

Figure 4.16 Average Wind Speed Records (km/h) - Campbell North Weather Station

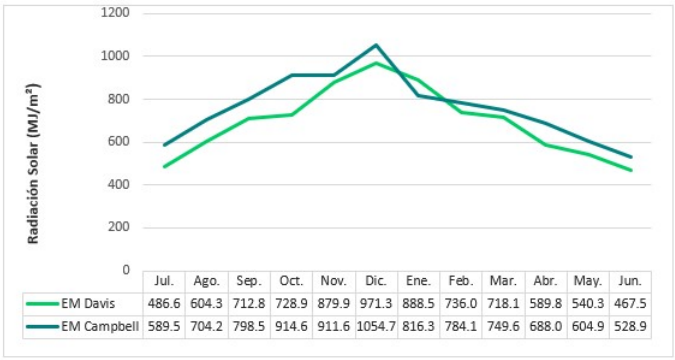


Clarification: The lack of data observed in the month of February is due to a failure in the anemometer.

4.10 SOLAR RADIATION

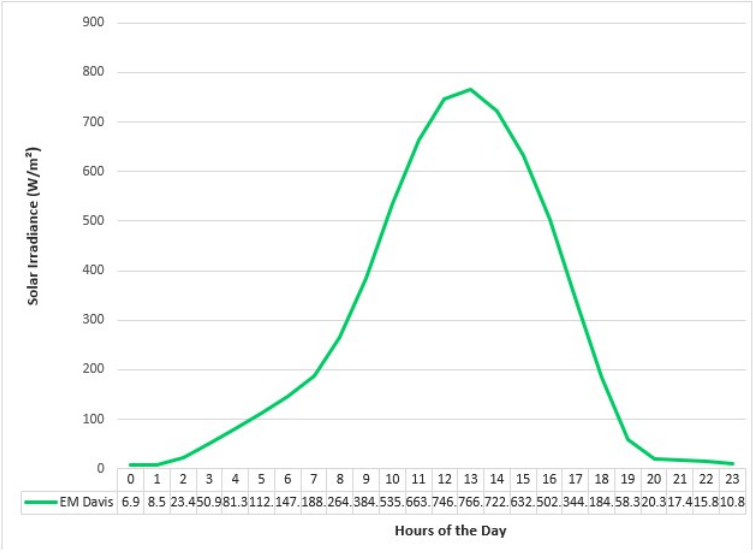
The integrated monthly solar irradiance is presented in Figure 4.17. Figure 4.18 shows the average annual daily irradiance values, which correspond to the average daily solar irradiance value during the analyzed period (2023-2025) at the Davis Station.

Figure 4.17 Monthly Solar Irradiance (MJ/m²) for the Study Area



	Jul.	Ago.	Sep.	Oct.	Nov.	Dic.	Ene.	Feb.	Mar.	Abr.	May.	Jun.
EM Davis	486.6	604.3	712.8	728.9	879.9	971.3	888.5	736.0	718.1	589.8	540.3	467.5
EM Campbell	589.5	704.2	798.5	914.6	911.6	1054.7	816.3	784.1	749.6	688.0	604.9	528.9

Figure 4.18 Average Annual Daily Solar Irradiance (W/m^2) - 2023 - 2025 - Davis Weather Station



It is observed that the highest solar radiation values are recorded during midday and the early afternoon, around 4:00 PM, ranging between 500 and 700 W/m².

During 2024, a maximum solar radiation value of 1552 W/m² was recorded in February, coinciding with the warm season, at the Davis Station, located in Cauchari-Olaroz's operational area. The absolute maximum solar radiation values recorded are shown in Figure 4.19.

Figure 4.19 Maximum Solar Radiation Recorded (W/m^2) - Period 2023 - 2025 - Davis Weather Station

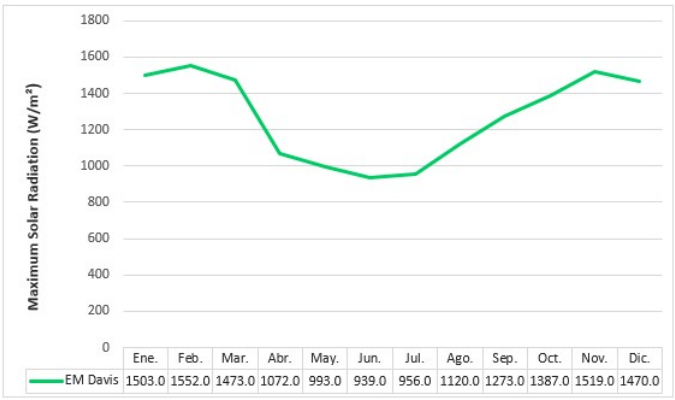
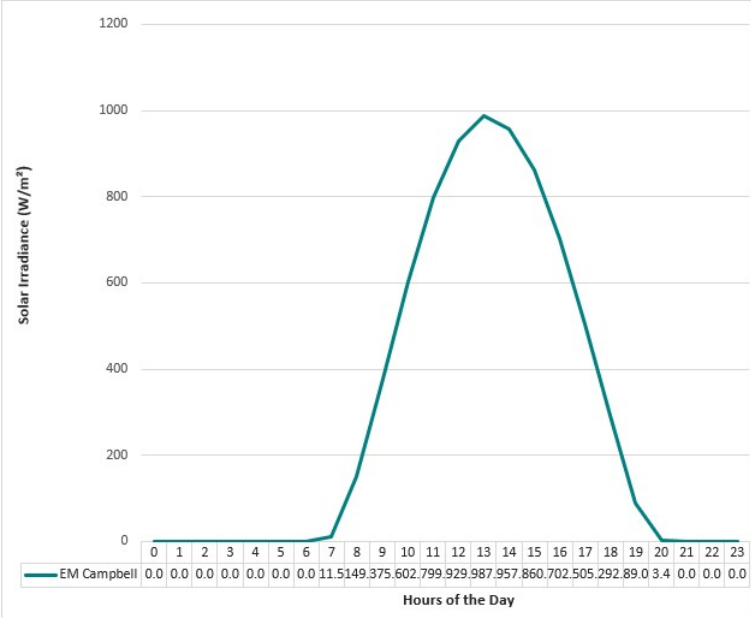


Figure 4.20 shows the average annual daily irradiance values, which correspond to the average daily solar irradiance value during the analyzed period (2024-2025) at the Campbell North Weather Station.

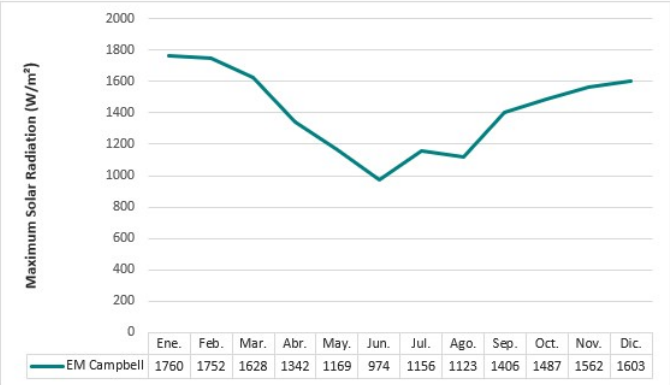
It can be observed that the highest solar radiation values are recorded during the midday hours and early afternoon, around 4:00 PM, ranging between 700 and 900 W/m².

Figure 4.20 Average Annual Daily Solar Irradiance (W/m^2) - Period 2024 to 2025 - Campbell North Weather Station



During 2025, a maximum solar radiation value of 1760 W/m² was recorded in January, coinciding with the warm season, at the Campbell Norte Monitoring Station, located in the northernmost part of the Cauchari-Olaroz basin. Figure 4.21 shows the absolute maximum solar radiation values recorded.

FIGURE 4.21 MAXIMUM SOLAR RADIATION RECORDED (W/M²) - 2024 TO 2025 - CAMPBELL NORTH WEATHER STATION



4.11 AIR QUALITY

Air quality is protected by Law No. 5063 (General Environmental Law) and regulated by Decree 5980/06, which, among other things, determines the emission limits required for compliance with the environmental quality standards of the receiving bodies (Table 4.6).

TABLE 4.6
AIR QUALITY GUIDELINE LEVELS

Contaminant	µg/m^3	Time Period
CO	40	1 hour
	10	8 hours
SO_2	850	1 hour
	400	24 hours
	80	1 year
NO_2	400	1 hour
	180	24 hours
	100	1 year
Lead	1.5	3 months
Particulate Matter	150	24 hours
Respirable Fraction	50	1 year
Ozone	235	1 hour
(photochemical oxidants)	120	8 hours
SH_2	8	30 minutes

For the characterization of air quality at the site of the Expansion Project, information generated by the company during participatory environmental monitoring was considered. The data corresponds to the period 2023-2025. Four sampling points were identified near the areas designated for this new project, and their locations are indicated in Table 4.7 and Figure 4.22.

Table 4.7
Air Quality Sampling Points

Site		Geographic Coordinates		Gauss-Krüger. Zone 3 (POSGAR 94)	
Nomenclatura		Latitud S	Longitud O	Y	X
CIO	CA-5	23°36'8,88"	66°46'16,56"	3421700	7390496
Process Plant	CA-1	23°40'26,20"	66°46'23,84"	3421118	7382576
Salar Cauchari	CA-4	23°37'7,58"	66°43'21,42"	3426256	7388713
Cauchari South Zone (El Porvenir)	CA-2	23°48'50,42"	66°45'41,96"	3422218	7367071

In all monitoring activities, the recorded concentrations were consistently below the guideline values established in Decree 5980/06, Annex V, Table 58, with no exceedances or upward trends observed with respect to the reference limits.

The air quality values obtained from March 2023 to June 2025 are detailed below for each site and regulated pollutant (Table 4.8).

Figure 4.22 Air Quality Sampling Points

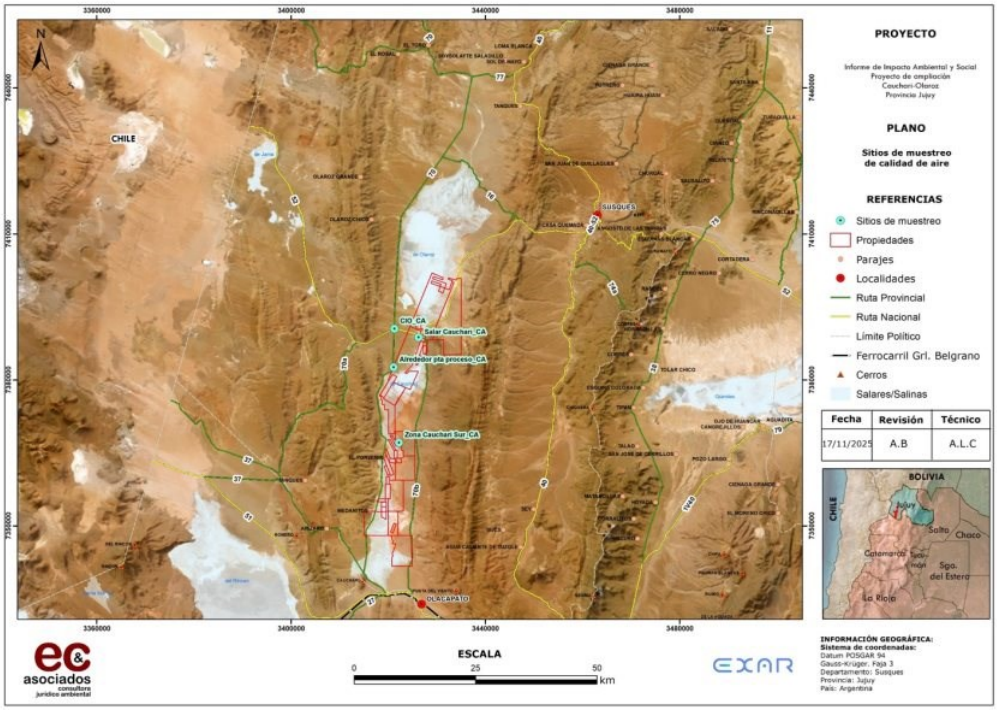


Table 4.8
Historical Air Quality Results

Site	Parameter	Mar-23	Jun-23	Sep-23	Dec-23	Mar-24	Jun-24	Sep-24	Dec-24	Mar-25	Jun-25
Cauchari Sur	CO ($\mu g/m^3$)	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
Cauchari Sur	SO_2 ($\mu g/m^3$)	50	50	50	50	50	50	50	50	50	50
Cauchari Sur	NOx ($\mu g/m^3$)	50	50	50	50	50	50	50	50	50	50
Cauchari Sur	O3 ($\mu g/m^3$)	100	100	100	100	100	100	100	100	100	100
Cauchari Sur	SH_2 ($\mu g/m^3$)	6	6	6	6	6	6	6	6	6	6
CIO	CO ($\mu g/m^3$)	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
CIO	SO_2 ($\mu g/m^3$)	50	50	50	50	50	50	50	50	50	50
CIO	NO_x ($\mu g/m^3$)	50	50	50	50	50	50	50	50	50	50
CIO	O_3 ($\mu g/m^3$)	100	100	100	100	100	100	100	100	100	100
CIO	SH_2 ($\mu g/m^3$)	6	6	6	6	6	6	6	6	6	6
New Plant	CO ($\mu g/m^3$)	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
New Plant	SO_2 ($\mu g/m^3$)	50	50	50	50	50	50	50	50	50	50
New Plant	NOx ($\mu g/m^3$)	50	50	50	50	50	50	50	50	50	50
New Plant	O_3 ($\mu g/m^3$)	100	100	100	100	100	100	100	100	100	100
New Plant	SH_2 ($\mu g/m^3$)	6	6	6	6	6	6	6	6	6	6
Salar Cauchari	CO ($\mu g/m^3$)	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
Salar Cauchari	SO_2 ($\mu g/m^3$)	50	50	50	50	50	50	50	50	50	50
Salar Cauchari	NO_x ($\mu g/m^3$)	50	50	50	50	50	50	50	50	50	50
Salar Cauchari	O_3 ($\mu g/m^3$)	100	100	100	100	100	100	100	100	100	100
Salar Cauchari	SH_2 ($\mu g/m^3$)	6	6	6	6	6	6	6	6	6	6
Cauchari Sur	PM10 ($\mu g/m^3$)	50	50	50	50	50	50	50	50	50	50
Cauchari Sur	Pb Aire ($\mu g/m^3$)	1	1	1	1	1	1	1	1	1	1
CIO	PM10 ($\mu g/m^3$)	50	50	50	50	50	50	50	50	50	50
CIO	Pb Aire ($\mu g/m^3$)	1	1	1	1	1	1	1	1	1	1
New Plant	PM10 ($\mu g/m^3$)	50	50	50	50	50	50	50	50	50	50

Table 4.8
Historical Air Quality Results

Site	Parameter	Mar-23	Jun-23	Sep-23	Dec-23	Mar-24	Jun-24	Sep-24	Dec-24	Mar-25	Jun-25
New Plant	Pb Aire ($\mu g/m^3$)	1	1	1	1	1	1	1	1	1	1
Salar Cauchari	PM10 ($\mu g/m^3$)	50	50	50	50	50	50	50	50	50	50
Salar Cauchari	Pb Aire ($\mu g/m^3$)	1	1	1	1	1	1	1	1	1	1

4.12 NOISE

Environmental noise has become one of the most significant and disruptive pollutants in contemporary society, with direct effects on the well-being and health of the population. In addition to hearing damage resulting from excessive noise levels, it is essential to consider the non-auditory effects, both on humans and other species. In the ecological field, the study of the consequences of anthropogenic noise on fauna is still in its early stages, with a limited number of studies and only partial knowledge of the relationship between noise exposure levels and biological or behavioral responses in wildlife. This lack of information is largely due to the complexity of the environmental variables involved and the spatial variability of noise at the landscape scale (Fahrig, 2003; Coffin, 2007).

For the Puna region, the scientific literature does not report specific studies analyzing the acoustic effects of anthropogenic industrial activities on local fauna in this arid, high-mountain ecosystem.

In Argentina, there are no regulations governing this component, so international standards are used. International organizations such as the World Bank (WB) and the US National Association of Environmental Quality Standards (NAAQS) and the United States Environmental Protection Agency (USEPA), according to the International Finance Corporation (IFC, 2007), and the World Health Organization (WHO), have suggested sound thresholds depending on the area or activity taking place, in this case, industrial zones. These environmental regulations generally establish lower limits than those of labour laws because they consider factors such as tranquility and rest, not just hearing health. This is summarized in Table 4.9.

TABLE 4.9
COMPARISON STANDARDS FOR NOISE QUALITY

Application Areas	Values Expressed in dBA	
	Daytime Hours	Nightime Hours
World Bank		
Residential - Institutional - Educational	55	45
Industrial - commercial	70	70
US-EPA		
Residential	75	65
Industrial - commercial	80	72

The baseline for current ambient noise levels in the area of influence of the expansion project is based on information obtained from participatory environmental monitoring reports conducted by the company. For this purpose, four sites were selected that are representative due to their proximity to the new project areas. The location of these points is shown in Figure 4.23 and Table 4.10.

FIGURE 4.23 AMBIENT NOISE SAMPLING POINTS

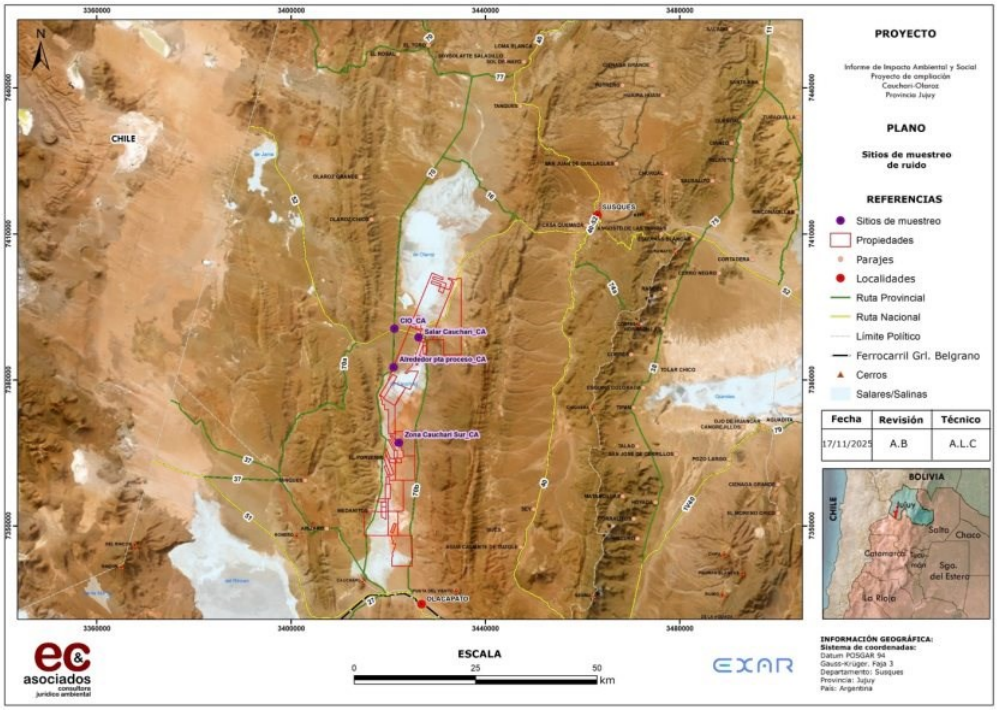


Table 4.10
Location of Noise Quality Sampling Points

Site		Geographic Coordinates		Gauss-Krüger. Zone 3 (POSGAR 94)	
		Latitud S	Longitud O	Este	Norte
Near Processing Plant	R1	23°40'25,10"	66°46'22,10"	3421167,00	7382610,00
CIO	R2	23°36'08,20"	66°46'01,70"	3421702,64	7390517,07
Salar Cauchari	R4	23°37'06,40"	66°43'19,50"	3426310,41	7388750,40
Cauchari South Zone (El Porvenir)	R7	23°48'50,89"	66°45'41,67"	3422218,09	7367071,11

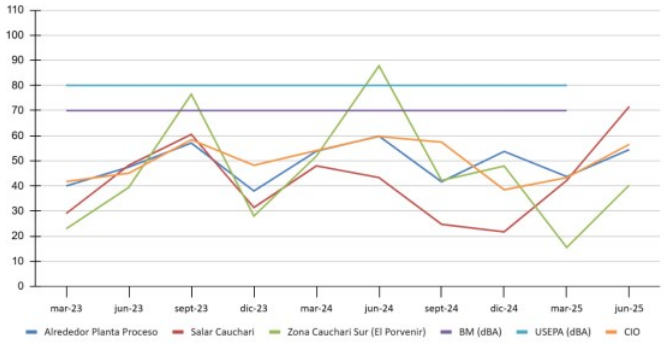
The characterization was conducted between March 2023 and June 2025. The data obtained are summarized in Table 4.11, which also mentions the threshold values and highlights the cases in which these limits were exceeded.

Table 4.11
Historical Noise Quality Results and the Thresholds Established by International Standards

Monitoring	LAeq.10				BM (dBA)	USEPA (dBA)	OMS	
	R1	R2	R4	R7			Leq (dBA)	LMax (dBA)
Mar-23	40	41.7	29	22.9	70	80	70	110
Jun-23	47.49	45.05	48.2	39.4	70	80	70	110
Sep-23	57.07	58.38	60.5	**76.47**	70	80	70	110
Dec-23	38	48.2	31.4	28	70	80	70	110
Mar-24	53.8	54.06	48	51.9	70	80	70	110
Jun-24	59.82	59.64	43.3	**87.8**	70	80	70	110
Sep-24	41.64	57.43	24.7	42.2	70	80	70	110
Dec-24	53.69	38.45	21.72	47.9	70	80	70	110
Mar-25	43.71	43.29	42.17	15.51	70	80	70	110
Jun-25	54.46	56.53	**71.6**	40.32	70	80	70	110

In most cases, the values are below the limits established by the regulations. Regarding the three values exceeding the limit, their corresponding reports indicate that they were associated with strong winds at the time of measurement. Figure 4.24 graphically presents the results obtained with respect to the reference limits considered.

Figure 4.24 Historical Noise Quality Results and the Threshold Values Established by International Regulations



5.0 HISTORY

Historically, Rio Tinto has mined borates on the western side of the Cauchari salar, at Yacimiento de Borato El Porvenir. Grupo Minero Los Boros S.A. mines a few thousand tonnes per year of ulexite on the east side of the Olaroz Salar. No other mining activity (including lithium production) has been recorded at the properties comprising Cauchari-Olaroz. Exar acquired Mining and Exploration Permits across the Cauchari and Olaroz Salars during 2009 and 2010. The Company completed a resource exploration program in 2009 and 2010 targeting both lithium and potassium.

In 2010, the Company filed a Measured, Indicated, and Inferred Mineral Resource report for both lithium and potassium (King, 2010b). An amended Inferred Mineral Resource report was filed later that year (King, 2010a). In 2012, the Company filed a feasibility study in accordance with NI 43-101 that presented a Mineral Resource and Mineral Reserve Estimate, proposed processing technology, environmental and permitting assessment, costing and economic analysis. In 2017, LAR filed a NI 43-101 compliant Feasibility Study, with an updated Mineral Reserve Estimate. In April of 2019, LAR filed a NI 43-101 compliant Updated Mineral Resource Estimate with an updated Mineral Resource Estimate. For reference purposes, the 2012 Mineral Resource Estimate is provided in Table 5.1, the 2019 Mineral Resource Estimate is presented in Table 5.2, and the Mineral Reserve Estimate is presented on Table 5.3. All past Mineral Resource and Mineral Reserve Estimates are no longer considered current and are superseded by the Mineral Resource Estimates presented in Section 11.0 and the Mineral Reserve Estimate presented in Section 12.0 of this Report.

TABLE 5.1
SUMMARY OF 2012 LITHIUM MINERAL RESOURCE FOR LITHIUM (1-4)

Classification	Average Lithium Concentration (mg/L)	Mass Cumulated[1] (cut-off 354 mg/L)		Brine Volume (m^3)
		Li (tonne)	Li_2CO_3 (tonne)	
2012 Measured Mineral Resource	630	576,000	3,039,000	9.1×10^8
2012 Indicated Mineral Resource	570	1,650,000	8,713,000	2.9×10^9
Total	**585**	**2,226,000**	**11,752,000**	3.8×10^8

Notes:
1. The 2012 Mineral Resources are expressed relative to a lithium grade cut-off of ≥ 354 mg/L, which was identified as a brine processing constraint by LAR engineers, and with an effective date of July 11, 2012.
2. 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 to Mineral Reserves.
3. Lithium carbonate equivalent ("LCE") is calculated based the following conversion factor: Mass of LCE = 5.323 x Mass of lithium metal.
4. The values in the columns on Lithium Metal and Lithium Carbonate Equivalent above are expressed as total contained metals within the relevant cut-off grade.

Table 5.2
Summary of 2019 Mineral Resource Estimate for Lithium (1-5)

Classification	Aquifer Volume (m^3)	Drainable Brine Volume (m^3)	Average Lithium Concentration (mg/L)	Lithium (tonnes)
Measured Resource	1.07E+10	1.13E+09	591	667,800
Indicated Resource	4.66E+10	5.17E+09	592	3,061,900
Measured + Indicated	**5.73E+10**	**6.30E+09**	**592**	**3,729,700**
Inferred Resources	1.33E+10	1.50E+09	592	887,300

Notes:
1. The 2019 Mineral Resource Estimate has an effective date of May 7, 2019, and includes results of drilling and sampling at Platform 1 and the 2019 HSU model. The Resource Evaluation Area, initial lithium concentrations, and a lithium grade cut-off of greater than or equal to 300 mg/L parameters remained the same as the 2019 Mineral Resource Estimate given in LAR (2019).
2. The Mineral Resource Estimate is not a Mineral Reserve Estimate and does not have demonstrated economic viability. There is no certainty that all or any part of the Mineral Resources will be converted to Mineral Reserves.
3. Calculated brine volumes only include Measured, Indicated, and Inferred Mineral Resource volumes above cut-off grade.
4. The Mineral Resource Estimate has been classified in accordance with CIM Mineral Resource definitions and best practice guidelines (2012 and 2014).
5. Comparisons of values may not add due to rounding of numbers and the differences caused by use of averaging methods.

Table 5.3
Summary of 2019 Estimated Proven and Probable Mineral Reserves
(Without Processing Efficiency) (1-9)

Mineral Reserve Classification	Production Period (years)	Brine Pumped (m^3)	Average Lithium Concentration (mg/L)	Lithium Metal (tonnes)	LCE (tonnes)
Proven	0 through 5	156,875,201	616	96,650	514,450
Probable	6 to 40	967,767,934	606	586,270	3,120,590
Total	**40**	**1,124,643,135**	**607**	**682,920**	**3,635,040**

Notes:
1. The Mineral Reserve Estimate has an effective date of May 7, 2019.
2. LCE is calculated using mass of LCE = 5.322785 multiplied by the mass of Lithium Metal.
2. The conversion to LCE is direct and does not account for estimated processing efficiency.
3. The values in the columns for "Lithium Metal" and "LCE" above are expressed as total contained metals.
4. The Production Period is inclusive of the start of the model simulation (Year 0).
5. The average lithium concentration is weighted by per well simulated extraction rates.
6. Tonnage is rounded to the nearest 10.

7. Comparisons of values may not be equivalent due to rounding of numbers and the differences caused by use of averaging methods.
8. Processing efficiency is assumed to be 53.7%.
9. The pricing, based on the estimates and the time frame for the economic viability, is described in Section 16.3 - Price Forecast.

6.0 GEOLOGICAL SETTING, MINERALIZATION AND DEPOSIT

The Central Andean Altiplano-Puna Plateau is the second-highest orogenic plateau globally, averaging 4000 meters above sea level, and the highest associated with extensive arc volcanism (Allmendinger et al., 1997; Pingel et al., 2023). The eastward-propagating fold and thrust belt defines a series of longitudinal tectonomorphic zones relevant to lithium (Li) brine formation, including, from east to west: the Precordillera and Cordillera de Domeyko; the Salar de Atacama (a distinct salt flat separate from the Altiplano-Puna basins), the Western Cordillera; the Altiplano-Puna; and the Eastern Cordillera (Figure 6.1; Allmendinger et al., 1997; Strecker et al., 2007; Victor et al., 2004; Carrapa et al., 2011). The Altiplano-Puna Plateau comprises high-elevation internally drained basins, arid climate conditions, and thick sedimentary accumulations conducive to Li brine generation and is geological setting of the Cauchari-Olaroz salar (Figure 6.1).

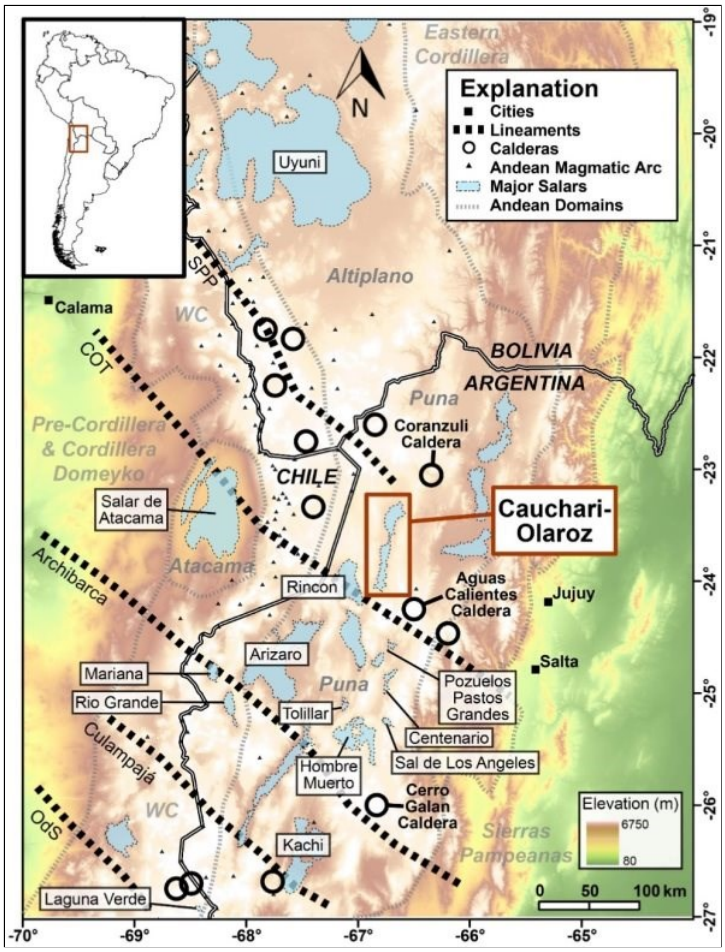
6.1 REGIONAL STRUCTURAL AND VOLCANIC FEATURES

The current relief of the Puna is characterized by north-south elongated mountain ranges separated by wide valleys often with endorheic depocenters (Figure 6.1). In most cases, the ranges are dominated by Paleozoic and Paleogene rocks unconformably overlain by Neogene sedimentary and volcanic rocks. Structures in the Neogene rocks are predominantly characterized by open folds and low-displacement thrust faults, contrasting with tight folds and high-displacement thrust faults exhibited by the Paleozoic to Paleogene units (Seggiaro et al., 2017). These basins have formed primarily in the eastern and central sectors of the Puna Plateau, through compressional Miocene-age orogeny (Helvaci and Alonso, 2000), and have been accumulation sites for numerous salars, including Cauchari and Olaroz.

Altiplano-Puna Plateau uplift timing and mechanisms remain debated. Paleoaltimetric, thermochronologic, and palinspastic reconstructions contend either rapid kilometer-scale uplift during the Middle-Late Miocene (Ghosh et al., 2006; Pingel et al., 2023) or a more gradual rise since at least the Eocene (Canavan et al., 2014; Carrapa et al., 2014). Most of the uplift of the Altiplano began in the Late Oligocene, migrating eastward to the Eastern Cordillera of NW Argentina by ~12 Ma, where exhumation continued through ~4 Ma (Allmendinger et al., 1997; Carrapa et al., 2011). Farther south in the Puna, major uplift initiated in the Miocene and lasted until ~1-2 Ma. (Allmendinger et al., 1997).

Eastward migration of the orogen was accompanied by voluminous ignimbrite volcanism covering >500,000 km^2 (Allmendinger et al., 1997). Ignimbrites of the Altiplano-Puna Volcanic Complex (APVC), centered near the Argentina-Bolivia-Chile triple junction (Figure 6.1) erupted most extensively from large calderas between ~10-4 Ma (De Silva et al., 2006), and are often preserved as intercalated tuffs and tephra in Neogene sedimentary successions throughout the central Andes. Later Pliocene to Quaternary backarc volcanic centers and ignimbrite deposits became more subdued and more localized along NW-SE crustal lineaments such as Archibarca, Culampaja, Ojos del Salado, and Calama-Olacapato-El Toro (COT) lineaments (Figure 6.1; Richards and Villeneuve, 2002; Chen et al., 2020). These zones - including the Tocomar-Tuzgle area in the eastern Puna and the Cerro Galan Caldera in the Southern Puna (Figure 6.1) - reflect long-lived magmatism and hydrothermal activity in zones of elevated crustal permeability that likely contributed to Li mobilization and enrichment in adjacent basins.

Figure 6.1 Regional Geology in the Vicinity of the Exar Project

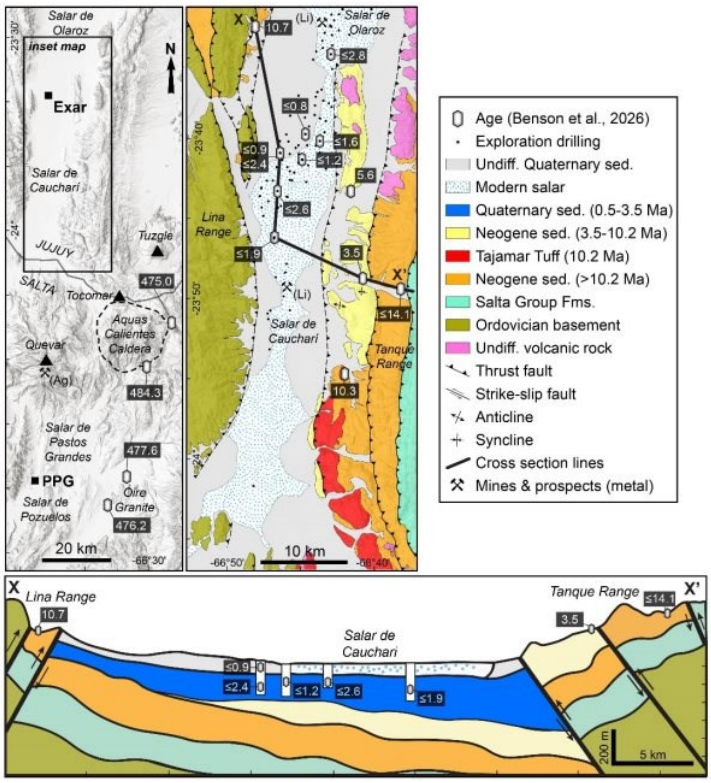


Source: Benson et al. (2026)

6.2 REGIONAL GEOLOGY

The regional geology of the Olaroz and Cauchari Salars is shown in Figure 6.2. The lithology in the region can broadly be defined into Ordovician metasedimentary basement locally intruded by igneous rocks of the Oire Complex, sediments of the Eocene Salta Group, Neogene sediments, Quaternary sediments, and volcanic rock, typically of Neogene to Pliocene age (Figure 6.2; Benson et al., 2026).

FIGURE 6.2 STRUCTURAL FEATURES IN THE CENTRAL AREA OF THE CAUCHARI BASIN



Source: Modified from Benson et al. (2026).

6.3 GEOLOGY OF THE OLAROZ AND CAUCHARI SALARS

6.3.1 Conceptual Geology

The margins of the north-south trending Cauchari and Olaroz salares (Figure 6.2) are dominantly composed of Ordovician metasedimentary rocks of the Coquena Formation (Seggiaro et al., 2015), which are overlain by Cretaceous to Eocene sedimentary rock formations of the Salta Group (Figure 6.2). A thick (>1 km) sequence of variably folded and faulted Neogene sandstones, siltstones, and subordinate claystones and conglomerates overlies these sediments, locally referred to as Vizcachera and Sijes Formations (Seggiaro et al., 2015). This long-lived alluvial to fluvial setting preserved intercalated volcanic rocks and tephra sourced from intermediate to rhyolitic centers of the region, including the 11.8 Ma Yungara Volcanics (Schwab and Lippolt, 1976), 10.2 Ma Tajamar Tuff (Petrinovic et al., 2010), and 6.6 Ma Coranzuli Tuff (Seggiaro et al., 2019). New U-Pb zircon ages on surface outcrops of these marker beds indicate that alluvial fan sedimentation was active for at least ten million years from ~14.1-3.5 Ma (Figure 6.2; Benson et al., 2026). The Tajamar Tuff , sourced from the Aguas Calientes Caldera to the south of the Salar de Cauchari, is a key marker bed in the stratigraphy to help to discriminate the stratigraphy of Neogene sedimentation in the area (Figure 6.2). In places, a sharp angular unconformity separates the post-Tajamar Neogene sediments from older units, indicating that an uplift event occurred sometime after the deposition of the Tajamar Tuff, enabling the deposition of alluvial to fluvial sediments between 10.2 and 3.5 Ma.

Shortly after 3.5 Ma, based on the youngest dated tephra in folded outcropping Neogene sediments (Benson et al., 2026), another Andean tectonic event caused east-dipping thrust faulting and folding of these sediments and formation of the modern Cauchari and Olaroz salares (Figure 6.2). These Neogene sedimentary rocks correlate with compacted, inclined sediments in core intervals at ~200 m depth in the western salar and ~600 m in the center. To date, no holes deeper than 700 m have been drilled in Cauchari, but the extrapolation of this trend eastward indicates this contact is >1,000 m deep beneath modern sediments along the eastern margin (Figure 6.2). Equivalent sediments have not yet been intersected in the Olaroz salar, suggesting that these 10.2-3.5 Ma sediments are significantly deeper than in Cauchari.

Most drilling in the whole basin has been within the modern younger, unconsolidated, flat-lying sandstones, siltstones, and halite-claystone lacustrine units (Figure 6.2). These halite-bearing sediments contain thin primary and reworked volcanic ashes with eight new detrital zircon U-Pb ages ranging from 2.8 to 0.80 ± 0.1 Ma (Benson et al., 2026). This constrains the timing of basin formation and halite deposition to less than 3.5 Ma. The lack of halite deposition in Neogene sediments prior to this time suggests that these systems were not endorheic and therefore open to exporting solutes. Closed-basin Li enrichment in residual brine has been active since basin development, and continues to the present day.

6.4 SALAR SURFACE SEDIMENTS AND MINERALIZATION

The surface distribution of alluvium, salar sediments, and basement rock in the central zone of the Cauchari Basin is shown in Figure 6.3. This zone is shown because it is the focus of the Mineral Reserve Estimate (Section 12.0). Flat-lying salar deposits occur throughout the salars, at the lowest ground surface elevation in the basin. Alluvial deposits intrude into these salar deposits to varying degrees, depending on location. The alluvium surface slopes upward from the salar surface and extends outside the basin perimeter. Raised bedrock exposures also occur outside the salar basin.

The most extensive intrusion of alluvium into the basin occurs on the Archibarca Fan (Figure 6.2), which partially separates the Olaroz and Cauchari Salars. Route 52 is constructed across this alluvial fan. The Archibarca Fan developed during the late-Holocene. In addition to this major fan, much of the perimeter zone of both salars exhibits encroachments of alluvial material forming fans of varying sizes. Alluvium deposition is interpreted to range from early- to late-Holocene.

A range of dominant sediment types and characteristic mineral assemblages are found across the surface of the Olaroz and Cauchari Salars. In the Olaroz Salar and the southern part of the Cauchari Salar, particularly in marginally elevated areas, buff clays occur, interlayered with dirty calcite travertine sand with irregular calcite cementation produced mainly by hydrothermal activity (calcareous sinters). Ulexite concretions with or without gypsum and mirabilite are occasionally associated with the carbonate deposits.

Borax is common throughout both salars, occuring as small, rounded concretions in red and brown clays along a narrow and discontinuous strip on the western border of Cauchari Salar and in the eastern and central area of the Olaroz Salar. In some areas of the central Olaroz Salar, surficial borax alters to form evaporitic ulexite. When this mineral occurs in significant concentrations it forms large ulexite concretions or "papas" that expand the associated black or red clays, creating a hummocky surface. In the subsurface, borax commonly occurs as concretions and as an in-filling of corrosion holes in halite. In some locations, borax has been replaced by ulexite and/or tincal.

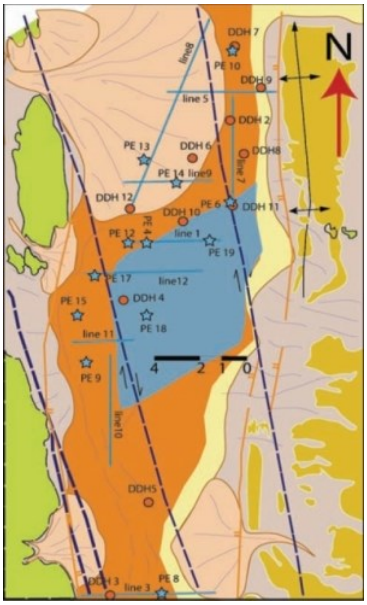
Gypsum is the primary sulphate mineral in the surficial muds and the crystals commonly have a small, bladed habit. In some locations, mirabilite and trona are associated with the gypsum-bearing layers. Trona is more abundant in the Cauchari Salar, although neither salar is known to contain exploitable amounts.

Halite occurs throughout the surface of both salars but is more dominant on the Olaroz Salar where a well-formed, polygonal-cracked, salt hardpan is present. In contrast, the surface layer across much of the Cauchari Salar consists of a thin, red silt / halite, polygonal-cracked crust over brine-saturated red plastic silt.

Distinctive accessory minerals occur within the red surface silt of the Cauchari Salar. Gypsum and minor glaserite are the main accessory phases in the southern area of the salar. In the central area, halite is a primary accessory mineral and gypsum is secondary. Ulexite, mirabilite, and trona are the primary accessory phases in the northern area of Cauchari.

In the zone where the recent alluvial fans merge with the salar sediments, the salar sediments often exhibit evidence of biological activity (bioturbation and rootlets) and are typically devoid of borate concretions and gypsum.

Figure 6.3 Surficial Geology in the Central Area of the Cauchari Basin



	Recent sediments (mainly salted muds with a halite rough polygon crust)
	Mud flat with borates and gypsum
	Young alluvial fans
	Old bahadas and alluvial fans
	Cenozoic volcanics and pyroclastic rocks
	Ordovician thin bedded fine sands and shales

Source: King, Kelley, Abbey, (2012).

6.5 SALAR LITHOSTRATIGRAPHIC UNITS

The following five informal lithological units are interpreted from the drill core in 2012:

- Unit 1. Red silts with minor clay and sand;
- Unit 2. Banded halite beds with clay, silt, and minor sand;
- Unit 3. Fine sands with minor silt and salt beds;
- Unit 4. Massive halite and banded halite beds with minor sand; and
- Unit 5. Medium and fine sands.

The hydrostrartigraphic units (HSUs) described briefly below according to the 2025 Conceptual Model (Montgomery, 2025):

- **HSU 1 - Upper Proximal Alluvial:** This unit consists mainly of red to grayish-brown silty layers with minor clay, interbedded with fine to coarse sand and trace gravel. Surface features include mud cracks and bioturbation, while deeper levels contain carbonate concretions and occasional gypsum crystals. Borate concretions are common, and halite occurs locally. Clay mineralogy is dominated by illite with minor kaolinite, smectite, and chlorite, indicating a Neogene volcanic source. Hydrogeologically, this unit exhibits hydraulic conductivity (K) ranging from approximately 2 to 120 m/d and storativity (S) on the order of 4×10^{-2}, representing a high-permeability unit.
- **HSU2-Intermediate Alluvial**: This unit is characterized by stratified halite with interbeds of reddish clay or silt and massive fine-grained sand layers, locally cemented by halite. Minor evaporites, silts, and sands are also present. The unit typically reaches thicknesses of 50-60 m and is more clay-rich than HSU 1. Hydraulic conductivity (K) ranges from approximately 0.9 to 12 m/d, with storativity on the order of 4×10^{-2}. Based on these properties, HSU 2 is classified as an aquifer with good hydrogeological potential.
- **HSU 3 - Upper Distal Alluvial:** This unit comprises massive, light gray to brownish-gray fine-grained sands interbedded with evaporite layers, mainly halite. Thin red silt horizons occur locally. The sand is composed of quartz, feldspar, mafic minerals, magnetite, and volcanic glass, with minor halite, gypsum, and borates. Hydrogeological parameters indicate K values ranging from approximately 0.006 to 18 m/d and storativity on the order of 3×10^{-3}. This unit is therefore considered to have low hydrogeological potential.
- **HSU 4 - Evaporite-Alluvial Interbedded Unit:** This unit is dominated by stratified and massive halite beds interlayered with sand, with individual layers typically 1-3 m thick, locally reaching much greater thicknesses. Red clay layers, borate concretions, and occasional carbonate horizons are present. Hydraulic conductivity (K) ranges from approximately 0.04 to 2 m/d, with storativity on the order of 1×10^{-3}. Due to these characteristics, HSU 4 is classified as a low-potential aquifer.
- **HSU 5 - Lower Alluvial fan:** This unit consists of thick-bedded fine-grained sands alternating with massive light red silts, with coarser sand toward the base. The mineralogy indicates volcanic source rocks, with minor bioturbation and rare halite and gypsum crystals. Hydraulic conductivity (K) ranges from approximately 0.4 to 2 m/d, with storativity on the order of 2×10^{-2}. This unit is also classified as an aquifer with low hydrogeological potential.
- **HSU 6 - Base of the Current Aquifer for Resource Estimation:** This unit represents the hydrogeological base of the current aquifer system for the purposes of the Mineral Resource estimation and is interpreted as the basal boundary of the aquifer system.

Refer to Section 11.2.1 and Section 12.7 for a more detailed breakdown of the stratigraphic and hydrostratigraphic units used in the Mineral Resource Estimate and Mineral Reserve Estimate, respectively.

Alluvial deposits intrude into these salar deposits to varying degrees, depending on location. The alluvium surfaces slope into the salar from outside the basin perimeter. Raised bedrock exposures occur outside the salar basin. The most extensive intrusion of alluvium into the basin is the Archibarca alluvial fan system, which partially separates SdO and SdC on the western boundary. In addition to this significant alluvial fan deposit, much of the perimeter zone of both salars exhibits encroachments of alluvial material associated with alluvial fan systems.

6.5.1 Sedimentation Cycles

Sedimentation cycles were evaluated for the salar sediments, as a supportive step for understanding, delineating, and grouping the important hydrostratigraphic units. The energy level and RBRC curves help to explain the vertical variations observed in the salar sediments. The RBRC curves show the distribution of measured RBRC, expressed over 10 m intervals. The collection and analysis of the RBRC samples are described in Section 8.9.2. The energy level curves represent a qualitative measure of depositional energy, expressed over five metre intervals. The lithology-based scale used to rank the energy level is summarized below:

0 - Massive halite beds (> 5 cm thick);
1 - Halite in thin beds (< 5 cm), including banded halite with thin sand, silt, or clay partitions;
3 - Silt with root marks or bioturbation; silty clay beds with or without halite crystals and borate concretions; silt or clay with plant remains; thin and irregular clay or halite bedding;
4 - Silt with or without halite crystals and borate concretions;
5 - Fine-grained sands;
7 - Medium-grained sands; and
8 - Coarse-grained sand with or without gravel.

This scale is qualitative and was developed as an aid for interpreting sedimentary cycles in the salar. The exclusion of Levels 2 and 6 is intended to represent a large energy level increase between Levels 1 and 3, and Levels 5 and 7, relative to the other levels.

The energy level measurements in DDH10 exhibit a repeating pattern, between the upper 130 m of the borehole and the lower part of the borehole. This pattern is considered to represent two distinct sedimentation cycles: an Upper Salt Generation Cycle ("USGC") and a Lower Salt Generation Cycle ("LSGC"), with the division between the two occurring at approximately 130 mbgs. These cycles are used as an aid to interpret the progression of sediment deposition throughout the Project area, and to support the development of a hydrostratigraphic model.

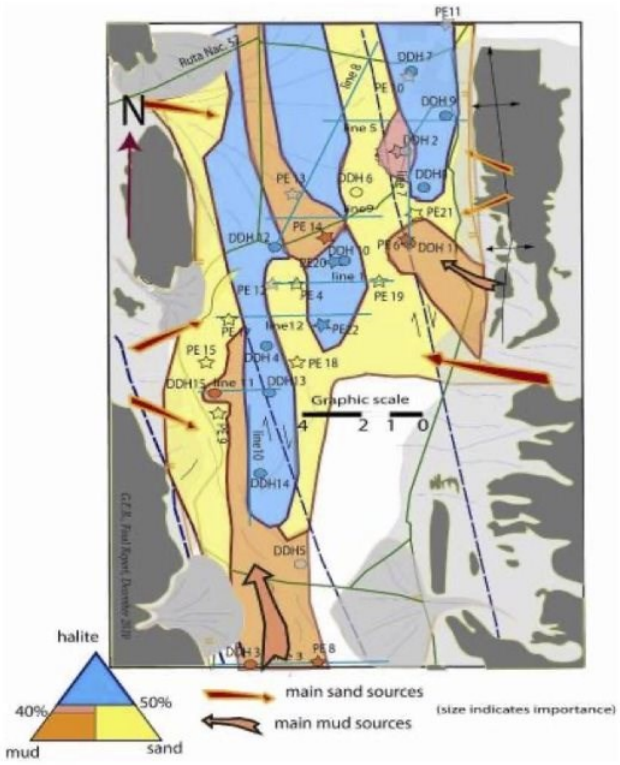
6.5.2 Sedimentary Facies Analysis and In-filling History

The figures referred to in this subsection are from a sedimentology report prepared on behalf of Exar (Bossi, 2011).

The distribution of dominant geologic materials within the LSGC (defined as > 130 mbgs) is shown in Figure 6.4. Materials are divided into fractions of three end members that exhibit unique porosity profiles: sand, silt, and halite. Isopleth maps of salt and sand thickness within the LSGC are shown in Figure 6.5 and Figure 6.6, respectively. These maps were used to infer the primary locations where salt deposition occurred within the basin, and where sand entered the basin.

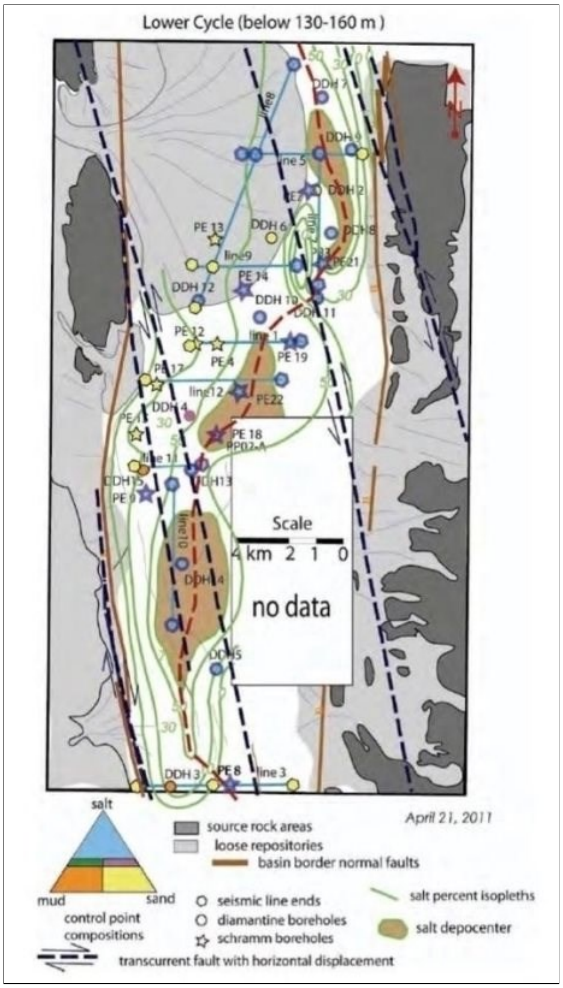
A central elongated salt deposition zone dominates the LSGC, as shown in Figure 6.4. This salt body is continuous, but irregular in the fraction that it comprises of the LSGC. As shown in Figure 6.5, elongated zones of relatively more dominant salt deposits occur in the southern, central, and northern areas of the salar. The northern zone is displaced towards the east, due to the strong influence of clastic sedimentation associated with the Archibarca Fan.

Figure 6.4 Facies Map of the Lower Salt Cycle Showing Line 1 Crossing a Thick Salt Succession



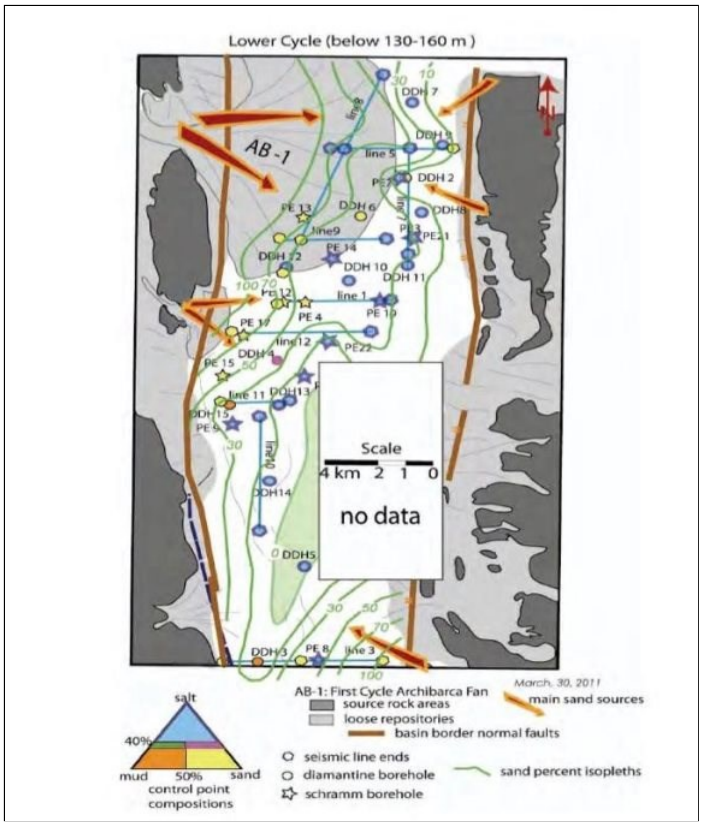
Source: Bossi, (2011)

Figure 6.5 Isopleth Curves of Salt Percent in the Facies Triangle



Source: Bossi, (2011)

Figure 6.6 Main Salt Sources of the Lower Cycle



Source: Bossi, (2011)

Clastic contributions to the LSGC originated from various locations around the salar (Figure 6.6). However, the main sand source was located in the mountains to the west of the salar and is responsible for the LSGC occurrence of the Archibarca Fan. The influence of this source is indicated by the increasing sand fraction in the vicinity of the fan (Figure 6.6). The main mud source is south of the salar, with an additional source located to the west.

The distribution of materials in the LSGC is related to the equilibrium between subsidence and clastic supply. Brine became concentrated in the dropped zones, and extensive halite beds were formed through evaporation. Conversely, the horsts were relatively elevated and primarily received muds (silts) or sands. LSGC deposits were formed during the Late/Middle Pleistocene when the Puna region was situated at lower altitudes. At that time, cooler climatic conditions and rain-shadow effects associated with the eastern Pampean Ranges resulted in enhanced aridity. Climatic conditions cycled between relatively wet and dry periods.

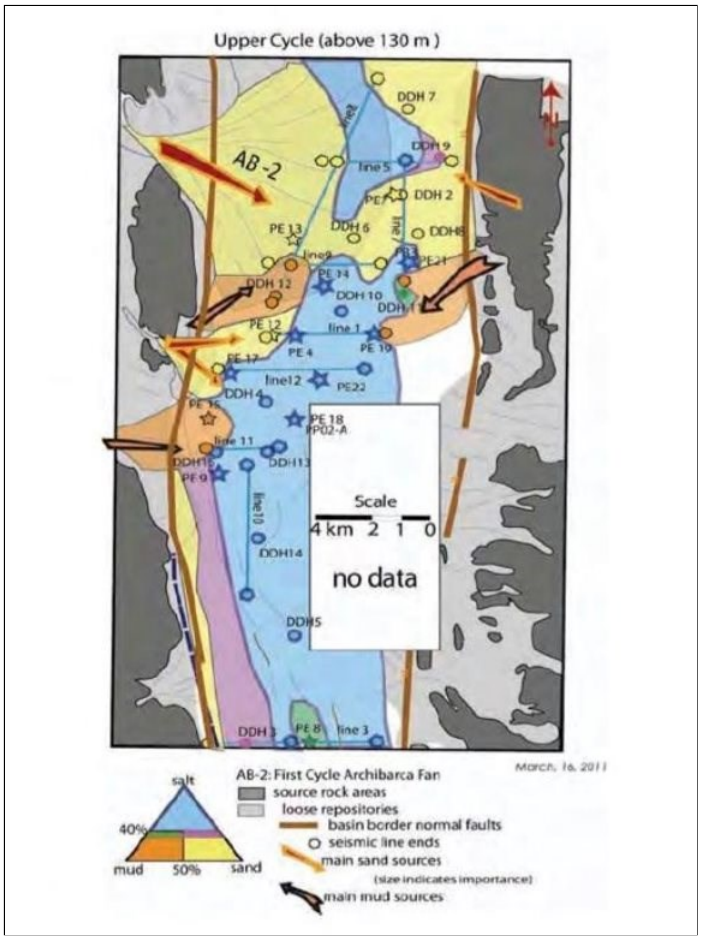
The wet periods were characterized by the development of permanent shallow lakes with high evaporation rates and the dry periods by ephemeral lagoons. Saltpan formation was enhanced during the wet periods, and the salt deposited at these times tends to be white to grey in colour and lacking in clastic components. Conversely, banded halite and associated reddish-coloured clastic materials were likely crystallized and deposited in drier periods.

The distribution of materials in the USGC (defined as <130 mbgs) is shown in Figure 6.7. For these more recent deposits, the supply of clastic sediments is greater, particularly in association with the Archibarca Fan. Consequently, the saltpan is located mainly in the southern area of the salar with a minor isolated zone in the north, probably connected with the Olaroz Basin.

The distribution of salt in the LSGC follows a relatively regular pattern (Figure 6.8), probably due to the smoothing effect of the final subsidence stage. The two southern loci of salt deposits in the LSGC (Figure 6.5) unify into one in the USGC (Figure 6.8,) that occupies a broader zone in the central area of the basin. A remnant small salt zone persists in the northeastern area of the salar close to the eastern border and in front of the Archibarca Fan.

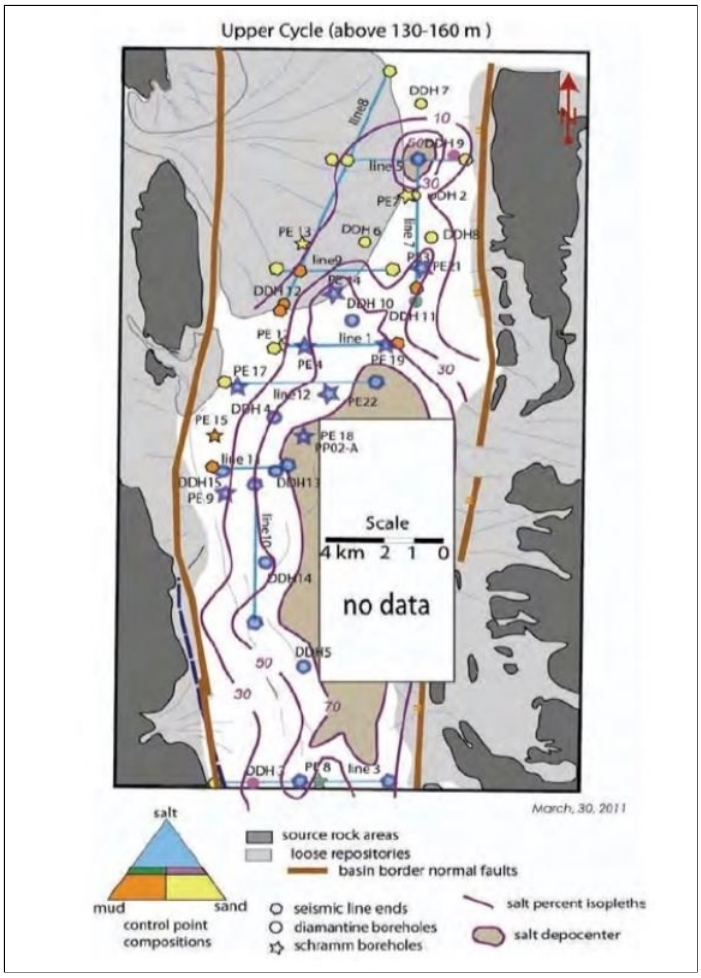
Figure 6.9 shows locations where sand entered the salar basins during the USGC deposition period. Similar to the LSGC, the primary location is at the Archibarca Fan (below the present-day fan), as indicated by the high sand fraction extending into the salar. Secondary locations occur at another fan system originating from the eastern mountains, and at two locations along the western basin border south of the Archibarca Fan. Penetration of the Archibarca Fan into the basin reaches a maximum during the period represented by the USGC. During this period, most mud still originated from the south with minor contributions from the mountains located on the western border.

Figure 6.7 Facies Map of the Upper Cycle



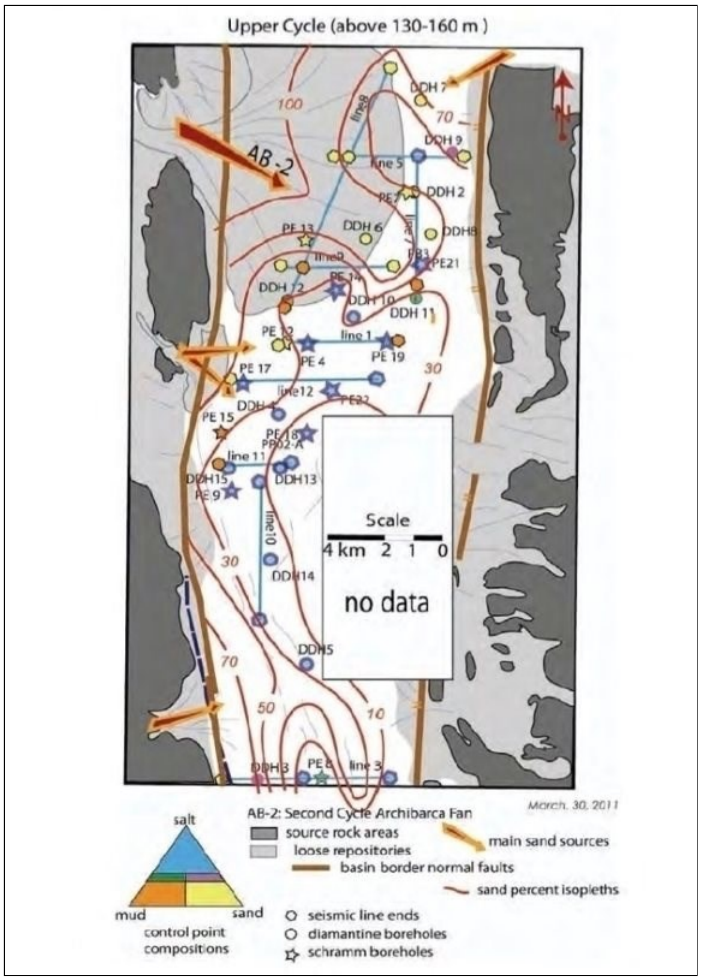
Source: Bossi, (2011)

Figure 6.8 Salt Percent Isopleths of the Upper Cycle



Source: Bossi, (2011)

Figure 6.9 Isopleth Map of Sand Percents of the Upper Cycle Sedimentation Stage



Source: Bossi, (2011)

6.6 SURFACE WATER

The Cauchari-Olaroz watershed is shown in Figure 6.10. The watershed is an elongated depression with a length of approximately 150 km in a north-south direction and a width of 30 to 40 km in an east-west direction and covering approximately 4,500 km^2. The surface water network within the watershed eventually flows into the Olaroz or Cauchari Salars. There is no surface water outflow from the salars. These rivers are the main freshwater inflows into the salar and have been monitored since 2009.

The primary surface waterways within the watershed basin are Rios El Rosario, Ola, and Tocomar. Rio Rosario, which is locally called Rio El Toro, originates in the northern part of the watershed, at an elevation of 4,500 m. The river flows south-southeast for 55 km, past the village of El Toro, before it enters into the Olaroz Salar.

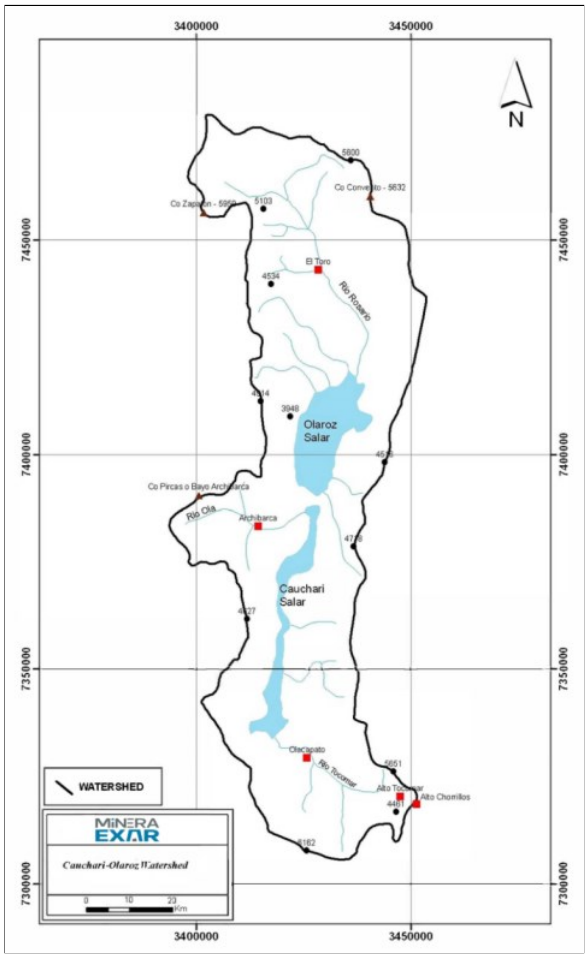
Rio Ola, which is locally called Rio Lama, originates just south of Cerro Bayo Archibarca, at an elevation of around 4,500 m, and flows east for 20 km. It enters the salars on top of the Archibarca Fan that separates Olaroz from Cauchari on the western flank of the basin.

Rio Tocomar, which is locally called Rio Olacapato, originates some 10 km west of Alto Chorillo at an elevation of around 4,360 m. The river flows west for approximately 30 km before it enters the Cauchari Salar from the southeast.

In addition to the surface waterways noted above which enter the salars, there is an area in the central southern part of the Cauchari Salar some 15 km north of the village of Cauchari, where surface water originates from an array of springs. Discharge from these springs is naturally channelled into a central stream that flows north for several kilometres and then gradually seeps back underground.

Chemistry and flow monitoring results from the Surface Water Sampling Program conducted throughout the Cauchari-Olaroz watershed are presented in Section 7.12.

FIGURE 6.10 CAUCHARRI-OLAROZ WATERSHED



Note: black dot with a number beside it = meteorological station, red square = town.
Source: Burga et al. (2019)

6.7 MINERALIZATION

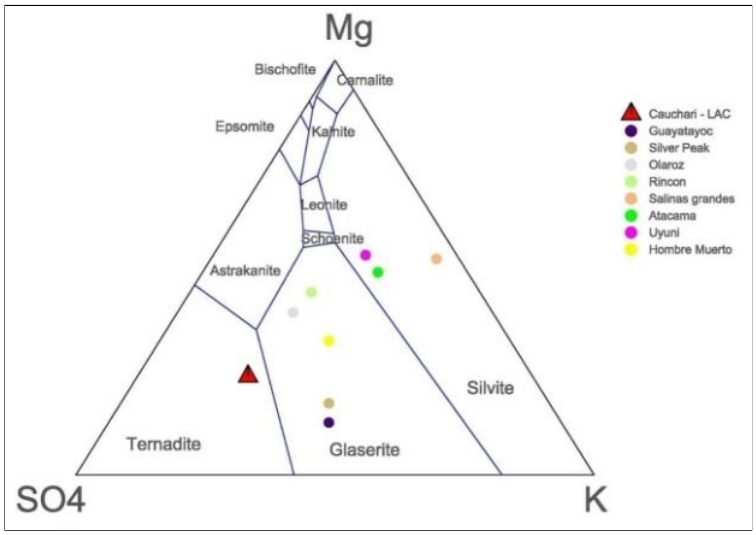
The brines from Cauchari are saturated in sodium chloride with total dissolved solids (TDS) on the order of 27% (324 to 335 g/L) and an average density of about 1.215 g/cm^3. The other primary components of these brines are common to brines in other salars in Argentina, Bolivia, and Chile, and include potassium, lithium, magnesium, calcium, sulphate, HCO_3, and boron as borates and free H_3BO_3.

A Janecke Projection comparing the chemistry of several brine deposits is shown in Figure 6.11. This type of figure can be used as a visualization tool for mineral crystallization. The diagram represents an aqueous five-component system (Na+, K+, Mg++, SO_4=, and Cl-) saturated in sodium chloride. The aqueous system can be represented in this simplified manner, due to the higher content of the ions Cl-, SO_4=, K+, Mg++, Na+ compared with other elements (e.g., Li, B, Ca). In Figure 6.11, each corner of the triangle represents one of three pure components (Mg, SO_4 and K_2), in mol%. The sides of the triangle represent sodium chloride-saturated solutions, with two reciprocal salt pairs ($MgCl_2$ + Na_2SO_4), (Na_2SO_4+KCl) and a quaternary system with a common ion ($MgCl_2$+KCl+NaCl).

The inner regions of the diagram show expected crystallization fields for minerals precipitating from the brine. Since the brines are saturated in NaCl, halite precipitates during evaporation in all the cases. In addition, the Cauchari brine is predicted to initially precipitate ternadite (Na_2SO_4). The brines of Guayatayoc, Silver Peak, Hombre Muerto, Olaroz, and Rincon would initially precipitate glaserite ($K_3Na(SO_4)_2$). Atacama, Uyuni, and Salinas Grandes brines would initially precipitate silvite (KCl).

In addition to the primary minerals indicated in the diagram, a wide range of secondary salts may precipitate from these brines, depending on various factors including temperature and dissolved ions. The additional salts could include: astrakanite ($Na_2Mg(SO_4)_2{\cdot}4H_2O$), schoenite ($K_2Mg(SO_4)_2{\cdot}6H_2O$), leonite ($K_2Mg(SO_4)_2{\cdot}4H_2O$), kainite ($MgSO_4{\cdot}KCl{\cdot}3H_2O$), carnalite ($MgCl_2{\cdot}KCl{\cdot}6H_2O$), epsomite ($MgSO_4{\cdot}7H_2O$), and bischofite ($MgCl_2{\cdot}6H_2O$).

FIGURE 6.11 JANECKE CLASSIFICATION OF BRINES



References as per Table 6.1, with the addition of information from Houston (2010b) for Salinas Grandes and Guayatayoc.
Source: King, Kelley, Abbey, (2012).

6.8 DEPOSIT TYPES

The Cauchari and Olaroz Salars are classified as "Silver Peak, Nevada" type terrigenous salars. Silver Peak, Nevada in the USA was the first lithium-bearing brine deposit in the world to be exploited. These deposits are characterized by restricted basins within deep structural depressions in-filled with sediments differentiated as inter-bedded units of clays, salt (halite), sands and gravels. In the Cauchari and Olaroz Salars, lithium-bearing aquifers have developed during arid climatic periods as halite precipitation drove up Li concentration in residual brine. Within the basin, brines migrated to free and forced convection (Tyler et al., 2006) and because of the high density, brines tend to sink. As a result, the brine-bearing aquifers occur laterally and beneath halite bodies as a function of the permeability subsurface stratigraphy (Benson et al., 2026). On the surface, the salars are presently covered by carbonate, borax, sulphate, clay, and sodium chloride facies. A detailed description of the geology of the Olaroz and Cauchari Salars is provided in Section 6.0.

Cauchari and Olaroz have relatively high sulphate contents and therefore both salars can be further classified as "sulphate type brine deposits". Section 7.15 provides detailed further discussion of the chemistry of Cauchari and Olaroz.

Table 6.1 compares mean values for hydrochemical compositions of brines from Andean salt pans. It should be noted that the Qualified Person, Mr. David Burga, has been unable to verify the information for other properties listed in Table 6.1 and that the information is not necessarily indicative of the mineralization on the Property that is the subject of the Technical Report but is presented for reference purposes only.

Table 6.1
Comparative Chemical Composition of Andean Salt Pans

N°	Salt pan	n	means									
			TDS	Ca	Mg	Na	K	Li	Cl	SO_4	CO_3	HCO_3	B
1	Surire	3	178	967	2291	56,103	9203	359	96,060	8997	13	99	1848
2	Coipasa	11	145	360	12,211	104,836	9155	258	178,091	37,355	–	785	883
3	Uyuni	165	123	550	15,533	87,670	12,389	715	183,885	17,149	–	4	646
4	Empexa	1	239	259	8480	67,200	3400	213	120,000	34,100	–	430	702
5	Huasco	3	93	221	1964	21,722	4508	160	37,694	8977	<1	20	779
6	Coposa	6	20	246	869	5430	534	16	8890	3710	3	146	19
7	Michincha	5	<1	31	13	28	12	<1	18	–	<1	46	<1
8	Alconcha	1	1	150	2	97	13	<1	90	–	0	87	3
9	Carcote	4	234	7039	4151	70,567	7268	217	61,812	3038	5	169	224
10	Ascotan	10	29	280	786	8497	899	47	13,581	3885	14	593	374
11	Pastos Grandes (Altiplano)	1	321	3100	3480	101,000	14,200	1640	194,000	2460	–	–	3041
12	Atacama	10	181	606	4064	46,793	8706	562	90,047	9856	<1	273	482
13	El Tara	12	35	346	165	22,504	243	140	35,240	3083	12	772	201
14	Aguas Calientes Norte	7	10	633	151	4414	165	25	7964	541	1	281	66
15	Pujsa	10	–	269	376	15,731	1130	89	18,670	12,400	349	562	189
16	Loyoques o Quisquiro	5	94	11,454	1960	53,698	409	286	141,913	1615	8	599	480
17	Aguas Calientes Centro	5	17	1225	946	6060	394	15	12,460	1740	0	339	7
18	El Laco	6	62	852	2372	22,308	1787	37	38,583	6341	0	393	180
19	Aguas Calientes Sur	8	7	432	265	2569	189	4	4660	1062	0	167	0
21	Imilac	4	5	321	32	8948	49	19	2374	801	4	59	4
22	Punta Negra	6	2	50	18	718	61	1	1255	144	6	56	5
23	Aguas Calientes Sur Sur	10	4	202	131	1668	163	5	2718	1014	7	108	19
24	Pajanoles	25	49	3234	1560	19,437	1221	25	45,588	1810	0	283	160
25	La Azufrera	2	287	441	34,400	42,317	10,773	61	121,157	65,834	0	36	532
26	Gorbea	5	58	288	26,810	47,060	3925	316	114,070	72,389	0	0	2319
27	Ignorados	2	11	495	576	490	490	2	927	6895	0	0	24
28	Agua Amarga	6	75	16,652	2411	34,783	1429	60	92,098	1095	0	121	311

Table 6.1
Comparative Chemical Composition of Andean Salt Pans

N°	Salt pan	n	means									
			TDS	Ca	Mg	Na	K	Li	Cl	SO_4	CO_3	HCO_3	B
29	Aguilar	3	113	51,667	6600	60,667	2600	367	203,334	461	0	917	739
30	La Isla	12	62	390	2578	46,667	10,898	402	87,278	7015	4	188	118
32	Las Parinas	6	46	300	1185	36,317	1114	130	59,607	4501	0	326	148
34	Pedernales	4	1	143	47	735	53	3	1285	342	2	112	10
38	Maricunga	3	19	517	252	5988	485	36	11,309	172	0	167	26
39	Incahuasi	5	82	1103	11,214	9705	5705	95	57,983	712	0	145	436
40	Antofalla-Botijuelas	6	73	1075	577	25,033	1304	209	43,280	4574	0	457	710
41	Río Grande	11	247	1869	2161	88,510	3161	398	154,487	7937	0	211	513
42	Arizaro	11	147	497	2082	47,320	4156	188	84,682	14,106	0	102	1794
43	Hombre Muerto	6	167	805	954	56,463	5458	628	105,948	2811	0	165	950
44	Diablillos	4	56	1119	1226	14,949	3920	180	28,235	6865	0	323	592
45	Ratones	3	61	1387	223	22,542	2360	158	41,636	3812	0	470	418
46	Centenario	6	88	586	2293	26,503	3130	288	46,444	10,551	0	431	971
47	Pocitos-Quirón	11	108	837	655	38,512	1420	60	64,681	5986	0	25	170
48	Pozuelos	8	266	1072	1641	96,694	3266	401	167,880	9038	0	126	898
49	Pastos Grandes (Puna)	6	198	640	4155	65,177	3552	476	122,093	7472	0	904	879
50	Rincón	11	199	823	2032	65,696	6333	287	115,585	14,579	0	173	1732
51	Cauchari	5	119	600	1746	83,886	4757	860	130,867	12,306	0	442	2158
52	Olaroz	10	154	516	2002	98,846	6224	1014	180,798	10,077	0	344	2533
53	Jama	10	32	527	228	20,424	1469	82	32,306	6633	0	309	983
54	Salinas Granes	10	107	1520	1068	73,255	4135	332	126,663	2082	0	314	447
55	Guayatayoc	3	72	1579	183	28,033	16,647	96	185,463	11,353	0	315	360

Notes:
(A) n = number of samples
(B) Total Dissolved Solids (TDS) is reported in g/L
(C) Remaining concentrations in mg/L.

7.0 EXPLORATION

The work described in this Section, other than the 2024 VES survey, was done for Exar and reported by LAR prior to the creation of LAR in 2023.

7.1 OVERVIEW

The following exploration programs have been conducted to evaluate the lithium brine and freshwater development potential of the Project area:

- Surface Brine Program - Brine samples were collected from shallow pits throughout the salars to obtain a preliminary indication of lithium occurrence and distribution.
- Seismic Geophysical Program - Seismic surveying was conducted to support delineation of basin geometry, mapping of basin-fill sequences, and siting borehole locations.
- Gravity Survey - A limited gravity test survey was completed to evaluate the utility of this method for determining depths to basement.
- TEM Survey - TEM surveying was conducted to attempt to define freshwater / brine interfaces around the salar perimeter. This work was conducted by Quantec Geoscience.
- VES Survey - A VES survey was conducted to attempt to define freshwater and brine interfaces, and extensive freshwater occurrences.
- Surface Water Sampling Program - An ongoing program is conducted to monitor the flow and chemistry of surface water entering the salars.
- Pumping Test Program - Pumping and monitoring wells were installed, and pumping tests were conducted at five locations, to estimate aquifer properties related to brine recovery and freshwater supply.
- Reverse Circulation (RC) Borehole Program - Dual tube reverse circulation drilling was conducted to develop vertical profiles of brine chemistry at depth in the salars and to provide geological and hydrogeological data.
- Diamond Drilling (DD) Borehole Program - This program was conducted to collect continuous cores for geotechnical testing (RBRC, grain size and density) and geological characterization. Some of the boreholes were completed as observation wells for future brine sampling and monitoring.

Samples were representative and no known biases were introduced due to sampling procedures. Details of the drilling programs are discussed in Section 7.15.

7.2 SURFACE BRINE PROGRAM

In 2009, a total of 55 surface brine samples were collected from shallow hand-dug test pits excavated throughout the Project area. Results from this early program indicated favourable potential for significant lithium grades at depth. Additional exploration work was initiated on the basis of these results. A full description of the Surface Brine Program is provided in the Inferred Mineral Resource Estimate Report for the Project (King, 2010a).

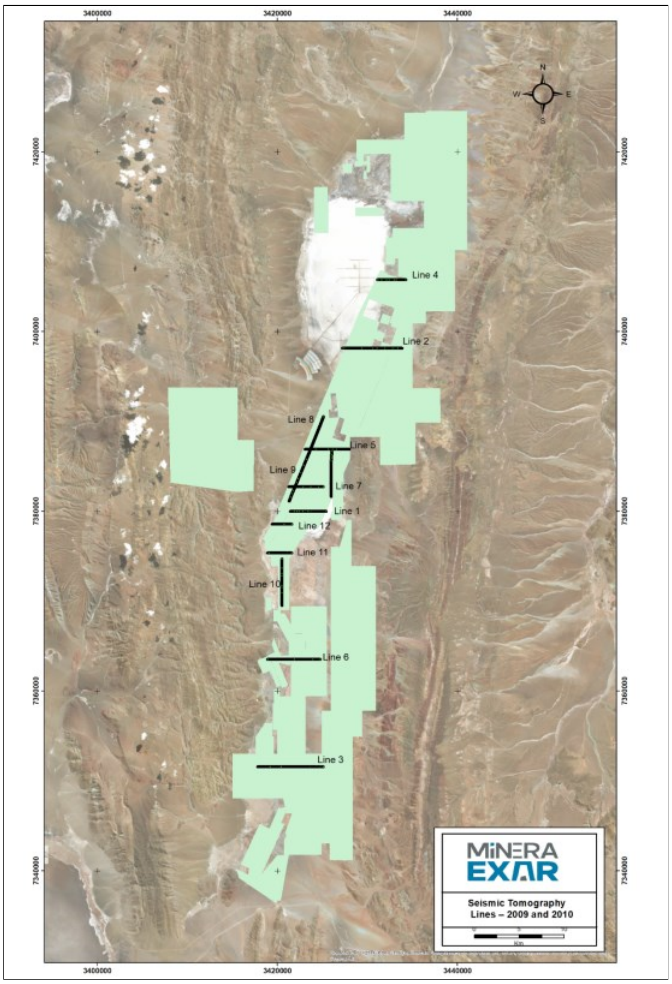
7.3 SEISMIC GEOPHYSICAL PROGRAM

A high-resolution seismic tomography survey was conducted primarily on the Cauchari Salar and to a lesser extent on the Olaroz Salar, during 2009 and 2010. The survey was contracted to Geophysical Exploration Consulting (GEC) of Mendoza, Argentina. Measurements were conducted along 12 survey lines, as shown in Figure 7.1. Nine lines are oriented east-west (1, 2, 3, 4, 5, 6, 9, 11, and 12), two lines (7 and 10) have a north-south orientation, and Line 8 is a northeast trending diagonal line parallel to the western property boundary and covering the Archibarca Fan. A total of 62,500 m of seismic survey data was acquired.

The survey configuration utilized a five-metre geophone separation, and a semi-logarithmic expanding drop-weight source array symmetrically bounding the central geophone array. The geophone array comprised 48 mobile measurement sites utilizing Geode Geoelectrics 8 Hz geophones. Symmetrically surrounding the 48 geophones were accelerated, 150 kg drop-weight sites moving away from the geophone array as follows: 15, 30, 60, 90, 120, 150, 250, 500, 750, and 900 m. Based on standard methods for depth resolution, the outer drop-weight positions would provide sufficient velocity detail to depths on the order of 500 to 600 m. The seismic survey data supported the identification of drilling sites for the RC and DD Programs in 2009 and into 2010. The seismic inversions are shown in Figure 7.2.

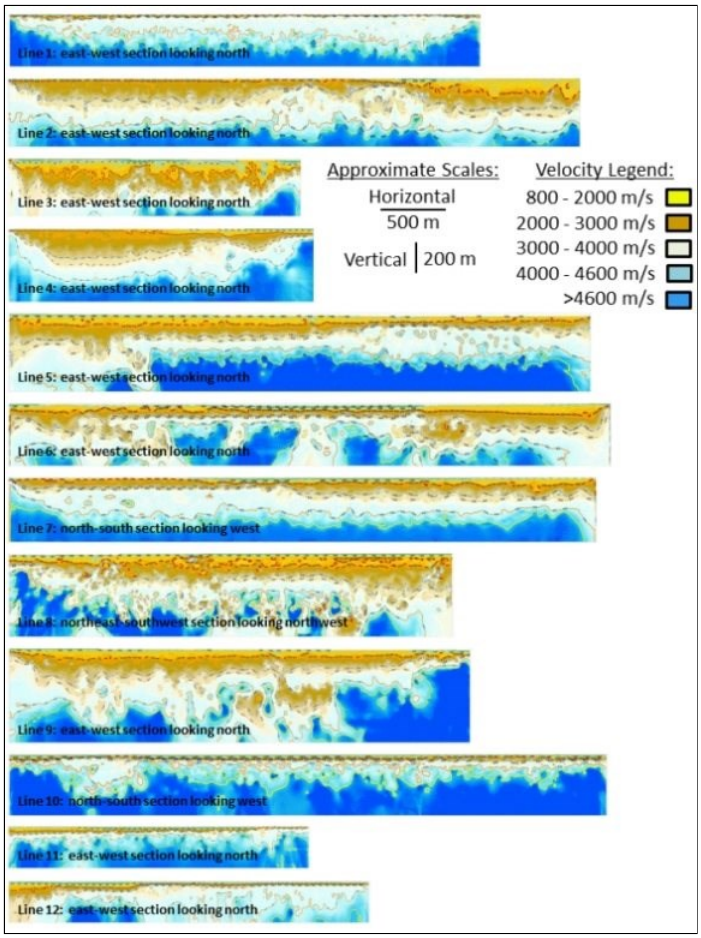
The maximum interpreted depth of the salars for each of the twelve seismic lines ranged from approximately 300 to 600 m. This variance in the apparent depth of the basin is attributed to two factors: 1) actual basin depth, and 2) property limitations which restricted the placement of the source hammer, and therefore the depth of exploration.

Figure 7.1 Seismic Tomography Lines - 2009 and 2010



Source: Burga et al. (2020)

Figure 7.2 Seismic Tomography Results for the 12 Survey Lines in Figure 7.1



Source: King, Kelley, Abbey, (2012).

7.4 GRAVITY SURVEY

A reconnaissance gravity survey was completed at the Cauchari Salar during July of 2010. The survey was a test to evaluate the effectiveness of the gravity method to define basement morphology and grabens that could represent favourable settling areas for dense brine. Data were collected at 200 m intervals along the two survey profiles shown in Figure 7.3. These profiles extended to outcrop locations outside the salar limits, to facilitate final gravity data processing and inversion.

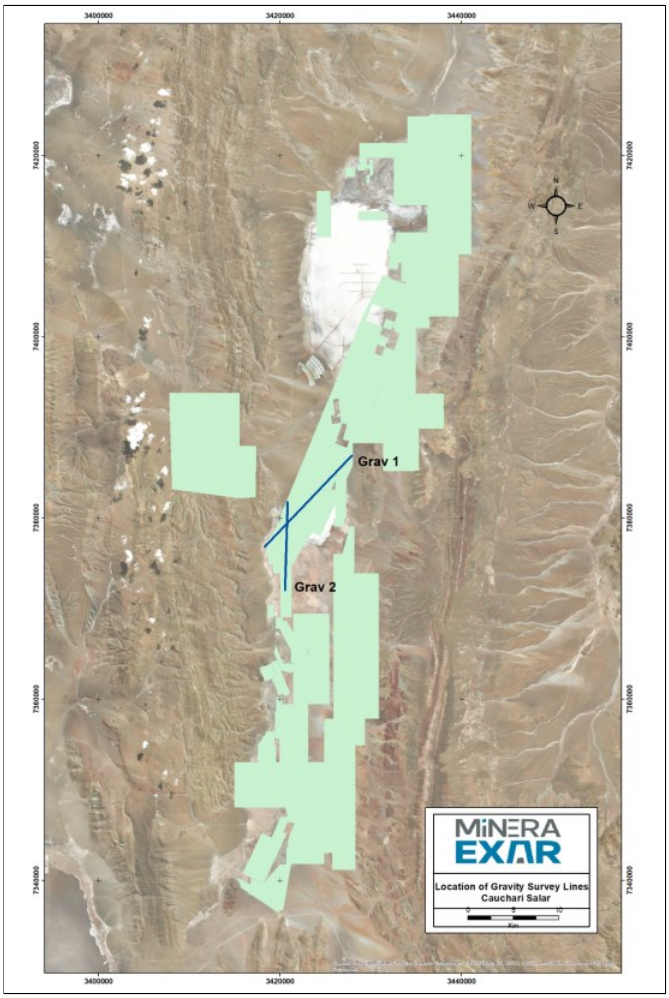
Instrumentation used for the survey was a La Coste and Romberg #G-470 gravimeter with an accuracy of ± 0.01 mGal. The gravity survey field procedure included repetition of survey control points at intervals of less than five hours, to minimize instrument drift control errors. Initial gravity data processing was completed with Oasis software, using the Gravity and Terrain Correction module. Inversions were also produced with Oasis software, using the gravity module GM-SYS.

Differential GPS measurements provided the station control with an accuracy level of ± 1 cm. A GPS base station using a Trimble DGPS 5700 model was employed in two locations within five kilometres of the survey lines and operated continuously during the measurement of the survey GPS points along the gravity traverses. A Trimble model R3 was used for the gravity station placement.

Modelling results for the northeast oriented gravity survey line (GRAV 1) are shown in Figure 7.4. The image shows the location of boreholes, the input densities used for model generation, and the calculated Bouger results from the field data. The upper profiles indicate an excellent fit of observed and modeled data based on the coloured model shown in the lower part of the figure. The lower red portion is the modeled depth to basement, or denser lithologies, using the starting model densities and the observed field data. There is good correlation between the gravity and seismic results which indicate changes in density and velocity, respectively, at approximately 300 m depth. It is interpreted that this approximate depth represents an increase in compaction of the sand-salt mix encountered during drilling.

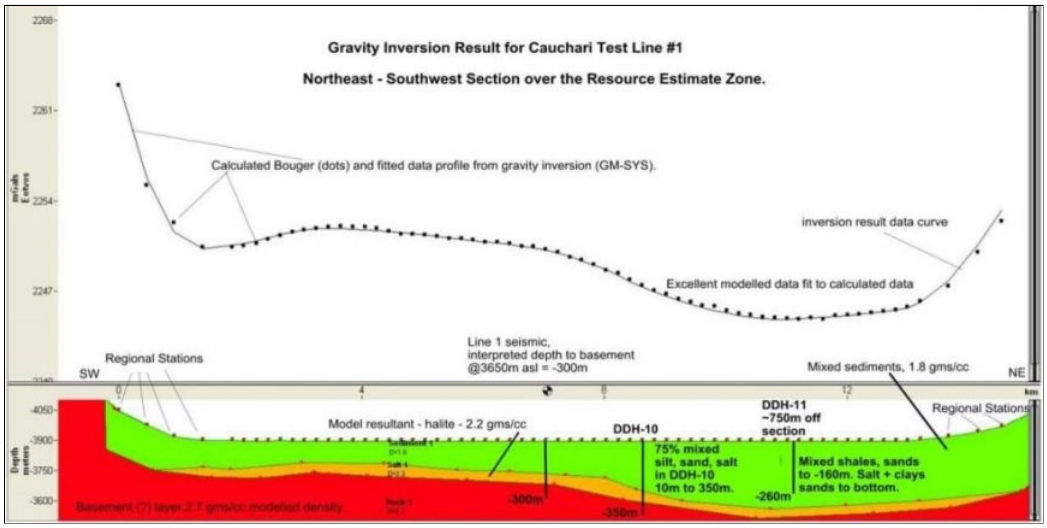
Modelling results for the north-south gravity profile (GRAV 2) across the southwest portion of the Mineral Resource Estimate zone are shown in Figure 7.5. Drilling results for DDH-4 show a change at 160 m depth to thick and dense halite with low porosity. This is marginally higher than the red area indicated by the gravity inversion modelling program. Similarly, for DDH-12, the intersection of the massive halite is slightly different from the model results but is within acceptable limits. Overall, an excellent fit is apparent between the observed and modeled data as seen in the profile on the upper section of the figure. This image demonstrates that the gravity method is effective for identifying relative density changes associated with different lithologies or increased compaction with depth in the salar.

Figure 7.3 Location of Gravity Survey Lines at the Cauchari Salar



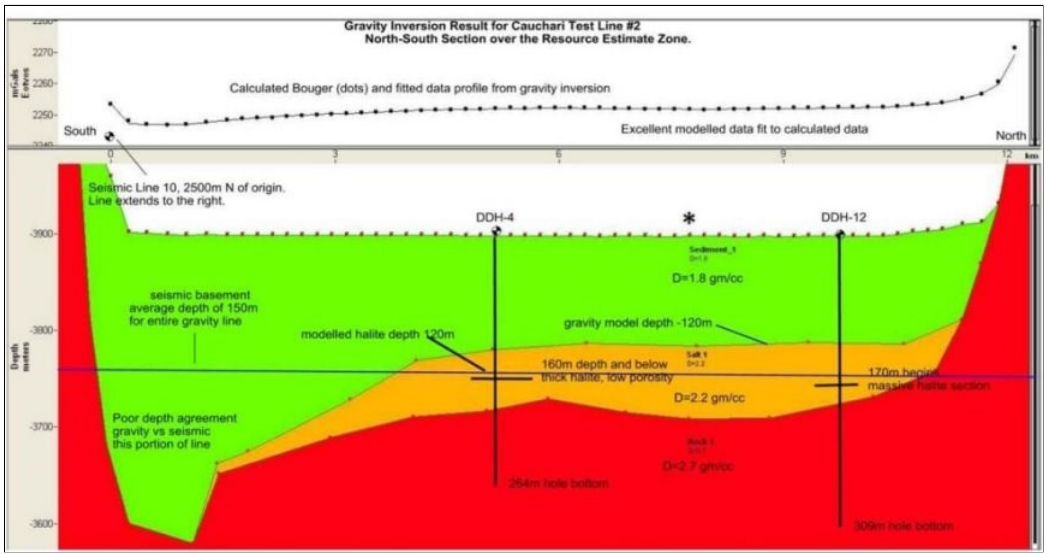
Source: Burga et al. (2020)

Figure 7.4 Modeling Results for the Northeast Oriented Gravity Line (Grav 1) Over the Mineral Resource Estimate



Source: King, Kelley, Abbey, (2012).

Figure 7.5 Modeling Results for the North-South Gravity Line (Grav 2) Across the Southwest Portion of the Mineral Resource Estimate



Source: King, Kelley, Abbey, (2012).

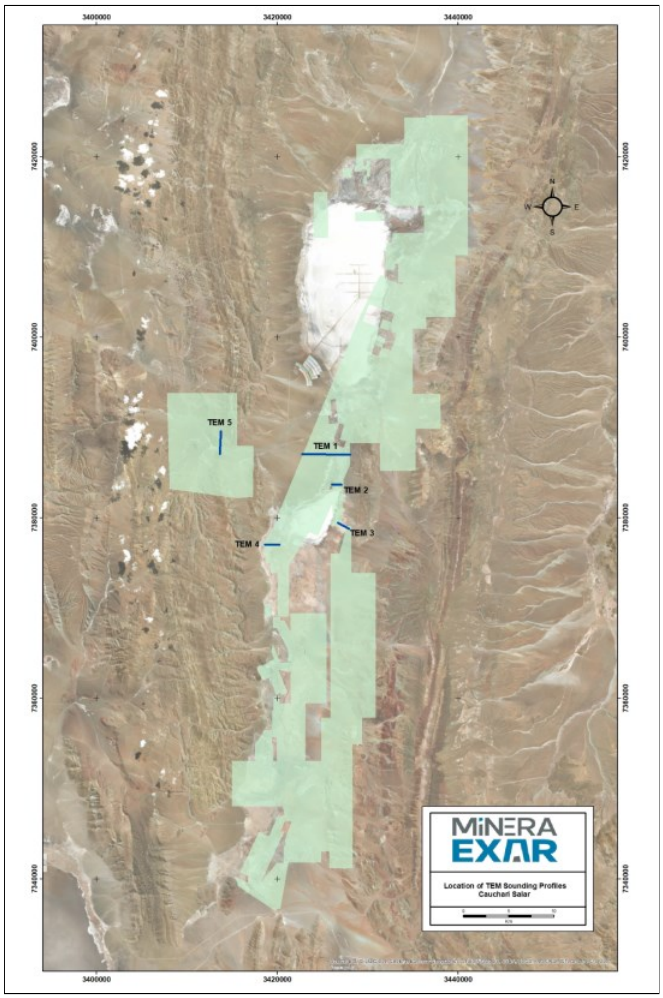
7.5 TEM SURVEY

A Time Domain Electromagnetic (TEM) survey was conducted in the Cauchari Salar during July 2010, along the five TEM lines shown in Figure 7.6. The main objective of the survey was to test the applicability of this method for determining resistivity contrasts that may relate to changes in groundwater salinity. In general, it is expected that saline brines will be more conductive (lower resistivity), whereas areas of freshwater will be less conductive (higher resistivity). The TEM survey parameters included:

- The use of Zonge GDP-16 Rx and GGT-20 Tx instrumentation;
- In-loop sounding configuration using 200 m x 200 m square transmitting loops and a base transmitting frequency of 4 Hz;
- Soundings completed at 100 m station intervals from 45 ms to 48 ms; and
- Completion of a total of 12.6 linear survey kilometres.

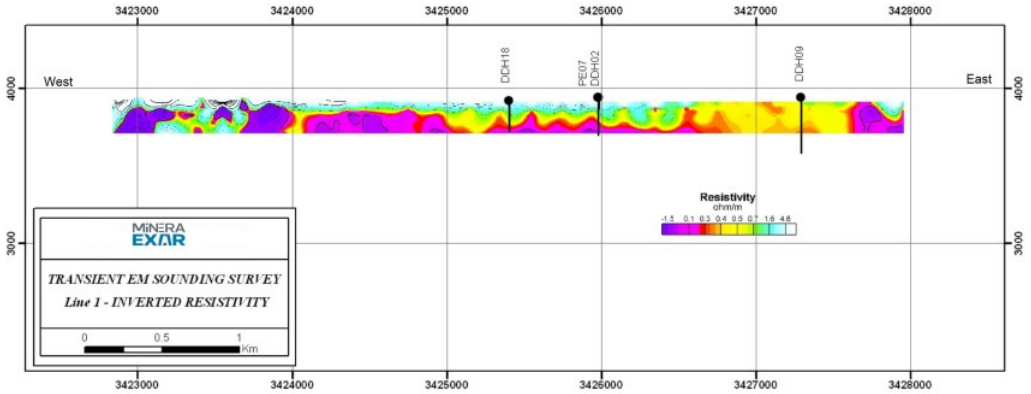
Line TEM 1 (Figure 7.7) - Borehole logs and brine sampling results for PE-07 and DDH-02 indicate that the top of the brine aquifer is at approximately 40 m depth. This is reasonably consistent with the low resistivity values seen in the inversion at this location where the resistivity drops in the presence of brine. For DDH-09, there is sand present to approximately 60 m depth, followed by variable salt, silt, and sand past the bottom of the TEM inversion depth. The resistivity section is supported by the logging results. Notably on this TEM line is the area on the west (left) side of the image, which corresponds to a portion of the alluvial Archibarca Fan, where freshwater inflow occurs. The higher resistivity values in this area are consistent with the inflow of freshwater. The profile also shows two low resistivity anomalies that may be attributable to occurrence of brines at depth, possibly related to structures that intersect the TEM profile orthogonally at these locations.

Figure 7.6 Location of TEM Sounding Profiles Conducted at the Cauchari Salar



Source: Burga et al. (2019)

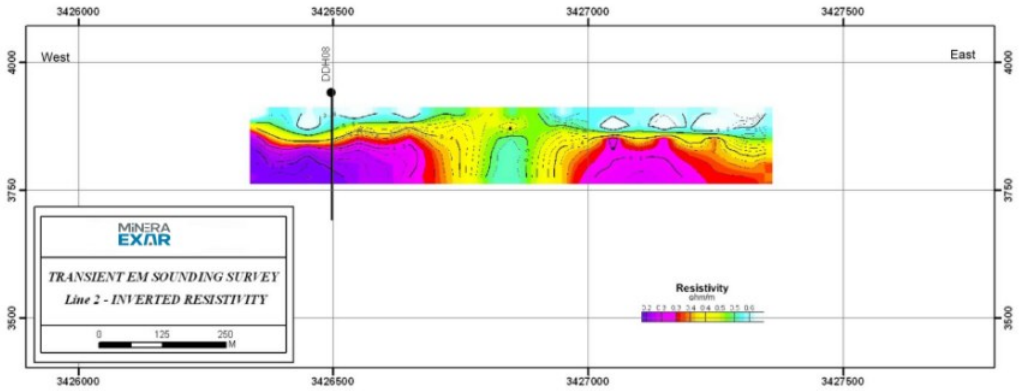
FIGURE 7.7 2010 SURVEY RESULTS FOR LINE TEM 1



Source: Exar.

Line TEM 2 (Figure 7.8) - This TEM image shows a typical layered model in the vicinity of DDH-08 where sandy layers containing the brine resource are situated at 20 m depth. The deeper, low resistivity region associated with DDH-08 is associated with the sandy brine-containing layers continuing to depth. Further to the east (right) there is indication of another low resistivity, high conductivity source. The higher resistivity values in the center of the image may be associated with compacted halite, possibly related to a horst.

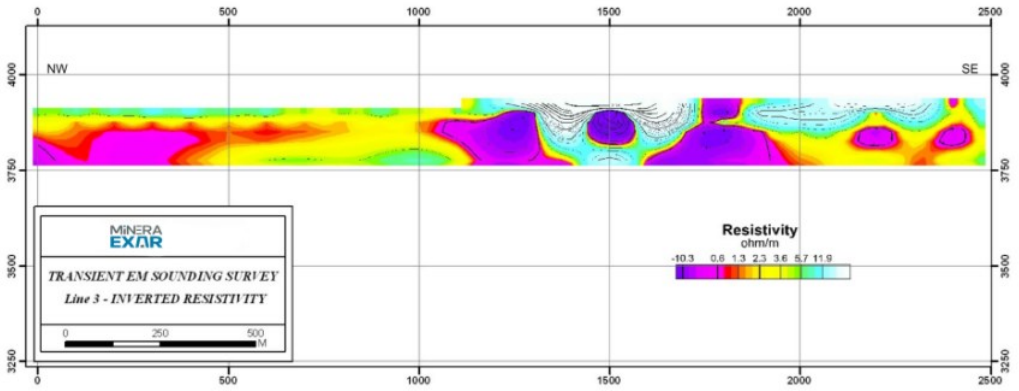
FIGURE 7.8 2010 SURVEY RESULTS FOR LINE TEM 2



Source: Exar.

Line TEM 3 (Figure 7.9) - This northwest-southeast oriented line is situated in the eastern sector of the Cauchari Salar, where no drilling has occurred. It was selected to investigate the possibility of freshwater inflow and/or the presence of brine. The resistivity data suggest that both scenarios occur. Higher resistivity values are likely attributable to freshwater inflow from one of the alluvial fans in the area. The lower resistivity values may be related to brines, with typical resistivity values of < 1.0 ohm/m, associated with interpreted structural features within the basin.

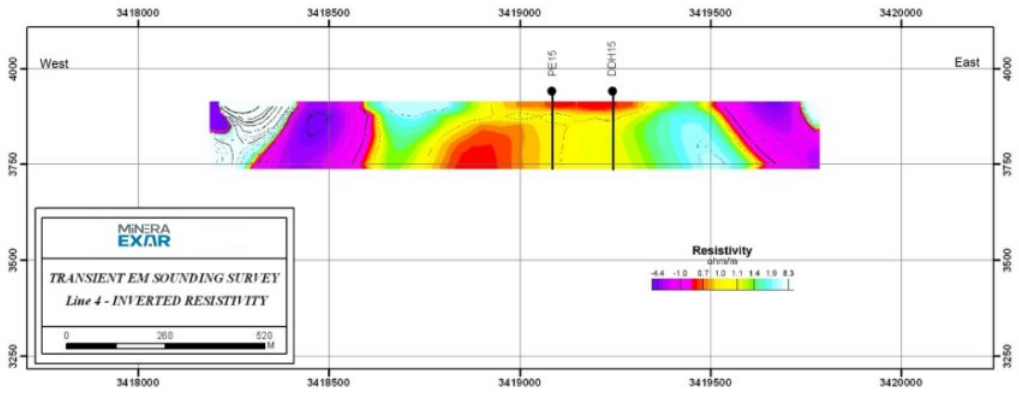
FIGURE 7.9 2010 SURVEY RESULTS FOR LINE TEM 3



Source: Exar.

Line TEM 4 (Figure 7.10) - This line is situated along the western margin of the Cauchari Salar. PE-15 is cased from the surface to a depth of 65 m. Sampling results indicate the presence of a brine aquifer at the bottom of the casing. The resistivity values suggest continuity of the brine to surface. Below 65 m the lithology is characterized by high halite content. The resistivity values at this point are around 1 ohm/m, which is slightly more resistive than sandy brine responses, and consistent with high halite content. Further to the west (left) of the boreholes, a low resistivity zone may indicate brine in a structural feature along the margin of the salar. The higher resistivity at the left end of the section may indicate freshwater moving into the salar.

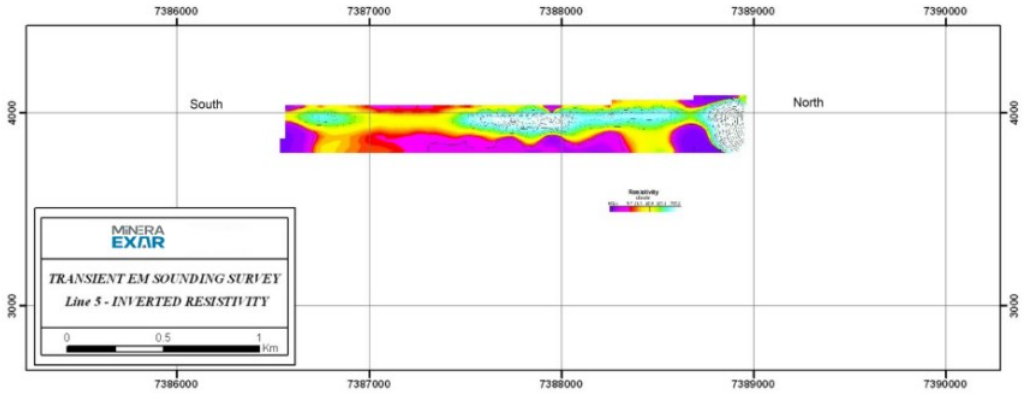
FIGURE 7.10 2010 SURVEY RESULTS FOR LINE TEM 4



Source: Exar.

Line TEM 5 (Figure 7.11) - This line was located to investigate groundwater composition under the Archibarca Fan. The central portion of the inversion shows an area of higher resistivity extending from the surface to a depth of approximately 75 m. Laterally, this zone could approach one kilometre in width. The resistivity values decrease under this interpreted body of freshwater, but not to the degree that would indicate brine presence. They may represent either background resistivity, or the transition to more saline water at depth. Some of the resistivity zones on this TEM line are greater than 1,000 ohm/m, clearly indicating a highly resistive environment that is in contrast with the conductive brines of Cauchari. The higher resistivity values on the right side of the section may relate to the near-surface occurrence of bedrock.

Figure 7.11 2010 Survey Results for Line TEM 5

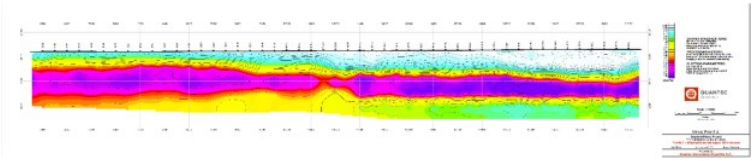


Source: Exar.

In December 2017, another campaign was conducted in the Cauchari south and Olaroz Salar. There were three lines completed with a total of 98 TEM surveys, shown in Figure 7.12 to Figure 7.14.

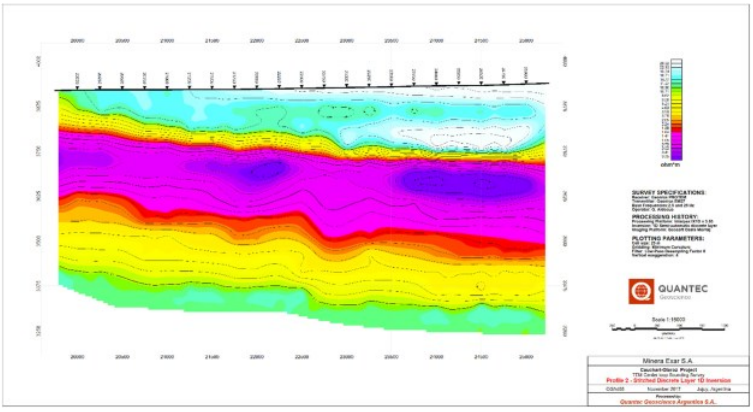
The TEM survey successfully mapped the resistivity to different depths in the area of salt depending on the conductivity of the area considered. In more conductive areas, such as the profile 1, the signal penetrates only up to about 300 m depth, while, in the southern area of the Project, in profiles 2 and 3, models can be defined up to about 800 m or more.

FIGURE 7.12 2017 SURVEY RESULTS FOR LINE TEM 1



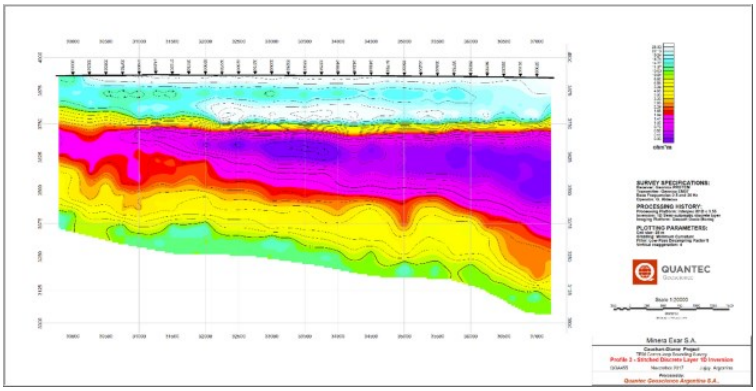
Source: Exar.

FIGURE 7.13 2017 SURVEY RESULTS FOR LINE TEM 2



Source: Exar.

FIGURE 7.14 2017 SURVEY RESULTS FOR LINE TEM 3



Source: Exar.

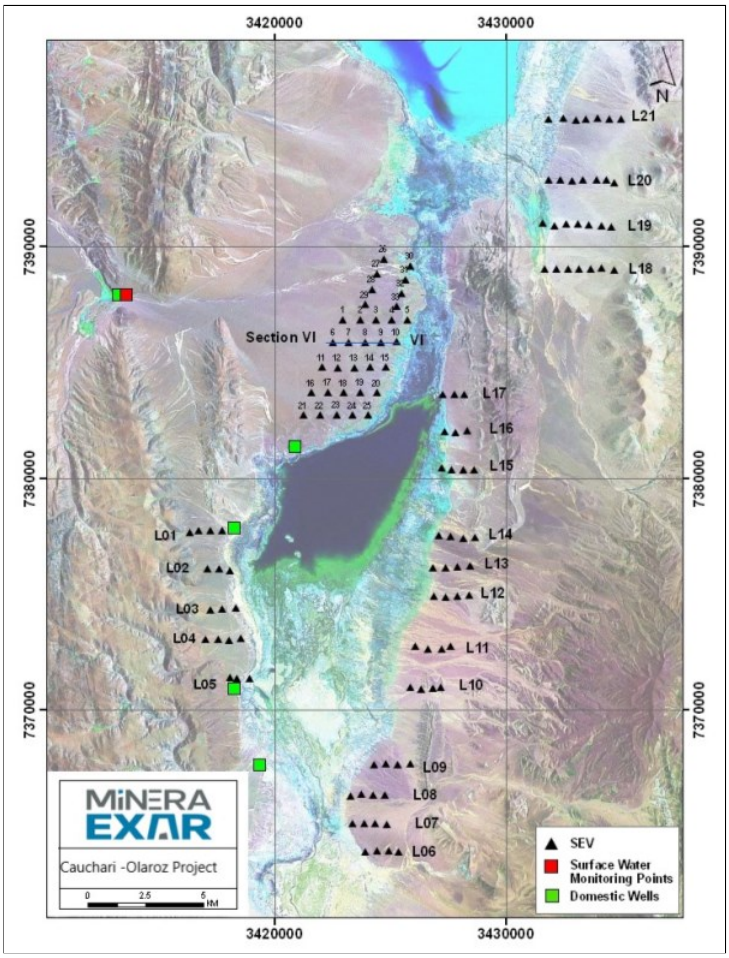
In conclusion, the TEM survey results indicate that the method can be used to determine resistivity contrasts within the salar. However, resolution may be limited to depths on the order of 75 m to 100 m, due to the broad presence of low resistivity materials, as indicated by ambient resistivity values of near sub-ohm/m in many areas of the salar.

7.6 VERTICAL ELECTRICAL SOUNDING SURVEY (VES)

A Vertical Electrical Sounding (VES) survey was conducted at perimeter locations on the Cauchari-Olaroz Salar, from November 2010 to May 2011. The extended survey period was due to recurring weather conditions that were unfavourable for surveying. The objectives of this program were to: 1) explore potential shallow freshwater sources on the Archibarca Fan, for future industrial purposes; and 2) evaluate salar boundary conditions related to the configuration of the brine/freshwater interface.

The survey was conducted using a 4-point light HP, which provides a simultaneous reading of intensity and potential that directly yields apparent resistivity. Data collected in the field were interpreted using RESIX 8.3 software, producing a graph of points representing the field measurements, and a solid line curve corresponding to the physical-mathematical model. Survey locations are shown on Figure 7.15.

Figure 7.15 2010-2011 Map of VES Survey Area



Source: Burga et al. (2019)

The VES results enable the differentiation of the following five zones on the Archibarca Fan and the salar perimeter locations, as shown in Figure 7.16 through to Figure 7.19:

- An upper unsaturated layer, with relatively high resistance;
- An upper saturated aquifer containing freshwater;
- A lower conductive layer, interpreted as containing brine;
- An interface or mixed zone, grading from freshwater to brine; and
- A lower resistive zone, only detected in three VES lines and in which the degree of saturation and water salinity is unknown.

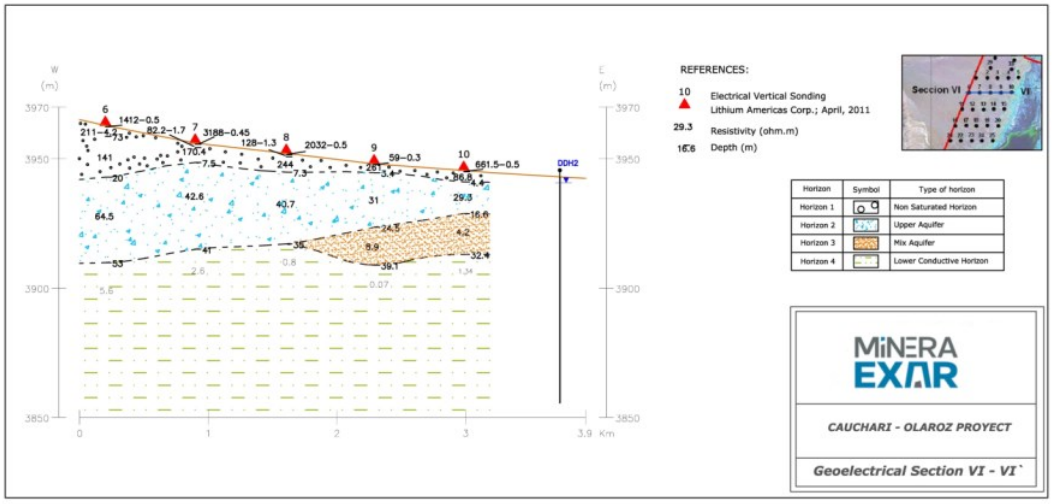
The first three of these were encountered on most lines and are interpreted to be relatively continuous on the Archibarca Fan and the salar perimeter. The latter two were discontinuous. On the Archibarca Fan, the VES results indicate the occurrence of freshwater to an average depth of 50 m below surface. Below the freshwater layer, a gradational interface often occurs between shallow freshwater and deeper brine, from approximately 20 to 70 m depth.

The upper zone, interpreted as freshwater, is present throughout the investigated area of the fan and has potentially favourable characteristics for water supply. This zone is a target for expansion of the freshwater supply at PB-I (Section 7.14). The occurrence of freshwater on the Archibarca Fan indicates with the inflow of freshwater into the shallow sandy fan sediments from upgradient areas. The VES results are consistent with existing drilling results and are useful for evaluating the potential thickness of the freshwater wedge.

Additional potential zones of freshwater were also identified on other smaller alluvial fans and also other non-fan perimeter locations (e.g., Figure 7.16, Figure 7.17, Figure 7.18 and Figure 7.19). The water supply potential of these additional zones appears to be lower than that of the Archibarca, due to more limited lateral and/or vertical extent of the interpreted freshwater zone. Nevertheless, these occurrences may yield useful quantities of freshwater, and would be worthwhile to evaluate further, depending on final water supply results from the Archibarca Fan.

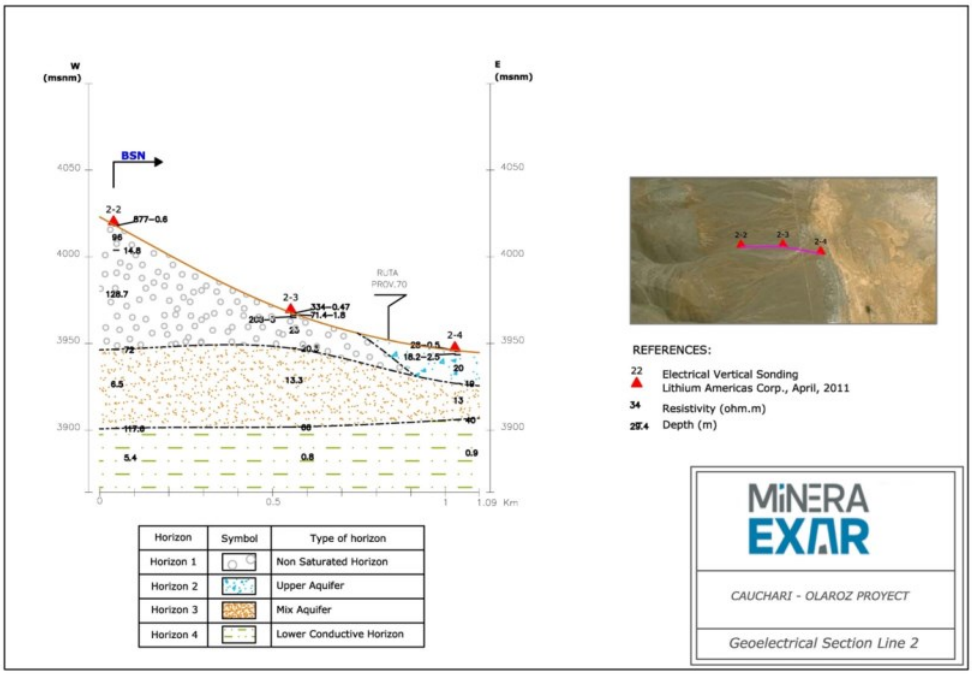
The VES results are also useful for general delineation of the freshwater/brine interface on the salar boundary. They were used to identify follow-up sampling locations at perimeter drilling and test pitting locations (see Section 7.11). Subsequently, the VES results and the follow-up sampling were used to define grade boundary conditions along the salar perimeter.

Figure 7.16 2010-2011 VES Survey Interpretation on the Archibarca Fan, Along Line VI



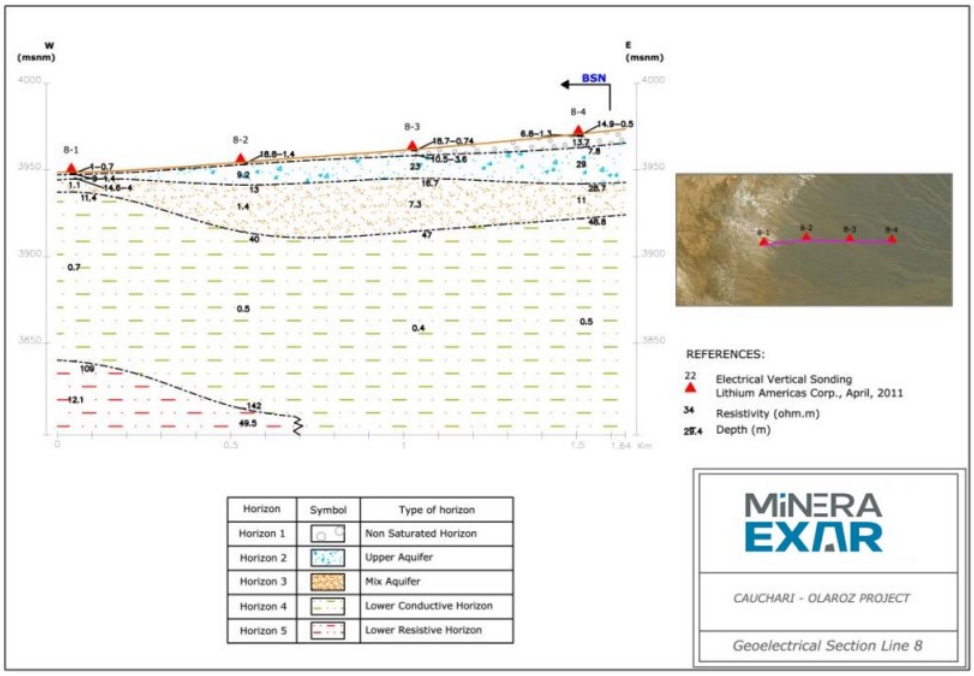
Source: Exar.

Figure 7.17 2010-2011 VES Survey Interpretation Along Line 2



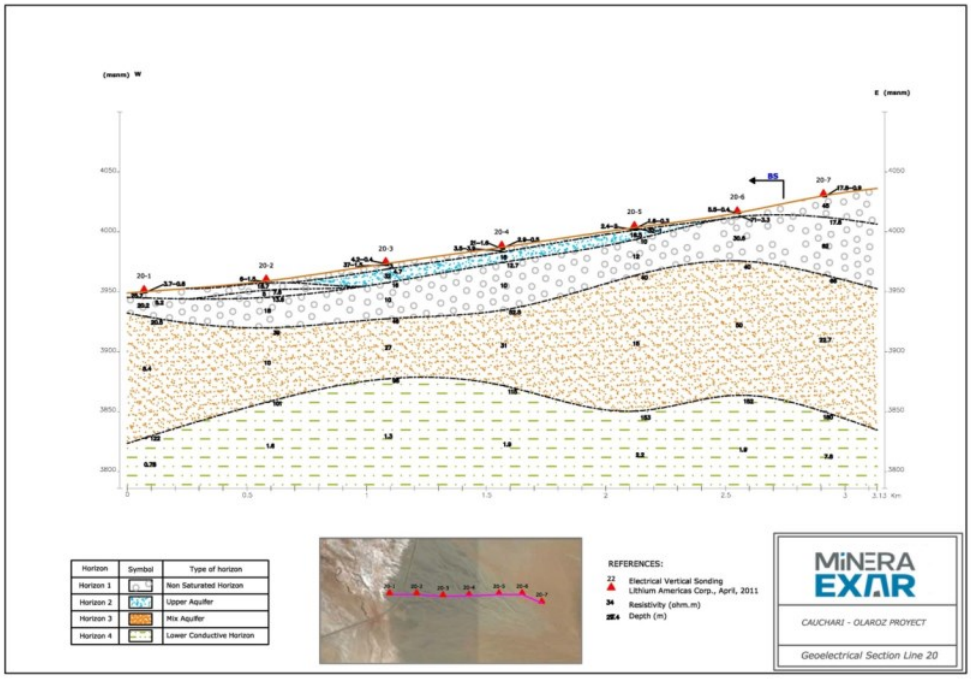
Source: Exar.

Figure 7.18 2010-2011 VES Survey Interpretation Along Line 8



Source: Exar.

FIGURE 7.19 2010-2011 VES SURVEY INTERPRETATION ALONG LINE 20

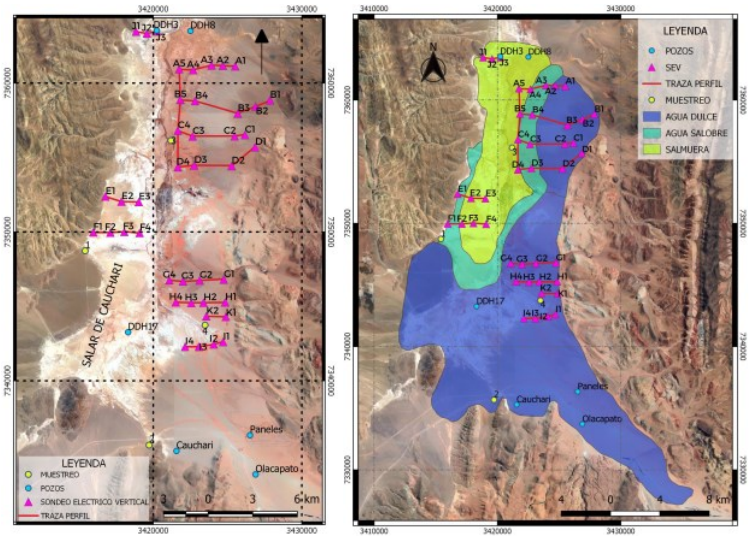


Source: Exar.

7.7 2019 VERTICAL ELECTRICAL SOUNDING SURVEY (VES)

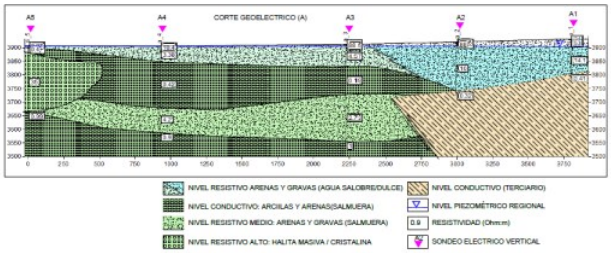
In 2019, Geoelectric prospecting hydrogeological in Cauchari salar. In the study area, 42 Vertical Electrical Surveys were carried out. The objectives of this program were to: 1) explore potential shallow freshwater sources on the basin edges, for future industrial purposes; and 2) evaluate salar boundary conditions related to the configuration of the brine/freshwater interface. The survey lines and results are presented in Figure 7.20 to Figure 7.31.

FIGURE 7.20 2019 VES SURVEY AREA



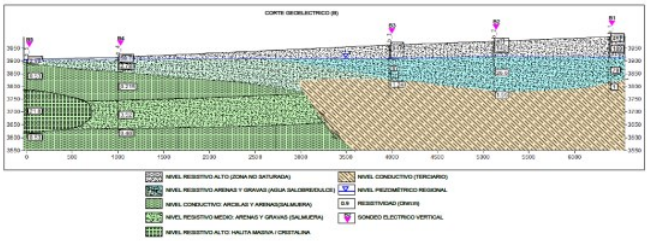
Source: Exar (2024)

Figure 7.21 2019 VES Survey Interpretation Along Line A



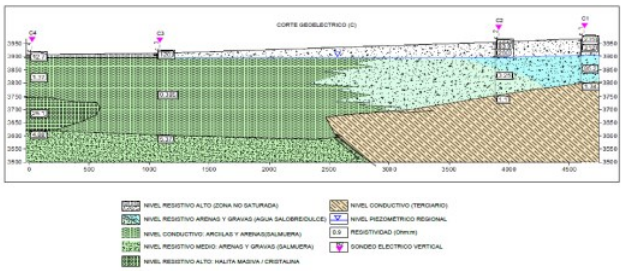
Source: Exar

Figure 7.22 2019 VES Survey Interpretation Along Line B



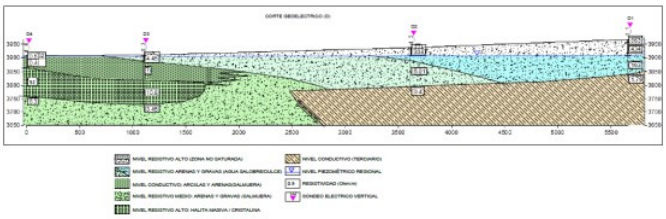
Source: Exar

Figure 7.23 2019 VES Survey Interpretation Along Line C



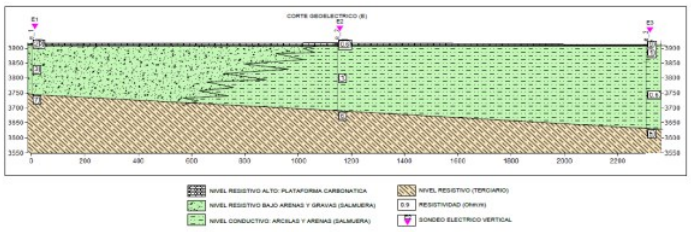
Source: Exar

Figure 7.24 2019 VES Survey Interpretation Along Line D



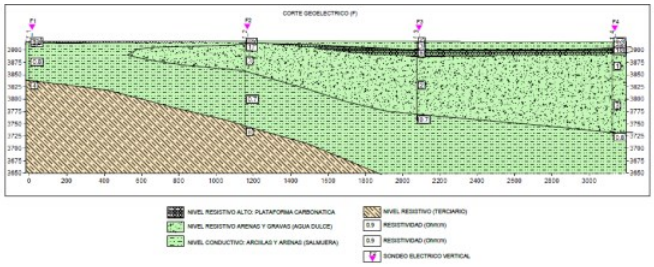
Source: Exar

Figure 7.25 2019 VES Survey Interpretation Along Line E



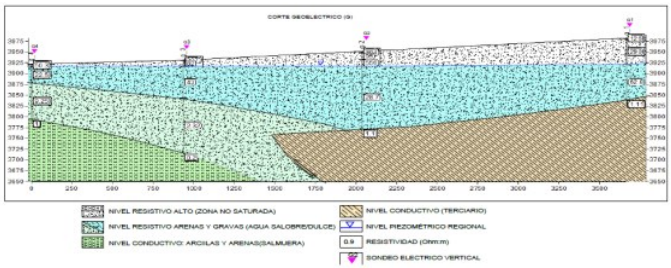
Source: Exar

Figure 7.26 2019 VES Survey Interpretation Along Line F



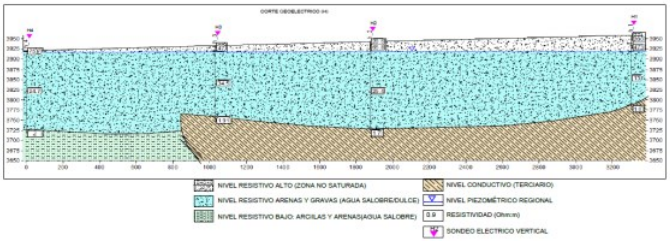
Source: Exar

Figure 7.27 2019 VES Survey Interpretation Along Line G



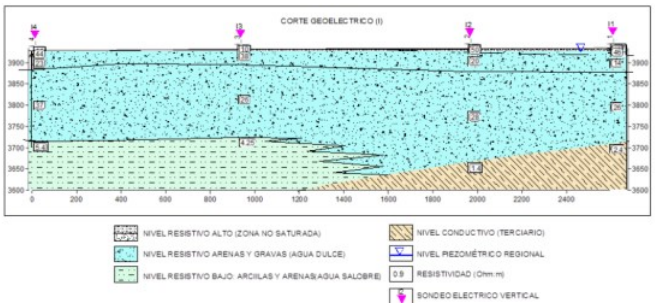
Source: Exar

Figure 7.28 2019 VES Survey Interpretation Along Line H



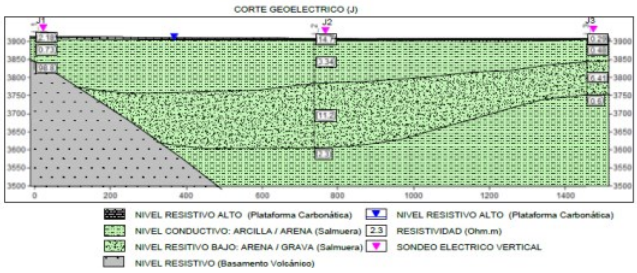
Source: Exar

Figure 7.29 2019 VES Survey Interpretation Along Line I



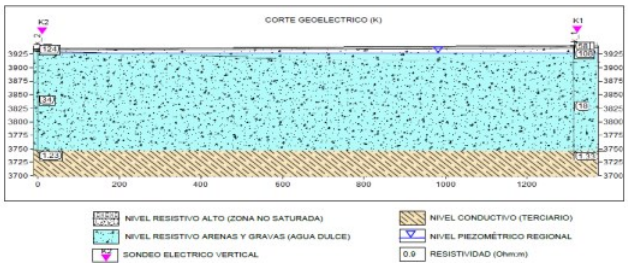
Source: Exar

FIGURE 7.30 2019 VES SURVEY INTERPRETATION ALONG LINE J



Source: Exar

FIGURE 7.31 2019 VES SURVEY INTERPRETATION ALONG LINE K

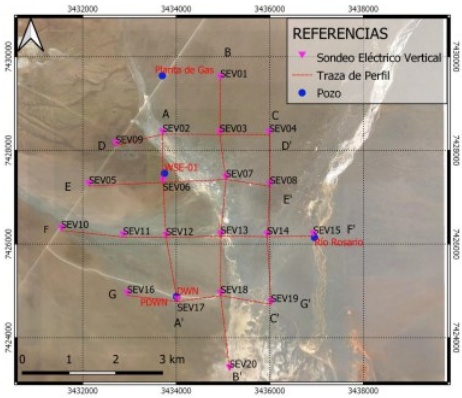


Source: Exar

7.8 2020 VERTICAL ELECTRICAL SOUNDING SURVEY (VES)

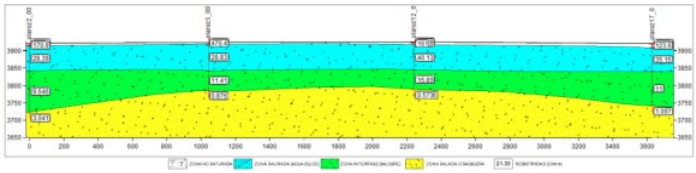
During 2020, Geoelectric hydrogeological prospecting was conducted in the Rosario River, alluvial fan, Salar de Olaroz. The study was carried out with the objective of identifying, based on geophysics, the different sedimentological units and especially the units that can behave as freshwater aquifers for industrial use. In the study area, 20 (twenty) Vertical Electrical Surveys were carried out. The survey lines and results are presented in Figure 7.32 to Figure 7.39.

Figure 7.32 2020 VES Survey Area



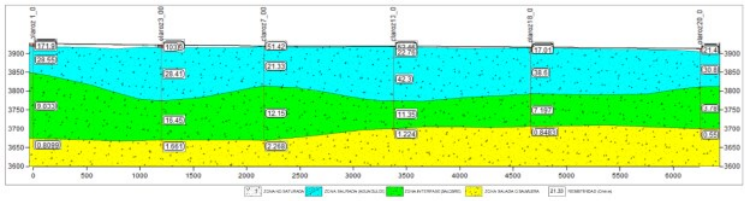
Source: Exar (2024)

Figure 7.33 2020 VES Survey Interpretation Along Line A-A'



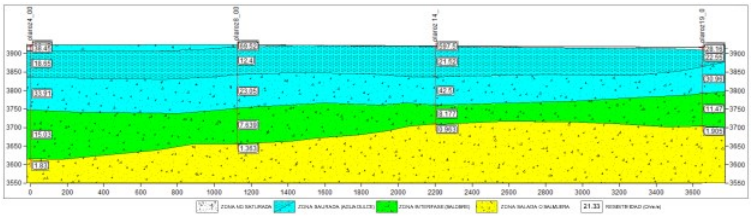
Source: Exar

Figure 7.34 2020 VES Survey Interpretation Along Line B-B'



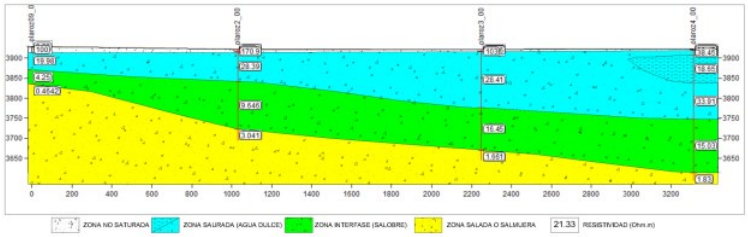
Source: Exar

Figure 7.35 2020 VES Survey Interpretation Along Line C-C'



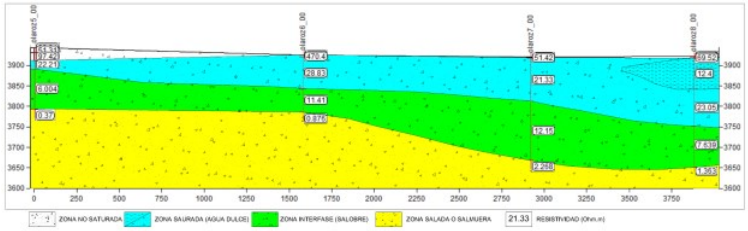
Source: Exar

Figure 7.36 2020 VES Survey Interpretation Along Line D-D'



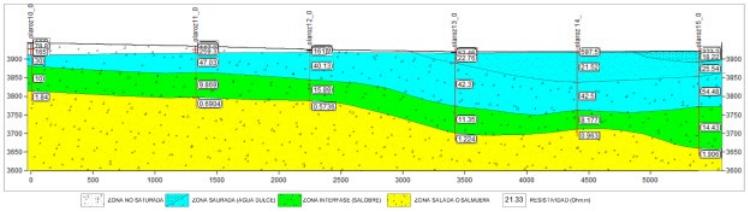
Source: Exar

Figure 7.37 2020 VES Survey Interpretation Along Line E-E'



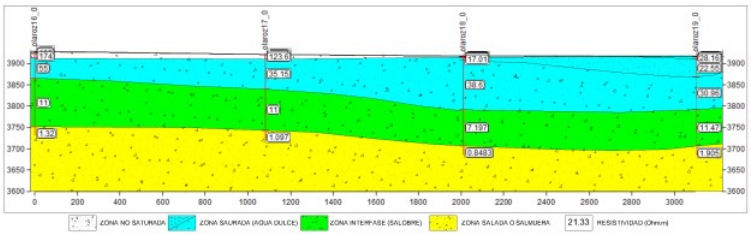
Source: Exar

FIGURE 7.38 2020 VES SURVEY INTERPRETATION ALONG LINE F-F'



Source: Exar

FIGURE 7.39 2020 VES SURVEY INTERPRETATION ALONG LINE G-G'

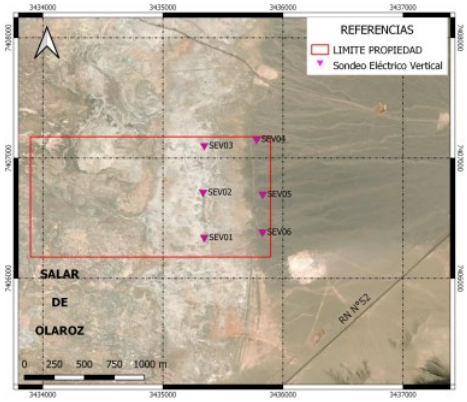


Source: Exar

7.9 2021 VERTICAL ELECTRICAL SOUNDING SURVEY (VES)

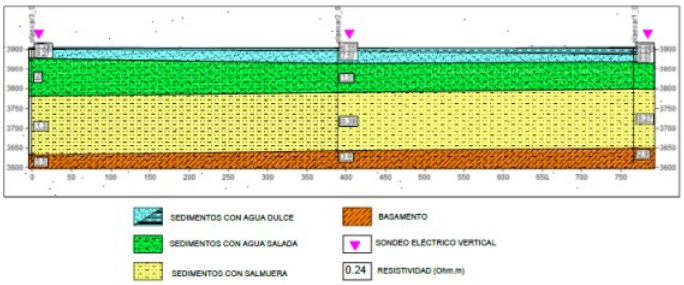
In 2021, a new geolectric campaign was carried out. Geoelectric hydrogeological prospecting in mina Irene, Salar de Olaroz. The objective was to identify, based on geophysics, the different sedimentological units and especially the units that can behave as aquifers with different characteristics, such as freshwater, brackish water or brine. In the study area, 6 (six) Vertical Electrical Surveys were carried out. The survey lines and results are presented in Figure 7.40 to Figure 7.42.

Figure 7.40 2021 VES Survey Area



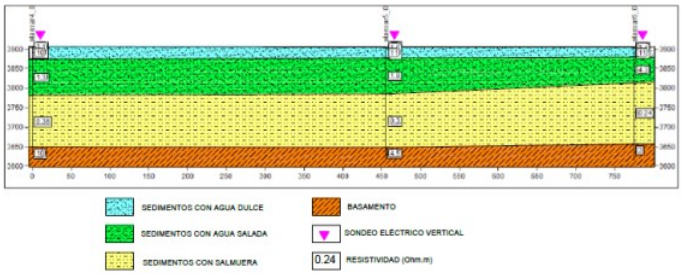
Source: Exar (2024)

Figure 7.41 2021 VES Survey Interpretation Along Line A



Source: Exar

FIGURE 7.42 2021 VES SURVEY INTERPRETATION ALONG LINE B



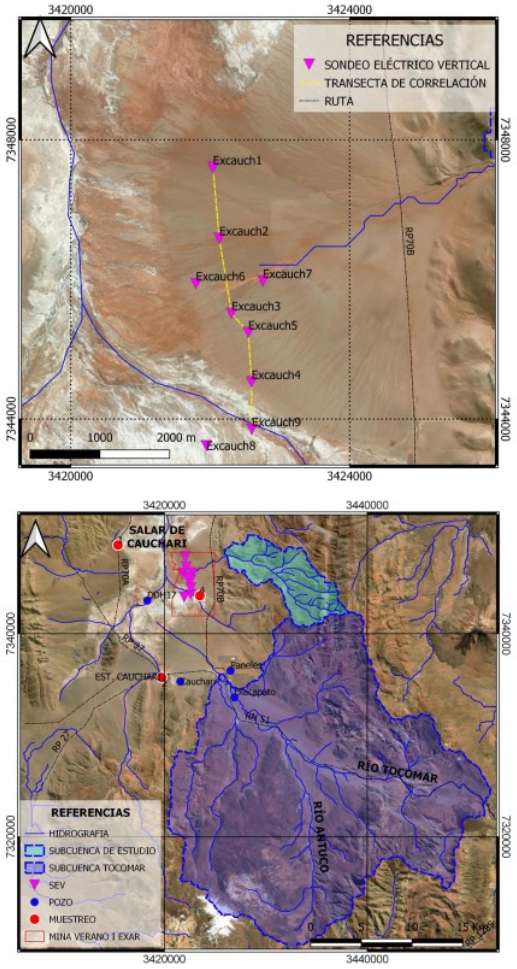
Source: Exar

7.10 2024 VERTICAL ELECTRICAL SOUNDING SURVEY (VES)

Finaly in 2024, a new geophysics study was made, the objective of the study was the characterization of the sedimentological units through geophysical techniques, with a special focus on the identification of those with the potential to act as aquifers for industrial water use, in order to adjust a potential drilling target, in the Salar of Cauchari, geoelectric prospecting hydrogeological, southeast sector, Salar Cauchari

In the study area, 9 Vertical Electrical Surveys were carried out. The survey lines and results are presented in Figure 7.43 and Figure 7.44.

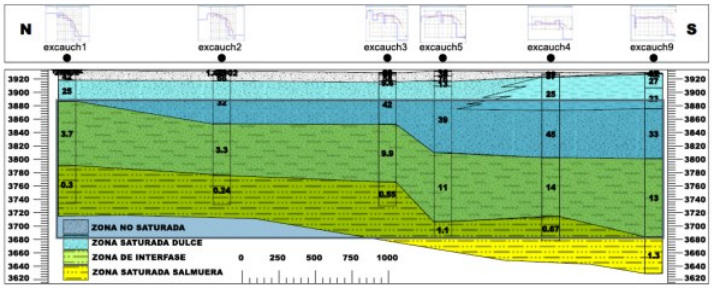
FIGURE 7.43 2024 VES SURVEY AREA



Source: Exar (2024)

This study recommends carrying out exploratory drilling in the southern sector of the alluvial fan, in the vicinity of the Excauch4, Excauch5, Excauch8, Excauch9 and Excauch4 boreholes, where the greatest thicknesses of the zone saturated with freshwater were interpreted.

FIGURE 7.44 2024 VES SURVEY INTERPRETATION



Source: Exar

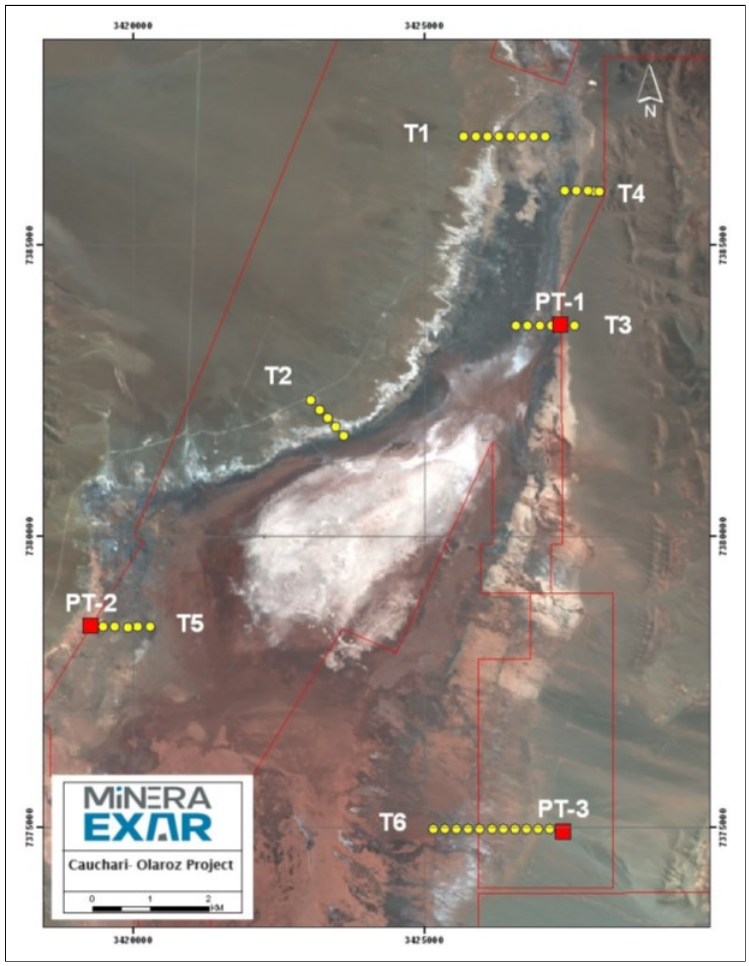
7.11 BOUNDARY INVESTIGATION

The Boundary Investigation was conducted to further assess the configuration of the freshwater/brine interface, at the salar surface and at depth, at selected locations on the salar perimeter. Data from this program were interpreted in conjunction with the VES survey (described in the previous section). Information from these two programs supported the extension of the hydrostratigraphic model and the lithium grade interpolation to the outer boundaries of the salar, and the evaluation of numerical model boundary conditions for lithium (Section 12.0).

Test pits and monitoring wells advanced for the Boundary Investigation are shown in Figure 7.45, and were advanced in two successive steps. In the first step, test pits were excavated along lateral transects at salar boundary locations (T3 through T6) or on the edge of the Archibarca Fan (T1 and T2). The purpose of the test pits was to identify the shallow transition zone from brine to freshwater. Test pits were excavated until water was reached, and water samples were collected from the bottom of the pits.

Water samples were sent to Alex Stewart Laboratory for major ion analysis. Field parameters, including conductivity, density, and temperature, were also measured and were used for assessing if the transition zone was captured by the transect in real time. For the salar perimeter transects, the capability to fully capture the transition zone was limited by the edge of the Exar claim boundary (T3, T4, and T5) or by difficult access conditions (T6). A summary of test pit transect data for Total Dissolved Solids (TDS) and lithium is provided in Table 7.1.

Figure 7.45 Boundary Investigation Map Showing Test Pit Transects and Multi-level Monitoring Well Nests



Source: Burga et al. (2020)

Table 7.1
Test Pit Transect Results for TDS and Lithium

Transect Test Pit	TDS (mg/L)	Lithium (mg/L)	Transect Test Pit	TDS (mg/L)	Lithium (mg/L)
T1-1	1,120	ND	T4-3	23,260	33
T1-2	1,420	ND	T4-4	110,980	175
T1-3	720	ND	T4-5	215,740	402
T1-4	64,860	112	T5-1	12,560	18
T1-5	114,740	194	T5-2	30,220	52
T1-6	175,340	328	T5-3	106,080	240
T1-7	256,540	631	T5-4	128,500	261
T1-8	182,680	327	T5-5	227,200	442
T2-1	1,100	ND	T5-6	292,580	619
T2-2	3,640	ND	T6-1	No water	
T2-3	2,780	ND	T6-2	4,200	ND
T2-4	2,300	ND	T6-3	6,280	ND
T2-5	59,500	101	T6-4	7,580	ND
T3-1	No water		T6-5	21,640	25
T3-2	33,300	45	T6-6	26,860	29
T3-3	84,260	140	T6-7	26,980	34
T3-4	207,920	301	T6-8	22,460	26
T3-5	251,160	362	T6-9	22,200	26
T3-6	237,180	472	T6-10	26,000	35
T4-1	No water		T6-11	No water	
T4-2	No water		ND - below detection limit.		

The goal of the second step of the investigation was to install multi-level monitoring well nests at the locations identified as central to the freshwater/brine transition zone. In execution, the nests could not be installed directly on the shallow transition zones, due to access restrictions. Well nests were installed on three of the test pit transects and, within each nest the wells were screened at different levels, to enable an evaluation of depth trends in brine strength and lithium grade. Drilling was completed by Andina Perforaciones SRL using rotary methods. A summary of well specifications and sampling results for TDS and lithium is provided in Table 7.2.

Table 7.2
Test Pit Transect Results for TDS and Lithium with Depths

Drill Hole ID	Depth of Screened Interval (m)	Casing Diameter (in)	Lithology of Screened Interval	TDS[1] (mg/L)	Lithium[1] (mg/L)
PT1	59.0-63.0	4.0	Medium to fine sand	265,380 263,120 267,920	559 541 545
PT1A	39.5-43.5	4.0	Sand and Gravel	243,520 243,140 246,260	471 464 457
PT2	39.0-49.0	4.5	Medium to fine sand	190,120 190,640 189,520	372 365 365
PT2A	21.5-29.5	4.5	fine gravel sandy clay matrix	119,280 128,040 123,400	230 250 237
PT2B	11.5-15.5	4.0	fine gravel sandy clay matrix	39,160 39,100 46,040	76 76 87
PT2C	3.5-5.5	4.0	clay	99,600 55,540	197 111
PT3	47.5-77.5	2.0	Inter-bedded sand and clay	19,940 18,920	38 36
PT3 2"	11.5-33.5	4.5	Coarse sand and gravel	18,700	35
PT3 4"				Dry well	

Note: [1] Triplicate, duplicate or single samples were collected.

7.12 SURFACE WATER MONITORING PROGRAM

A Surface Water Monitoring Program was initiated in early 2010 to record the flow and chemistry of surface water in the vicinity of the Cauchari-Olaroz salars. Measurements were taken at each monitoring location for pH, conductivity, dissolved oxygen, and temperature. A subsequent Surface Water Monitoring Program, measuring identical parameters, was initiated in 2017 with the new drilling and was ongoing as of the effective date of this report. Flow rates are being monitored monthly. Measurements were made by monitoring flow velocity across a measured channel cross-sectional area at each site. Where the flow was too small to measure, it was estimated qualitatively. Monitoring locations are shown in Figure 7.46. Table 7.3 shows the results of this program for every month and the results with different methodologies used to measure the flows. The following methods were used to estimate the flow rates:

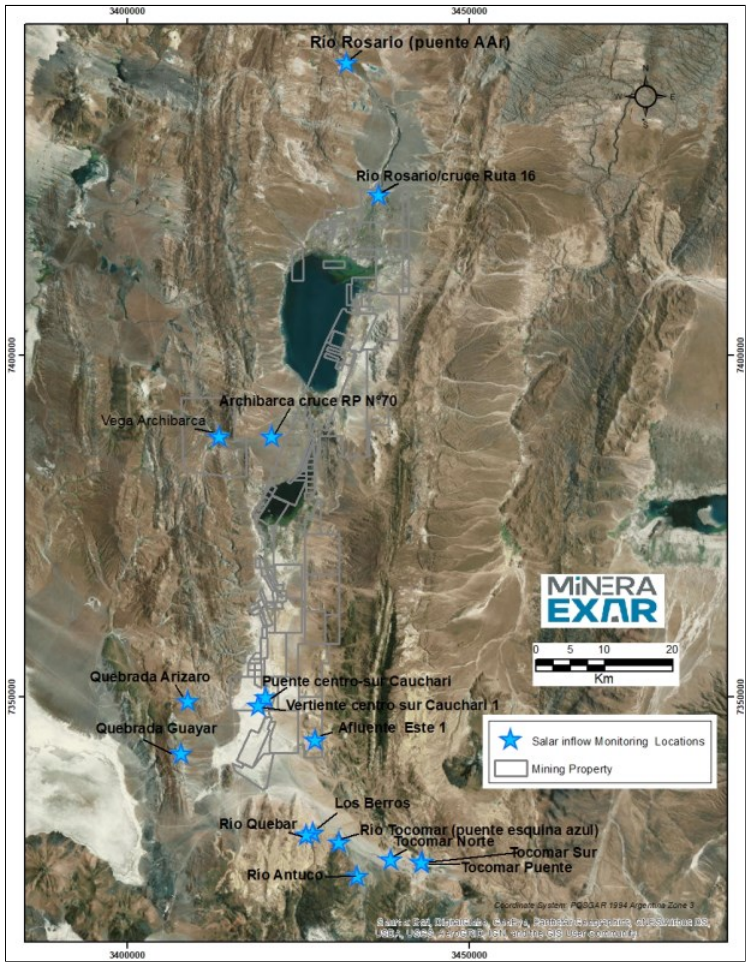
- Volumetric Method - consisting in a section of a known volume and measurement of time;
- Float Method - recording the time it takes a float to pass along a known volumetric section of stream; and

- Flow meter - a mechanical spinner tool which measuring the velocity of surface water passing through a known section of stream width.

These parameters are somewhat elevated in surface water inflows at the north and south ends of the salars, relative to other surface water inflows.

The data acquired from this program supported the water balance calibration and numerical groundwater modeling.

Figure 7.46 Surface Water Flow Monitoring Sites



Source: Burga et al. (2020)

Table 7.3
Average Surface Water Flow Rates

Year	2017			2018			2019			
Month	**Volume-tric (L/s)**	**Float (L/s)**	**Flow Meter (L/s)**	**Volume-tric (L/s)**	**Float (L/s)**	**Flow Meter (L/s)**	**Volume-tric (L/s)**	**Float (L/s)**	**Flow Meter (L/s)**	Monthly Average (L/s)
Tocomar Norte										
April				9.46	8.8		9,14			9.13
May				7.25	7.34			7,00		7.19
June	11.30	13.47	3.33	6.43	9.52					8.81
July			6.62		4.53	3.335				4.83
August	8.65	13.36		7.80	5.33					8.78
September			9.77	26.14	20.21					18.71
October	8.93	8.65	15.61	18.13	12.78					12.82
November	7.58	10.21	14.88	8.71						10.35
December	5.92	9.74		8.34	14.87					9.72
January					9.67			20.83		15.25
February				7.92	8.6		7.66	3.47		6.91
March				8.4	8.8		7,11			8.10
Tocomar Sur										
April					51.40	49.40		35,09		45,29
May					24.62	29.42		30,50		28,18
June		66.83	62.66		29.27	28.53				46.82
July					45.08	44.01				44.55
August		46.00	29.02		46.89					40.64
September			46.12		40.64	40.27				42.34
October		36.14	34.37		22.28	28.49				30.32
November		30.32	23.84		23.34	21.45				24.74
December			8.03		33.55	31.97				24.51

Table 7.3
Average Surface Water Flow Rates

Year	2017			2018			2019			
Month	**Volume-tric (L/s)**	**Float (L/s)**	**Flow Meter (L/s)**	**Volume-tric (L/s)**	**Float (L/s)**	**Flow Meter (L/s)**	**Volume-tric (L/s)**	**Float (L/s)**	**Flow Meter (L/s)**	Monthly Average (L/s)
January					38.29	45.30				41.80
February					28.08	33.60		46.22	62.66	42.64
March					64.30	48.90		29,96		47.72
Tocomar Puente										
April					102.8	96.45		103,74	116,54	104,88
May					84	63.46		102,69		83,33
June		194.15	40.64		81.45	81.22				99.36
July			234.99		161.6	135.07				177.22
August		82.28	62.17		147.34	152.9				111.17
September			113.10		44.07	49.33				68.83
October			73.11		42.90	49.86				55.29
November			64.59		43.75	43.02				50.45
December		30.68	51.68		25.75	26.61				33.68
January					55.49	82.88		41.01	40.64	55.01
February					37.36	27.8		47.62		37.59
March					90.42	60.2		25,12		58,58
Afluente Este 1										
April					4.99	4.15		0,65		3,26
May					2.65			4,89		3,77
June		16.55	11.45		2.74					10.25
July			6.18							6.18
August		27.33			5.38					16.36
September	6.47	8.34	4.15		7.98					6.74
October		11.31	7.37		7.75					8.81

Table 7.3
Average Surface Water Flow Rates

Year	2017			2018			2019			
Month	**Volume-tric (L/s)**	**Float (L/s)**	**Flow Meter (L/s)**	**Volume-tric (L/s)**	**Float (L/s)**	**Flow Meter (L/s)**	**Volume-tric (L/s)**	**Float (L/s)**	**Flow Meter (L/s)**	Monthly Average (L/s)
November		9.54	9.58		5.21					8.11
December		5.37			7.72					6.54
January					11.05			26.13		18.59
February					1.84	1.38		5.86		3.03
March					1.33			6,46		3,89
Afluente Este 1R										
April				0.75			1,68			1,21
May				0.54			1,04			0.79
June	0.60			0.52						0.56
July	0.92			0.59						0.76
August	0.67			0.56						0.62
September	1.17			1.59						1.38
October	0.81			1.33						1.07
November	0.87			0.85						0.86
December	0.68			1.53						1.10
January				0.57						0.57
February				0.53						0.53
March				0.43			0,65			0.54
Los Berros										
April				2.40		1.74		26,34		10.16
May				0.60						0.60
June	10.53			8.77						9.65
July						27.22				27.22
August	11.76	11.76			23.43					15.65

Table 7.3
Average Surface Water Flow Rates

Year	2017			2018			2019			
Month	**Volume-tric (L/s)**	**Float (L/s)**	**Flow Meter (L/s)**	**Volume-tric (L/s)**	**Float (L/s)**	**Flow Meter (L/s)**	**Volume-tric (L/s)**	**Float (L/s)**	**Flow Meter (L/s)**	Monthly Average (L/s)
September	4.65			6.15						5.40
October	1.33		1.74	3.78						2.28
November	0.16			1.08						0.62
December	0.19			0.17						0.18
January										
February				5.97				4.68	4.83	5.16
March				7.29			12,05			9,67
Puente Centro Sur Cauchari										
April					11.36	10.98				11.17
May				1.70						1.70
June			0.33		20.45					10.39
July						16				16.00
August					11.03					11.03
September	6.96		15.29		15.91					12.72
October	0.77				18.16					9.46
November					3.35					3.35
December					2.23					2.23
January					2.73			9.66		6.19
February				10.60	2.90					6.75
March				5.29	5.85			11,67		7.60
Quebrada Arizaro										
April				0.33			0,61			0.47
May				0.52			0,27			0.39
June	0.92			0.85						0.88

Table 7.3
Average Surface Water Flow Rates

Year	2017			2018			2019			
Month	**Volume-tric (L/s)**	**Float (L/s)**	**Flow Meter (L/s)**	**Volume-tric (L/s)**	**Float (L/s)**	**Flow Meter (L/s)**	**Volume-tric (L/s)**	**Float (L/s)**	**Flow Meter (L/s)**	Monthly Average (L/s)
July										
August	0.83	0.83		1.35						1.00
September	0.96			1.20						1.08
October	0.60			1.35						0.97
November	0.19920319			0.25						0.22
December	0.12			0.12						0.12
January				2.94						2.94
February				1.35			2.55			1.95
March				0.53			0,31			0.42
Quebrada Guayar										
April				0.38			0,53			0.45
May				0.40			0,24			0.32
June	1.28			0.33						0.80
July	1.79			0.24						1.01
August	1.15	1.15		0.22						0.84
September	0.38			0.22						0.30
October	0.39			0.21						0.30
November	0.29			0.29						0.29
December	0.31			0.24						0.27
January				0.27						0.27
February				0.46						0.46
March				0.31			0,43			0.37

Table 7.3
Average Surface Water Flow Rates

Year	2017			2018			2019			
Month	**Volume-tric (L/s)**	**Float (L/s)**	**Flow Meter (L/s)**	**Volume-tric (L/s)**	**Float (L/s)**	**Flow Meter (L/s)**	**Volume-tric (L/s)**	**Float (L/s)**	**Flow Meter (L/s)**	Monthly Average (L/s)
Río Antuco										
April					12.00	11.19		85,21		36.13
May					4.58	7.5		16,18		9,42
June		29.46	7.6		4.00					13.69
July			15.53		8.53	9.8				11.29
August		27.91			13.89					20.90
September			10.62		12.03					11.32
October		16.36	15.28		17.05					16.23
November			12.88		12.78					12.83
December		12.60	13.45		11.15	14.11				12.83
January						9.44		10.64	7.60	9.23
February					15.4	13.27		11.15		9.42
March					9.35	5.9		9,28		8.17
Río Quebar										
April					56.37	39.80				48.09
May					35.40	29.32				32.36
June		85.50	22.08		66.04	77.42				62.76
July			76.56		67.63	65.20				69.80
August		86.32	33.86		38.61	42.90				50.42
September			65.09		44.85	44.15				51.36
October		51.86	52.57							52.22
November		51.05	55.63		41.71					49.46
December		20.1	33.82		20.82	22.68				24.36
January					20.39	39.81		34.71		31.64

Table 7.3
Average Surface Water Flow Rates

Year	2017			2018			2019			
Month	**Volume-tric (L/s)**	**Float (L/s)**	**Flow Meter (L/s)**	**Volume-tric (L/s)**	**Float (L/s)**	**Flow Meter (L/s)**	**Volume-tric (L/s)**	**Float (L/s)**	**Flow Meter (L/s)**	Monthly Average (L/s)
February					57.80	35.47				46.64
March					76.65	89.25				82.95
Río Rosario (Puente Aar)										
April					334	255		277,49	309,25	293,93
May			276.67		288.95	228.811		208,38	244,32	249.42
June					427.33	338.56				382.95
July					393.19	418.76				405.98
August		331.18	224.52		577.86					377.85
September			114.36		391.75	380.72				295.61
October		33.15	42.37		229.39	235.13				135.01
November		32.27	36.61		131.01	119.09				79.75
December		704.3	459.59		96.87	73.03				333.45
January					92.40	67.90				80.15
February					439	426.17		548.11	216.15	407.36
March					973	781		903,16		885.72
Río Tocomar (Puente Esquina Azul)										
April					114.75	117.55				116.15
May					159.6	159.79				159.70
June										
July						12.67				12.67
August										
September										
October										
November										

Table 7.3
Average Surface Water Flow Rates

Year	2017			2018			2019			
Month	**Volume-tric (L/s)**	**Float (L/s)**	**Flow Meter (L/s)**	**Volume-tric (L/s)**	**Float (L/s)**	**Flow Meter (L/s)**	**Volume-tric (L/s)**	**Float (L/s)**	**Flow Meter (L/s)**	Monthly Average (L/s)
December										
January										
February								14.43		14.43
March					151.2	157.6				154.40

7.13 BRINE LEVEL MONITORING PROGRAM

The static level of subsurface brine was monitored every month from an array of accessible wells within the salars. Monitoring was also conducted at domestic water wells just outside the Cauchari Salar. Measurements were taken with a Solinst Model 101 Water Level Meter. Some wells with difficult access used a Solinst Levelogger, model 3001, which records brine levels once a day.

Table 7.4 shows the average depth to static levels observed in the monitoring wells between 2010-2019. Variations in average fluid density and electrical conductivity monitored during sampling and testing were found to be negligible.

The data from the Brine Level Monitoring Program was used to calibrate the numerical groundwater model to long-term static conditions. Extensive monitoring of dynamic brine levels (i.e., in response to pumping) was also conducted, for the Pumping Test Program described in Section 7.14.

TABLE 7.4
STATIC WATER LEVEL MEASUREMENTS FOR THE PERIOD FROM JANUARY 2010 TO FEBRUARY 2019

Borehole ID	Monitoring Period (mm/yy)	Average Water Level (m below ground surface)
DL-001	12/17 - 02/19	6.02
ML-001	10/17 - 02/19	7.98
SL-001	09/17 - 02/19	2.05
W-01	02/18 - 02/19	7.95
DL-002	12/17 - 02/19	14.43
ML-002	01/18 - 02/19	12.56
SL-002	10/17 - 02/19	4.73
W-02	02/18 - 02/19	13.34
ML-003	09/17 - 02/19	11.96
DL-003	09/17 - 02/19	14.51
DL-003B	01/18 - 02/19	26.39
DL-004B	03/18 - 02/19	12.47
ML-004	09/17 - 02/19	4.52
SL-004	09/17 - 02/19	2.35
SL-004B	03/18 - 02/19	2.43
DL-005	03/18 - 02/19	17.22
ML-005	12/17 - 02/19	16
W-05	02/18 - 02/19	23.81

Table 7.4
Static Water Level Measurements for the Period from January 2010 to February 2019

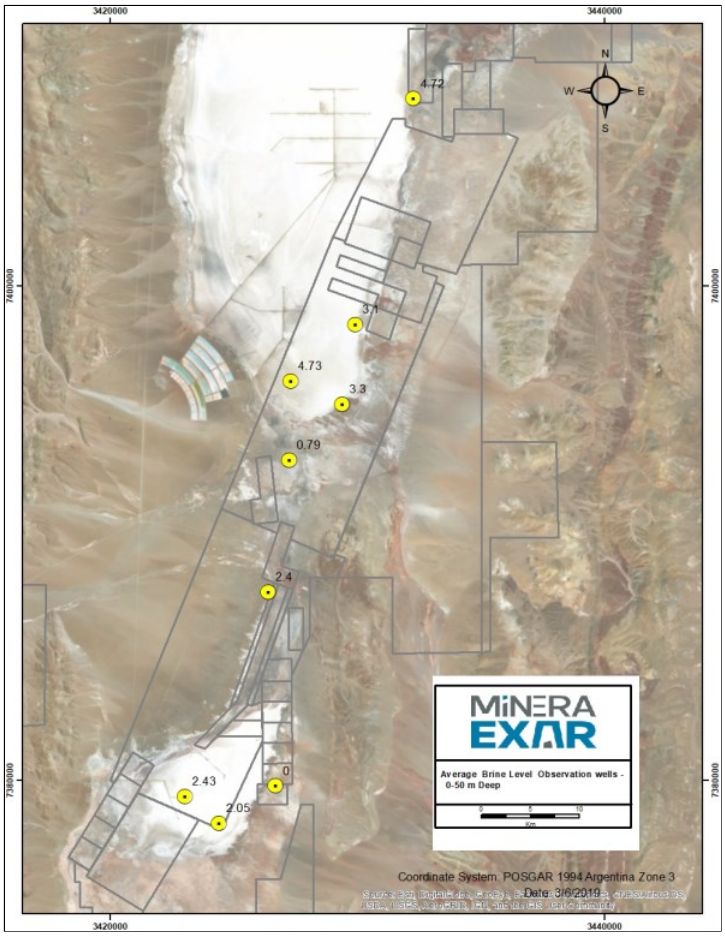
Borehole ID	Monitoring Period (mm/yy)	Average Water Level (m below ground surface)
DL-006	12/17 - 02/19	11.46
ML-006	11/17 - 02/19	3.11
SL-006	09/17 - 02/19	0.79
SL-007	09/17 - 02/19	3.11
ML-007	12/17 - 02/19	8.67
DL-007	12/17- 02/19	15.90
DL-008	03/18 - 02/19	14.1
ML-008	10/17 - 02/19	Artesian
DL-009	12/17 - 02/19	18.42
ML-009	12/17 - 2/19	7.68
SL-009	09/17 - 02/19	4.72
DL-010	01/18 - 02/19	8.66
ML-010	09/17 - 02/19	5.39
SL-010	12/17 - 11/18	3.3
DL-011	01/18 - 02/19	13.01
ML-011	10/17 - 02/19	5.46
DL-012	01/18 - 02/19	5.70
ML-012	04/18 - 02/19	11.96
DL-013	01/18 - 02/19	8.85
ML-013	01/18 - 02/19	7.06
SL-013	01/18 - 02/19	Artesian
SL-014	01/18 - 02/19	2.41
ML-014	01/18 - 02/19	9.53
DL-014	01/18 - 02/19	12.72
DDH-04A	01/10 - 01/19	3.22
DDH-05	01/09 - 01/19	1.92
DDH-06A	02/10 - 02/19	3.69
DDH-07	01/10 - 02/19	1.54
DDH-08	02/10 - 02/19	1.05

Table 7.4
Static Water Level Measurements for the Period from January 2010 to February 2019

Borehole ID	Monitoring Period (mm/yy)	Average Water Level (m below ground surface)
DDH-09A	04/10 - 02/19	2.64
DDH-11	06/10 - 02/19	9.36
DDH-12A	05/10 - 02/19	5.72
DDH-13	06/10 - 01/19	4.23
DDH-14	07/10 - 12/18	7.39
DDH-15	08/10 - 12/18	2.09
DDH-16	07/10 - 02/19	10.90
DDH-17	08/10 - 02/19	Artesian
DDH-18	08/10 - 02/19	4.21
DDH-1	08/10 - 02/29	11.40
PP-20	03/14 - 02/19	18.00

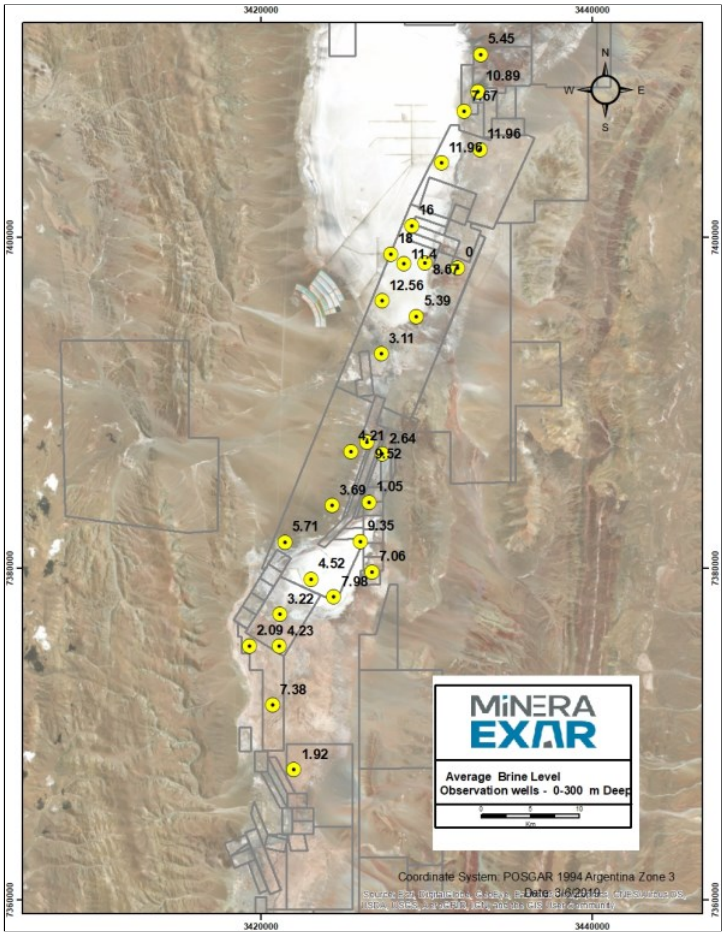
Figure 7.47, Figure 7.48 and Figure 7.49 show the average depth of water levels for observation wells drilled in the shallow part of the aquifer (50 m deep), intermediate parts of the aquifer (250 to 300 m deep) and in the deeper parts of the aquifer (450 and 600 m deep).

Figure 7.47 Average Depth to Static Water Levels in Shallow Wells (50 m)



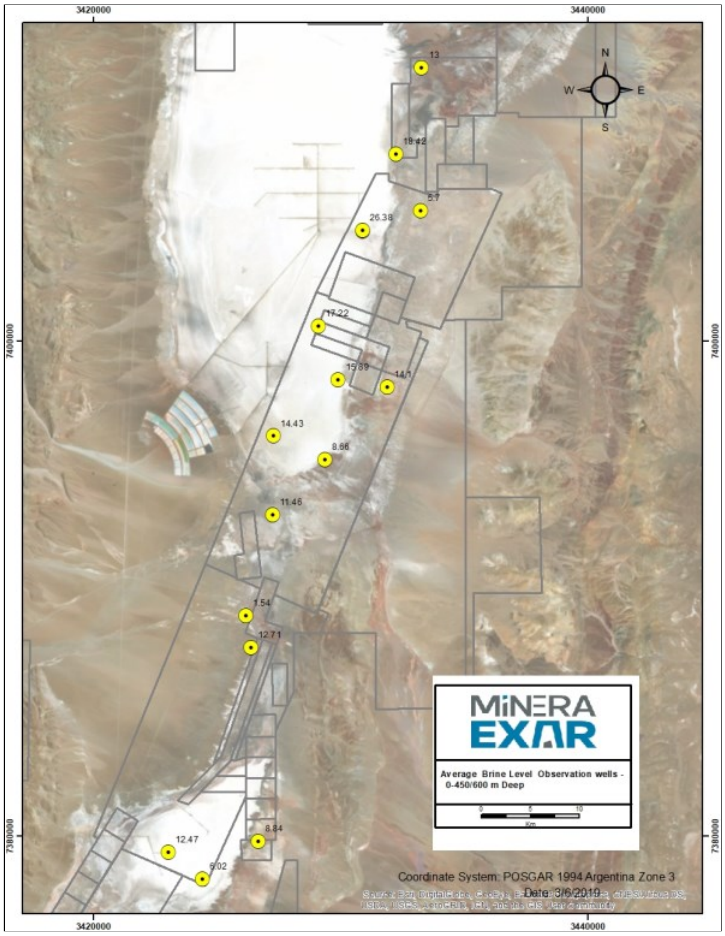
Source: Burga et al. (2020)

Figure 7.48 Average Depth to Static Water Levels in Intermediate Depth Wells (250 - 300 m)



Source: Burga et al. (2020)

Figure 7.49 Average Depth to Static Water Levels in Deep Wells (450 - 600 m)



Source: Burga et al. (2020)

7.14 PUMPING TEST PROGRAM

7.14.1 Overview

Based on exploration results in 2017-2019, production wells drilled after the 2011 production wells penetrate deeper parts of the aquifer. Deeper production wells increase the depth of the extractable part of the aquifer. A total of ten pumping wells and associated observation wells were installed at the site from 2011 to 2019 at the locations shown in Figure 7.50.

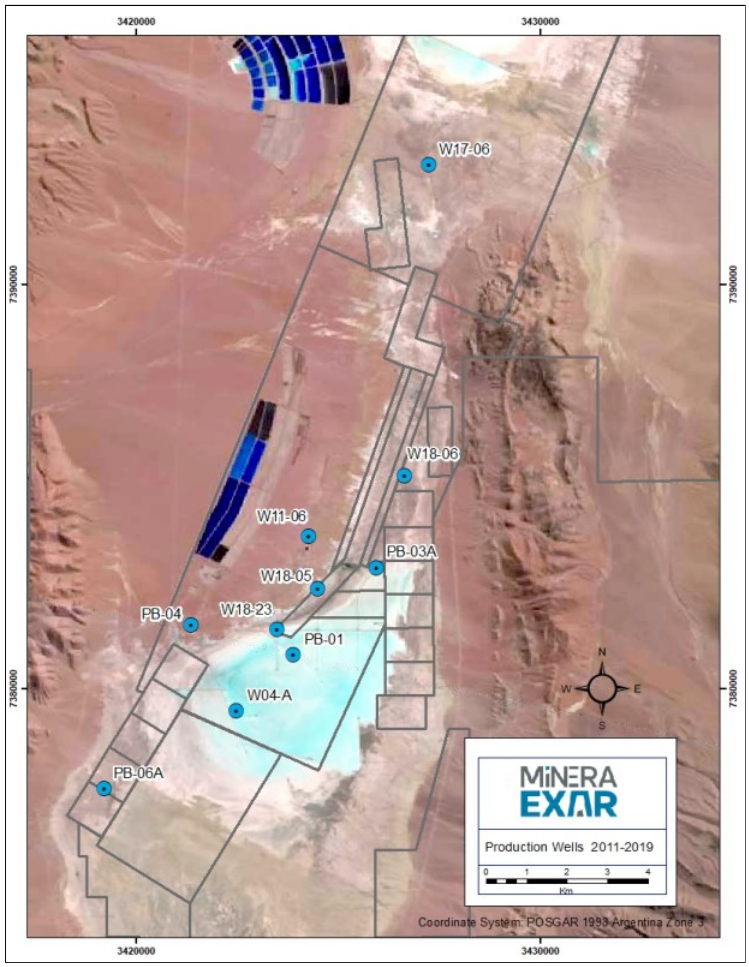
The pumping tests were conducted with two main objectives. The first objective was to develop broad-scale estimates of K (from Transmissivity (T)) and Ss (from Storativity (S)), for use in the numerical groundwater model. The second objective was to assess hydraulic interconnections between hydrostratigraphic units, to assist in understanding the overall flow system and in developing the groundwater model.

Drilling and testing in 2011 was conducted by Andina Perforaciones of Salta, Argentina, under field supervision by Conhidro of Salta, Argentina; in 2018-2019 by Hidrotec Perforaciones and Wichi Toledo. The drilling method was direct rotary. Field supervision of the pumping tests was provided by Exar personnel. The constant rate pumping tests were preceded by step tests, to determine appropriate pumping rates for the constant rate tests.

The 2011 pumping test analysis was conducted independently by both Conhidro and Matrix Solutions Inc.; in 2018-2019 the pumping test analysis is being conducted by Exar with technical review by Montgomery.

A summary of the pumping tests carried out during 2011-2019 is provided in Appendix 1.

Figure 7.50 Production Wells



Source: Burga et al. (2020)

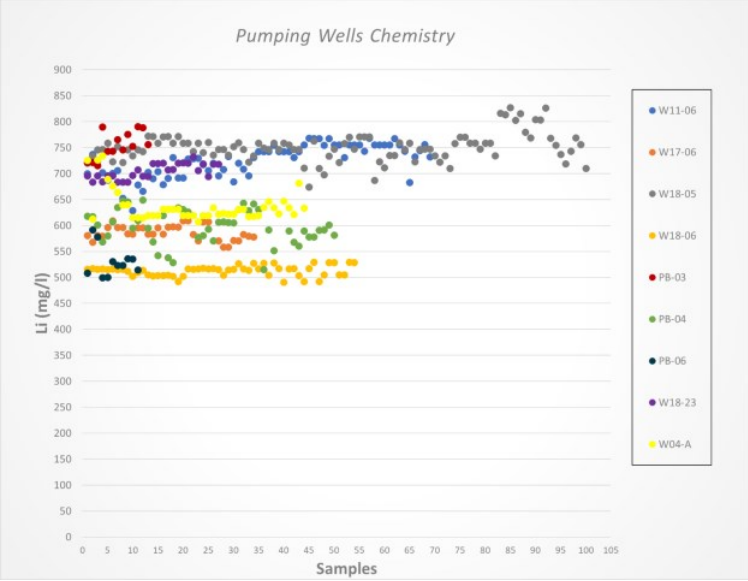
7.15 CHEMISTRY OF SAMPLES COLLECTED DURING PUMP TESTS

A plot of lithium results for samples collected during 2018-2019 pumping tests is provided in Figure 7.51. The record of concentration is relatively stable for each well.

Pumping tests and sampling were conducted in well CW-64 in 2020; in wells DD19D-07 and DD19D-08 in 2023; and in wells DDH19D-11, DDH19D-13, and DDH19D-26 during 2024.

Sampling campaigns were carried out at approximately monthly intervals in the exploration wells. A total of 1,208 samples were collected using various sampling methods, including pumping tests, packer tests, plastic bailer sampling, electronic bailer sampling, airlift system sampling, and piezometer development. The current Mineral Resource evaluation has been completed taking into account all new measurements, as well as all data used in the LAR Mineral Resource evaluations from 2019, 2012, and 2010.

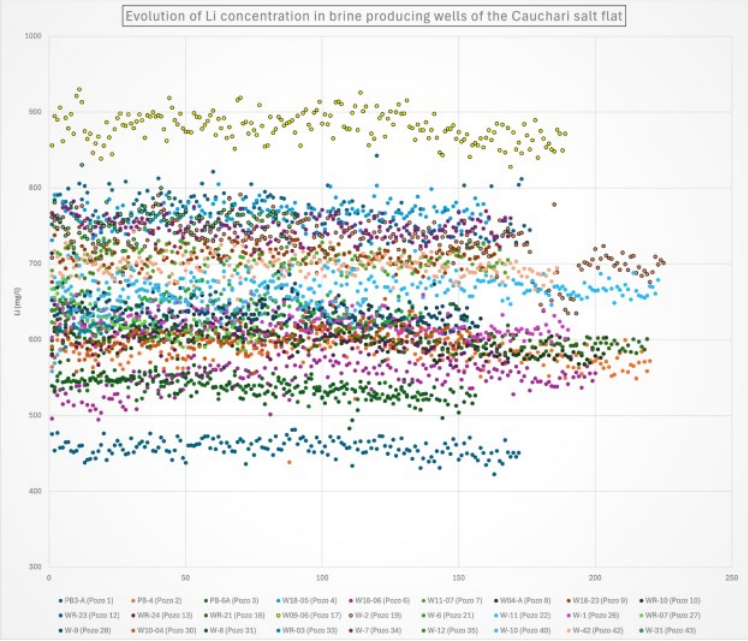
FIGURE 7.51 LITHIUM CONCENTRATIONS IN SAMPLES COLLECTED DURING PUMP TESTS



Note: * Data points show samples taken hourly at the beginning of the pumping test and daily after two days. In some cases, the pumping test stopped due to mechanical reasons and the sampling resumed when the pumping re-started.
Source: Exar.

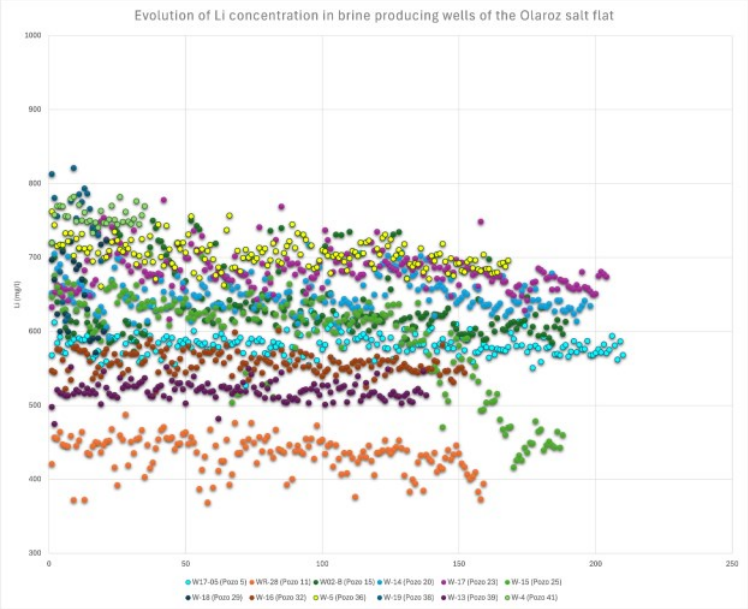
A plot of lithium results for samples collected during 2024-2025 pumping tests is provided in Figure 7.52 and Figure 7.53 for Cauchari and Olaroz wells, respectively. The record of concentration is relatively stable for each well.

Figure 7.52 Lithium Concentrations in Pump Test Samples - Cauchari



Source: Exar.

Figure 7.53 Lithium Concentrations in Pump Test Samples - Olaroz



Source: Exar.

7.16 DRILLING

7.16.1 Reverse Circulation (RC) Borehole Program 2009-2010

The objectives of this program were to: 1) develop vertical profiles of brine chemistry at depth in the salars, and 2) provide geological and hydrogeological data. This program was conducted between September 2009 and August 2010 and the drilling is summarized in Table 7.5. Twenty-four RC boreholes (PE-01 through PE-22, plus two twin holes) were completed during this period, for total drilling of 4,176 m. Borehole depths range from 28 m (PE-01) to 371 m (PE-10).

Table 7.5
Borehole Drilling Summary for the RC Borehole Program Conducted in 2009 and 2010

RC Borehole ID	Drilling Interval From (m)	Drilling Interval To (m)	Drilling Length (m)	RC Borehole ID	Drilling Interval From (m)	Drilling Interval To (m)	Drilling Length (m)
PE-01	-	28	28	PE-13	-	209	209
PE-02	-	40	40	PE-14	-	144	144
PE-03	-	90	90	PE-14A	144	228	84
PE-04	-	187	187	PE-15	-	205	205
PE-05	-	210	210	PE-16	-	64	64
PE-06	-	165	165	PE-17	-	246	246
PE-07	78.9	249	170.1	PE-17A	-	220	220
PE-08	-	194	194	PE-18	-	312	312
PE-09	-	198	198	PE-19	-	267	267
PE-10	-	371	371	PE-20	-	204	204
PE-11	-	80	80	PE-21	-	222	222
PE-12	-	36	36	PE-22	-	230	230
Total Boreholes: 24 / Total drilling: 4,176 m							

Note: RC = reverse circulation.

Major Drilling, a Canadian drilling company with operations in Argentina, was contracted to carry out the RC drilling using a Schramm T685W rig and support equipment. The holes were initially drilled using ODEX and open-hole RC drilling methods at 10", 8", and 6" diameters. No drilling additives were used. A change was later made from ODEX and open-hole RC drilling to tri-cone bits of 17½" 16", 9½", 7⅞", 6", and 5½" diameters. Bit diameters were selected based on ambient lithological conditions at each borehole, with the objective of maximizing the drilling depth.

During drilling, chip and brine samples are collected from the cyclone at one-metre intervals. Occasionally, lost circulation resulted in the inability to collect samples from some intervals. Brine sample collection is summarized in Table 7.6. A total of 1,487 brine samples were collected from 15 of the RC boreholes and submitted for laboratory chemical analyses. For each brine sample, field measurements were conducted on an irregular basis, for potassium (by portable XRF analyzer), and regularly for electrical conductivity, pH and temperature. Sample collection, preparation and analytical methods are described in Section 8.0.

Table 7.6
Summary of Brine Samples Collected and Submitted for Laboratory Analysis from the RC and DDH Borehole Programs

Description	Brine Samples
Total Field Samples	1,614
Total RC Borehole Program Field Samples	1,487
Total DDH Borehole Program Field Samples	127
Total Samples (Including QC)	2,390
Total Field Duplicates	260
Total Blanks	263
Total Standards	253

Note: RC = reverse circulation, DDH = diamond drill hole.

Air-lift flow measurements were conducted at six-metre intervals in six RC boreholes, when circulation was adequate. Daily static water level measurements were carried out inside the drill string at the start of each drilling shift, using a water level tape. Boreholes were completed with steel surface casing, a surface sanitary cement seal, and a lockable cap.

Average concentrations and chemical ratios of brine samples are shown in Table 7.7, for sampled intervals in 14 of the 15 sampled RC boreholes. Results for PE-3 (a flowing artesian well) are not included in the table because it receives freshwater from the alluvial cone adjacent to its position on the eastern margin of the Olaroz Salar. The sampled brines have a relatively low Mg/Li ratio (lower than most sampling intervals), indicating that the brines would be amenable to a conventional lithium recovery process. RC borehole logs are provided by King (2010b), including available brine sampling results.

Table 7.7
Brine Concentrations (mg/L) and Ratios Averaged Across Selected Depth Intervals for RC Program Boreholes

Borehole ID	Depth (m)	Length (m)	B	K	Li	Mg	SO_4	Mg/Li	K/Li	SO_4/Li
PE-04	11-32	21	795	5,987	692	2,458	20,498	4	8.652	29.621
	59-79	20	1,033	7,225	759	1,993	24,114	3	9.519	31.770
	83-187	89	935	6,226	623	1,844	22,568	3	9.994	36.246
PE-06	18-21	3	729	7,060	834	2,737	18,234	3	8.465	21.872
	54-165	111	1,261	6,982	870	2,031	16,731	2	8.025	19.240
PE-07	78-108	20	824	3,520	380	907	14,388	2	9.263	37.867
	109-113	4	1,078	5,328	768	1,924	16,961	3	6.938	22.075
	117-136	19	1,019	3,887	448	1,151	13,238	3	8.676	29.530
	145-205	54	1,054	4,558	579	1,461	16,420	3	7.872	28.351
	207-248	38	1,030	4,205	490	1,080	15,326	2	8.582	31.247
PE-09	72-105	33	921	4,229	530	1,482	17,379	3	7.979	32.800
	109-163	54	809	4,998	646	2,126	23,746	3	7.737	36.755
	164-197	33	827	5,998	741	1,734	16,445	2	8.094	22.196
PE-10	60-152	92	1,041	4,051	396	174	17,495	0	10.230	44.183
	152-234	82	1,398	6,072	598	1,144	20,401	2	10.154	34.106
PE-13	102-105	3	655	3,963	505	1,383	16,225	3	7.848	32.129
	108-120	12	751	4,433	533	1,379	20,465	3	8.317	38.431
PE-14	147-179	32	860	6,572	733	1,918	23,359	3	8.966	31.853
	179-192	13	874	6,287	681	1,821	20,763	3	9.232	30.499
	192-228	36	861	6,152	712	1,842	21,222	3	8.640	29.813
PE-15	62-92	30	981	5,096	527	1,174	16,079	2	9.670	30.527
	103-132	29	762	3,719	465	1,066	16,639	2	7.998	35.758
	144-156	12	883	4,794	582	1,238	13,966	2	8.237	24.017
	168-189	21	888	5,079	606	1,224	12,575	2	8.381	20.744

Table 7.7
Brine Concentrations (mg/L) and Ratios Averaged Across Selected Depth Intervals for RC Program Boreholes

Borehole ID	Depth (m)	Length (m)	B	K	Li	Mg	SO_4	Mg/Li	K/Li	SO_4/Li
PE-17	78-84	6	968	3,910	537	1,623	17,021	3	7.281	31.716
	87-91	4	901	3,572	481	1,442	16,137	3	7.426	33.531
	103-107	4	669	4,229	482	1,121	18,481	2	8.774	38.322
	110-111	1	863	5,446	648	1,702	23,544	3	8.404	36.333
	154-156	2	1,044	4,026	472	935	12,167	2	8.530	25.805
	171-174	3	968	4,269	507	1,109	12,965	2	8.420	25.573
PE-18	140-260	120	1,396	7,216	717	1,489	27,284	2	10.064	38.064
PE-19	26-30	4	1,154	5,152	404	761	17,275	2	12.752	42.733
	42-62	20	1,182	7,601	911	3,050	20,347	3	8.344	22.343
	64-132	68	817	6,347	738	2,456	18,160	3	8.600	24.604
	145-267	122	757	5,957	655	1,906	21,467	3	9.095	32.755
PE-20	18-30	12	717	6,712	747	2,706	21,407	4	8.985	28.644
	60-127	64	821	5,759	650	1,778	22,117	3	8.860	34.013
	129-150	19	794	6,389	698	2,183	21,572	3	9.153	30.887
	155-204	49	795	6,193	691	2,193	21,464	3	8.962	31.040
PE-21	92-112	20	1,255	5,619	661	1,298	22,085	2	8.501	33.389
	113-134	21	1,235	5,587	735	1,412	22,605	2	7.601	30.761
	135-222	87	1,233	7,162	825	1,694	22,086	2	8.681	26.769
PE-22	72-89	17	1,095	6,414	656	1,456	26,397	2	9.777	40.248
	90-197	107	1,136	7,216	696	1,482	26,604	2	10.368	38.232
	198-230	32	1,051	7,036	733	1,913	24,928	3	9.599	34.002

Note: RC = reverse circulation.

7.16.2 Diamond Drilling (DDH) Borehole Program 2009-2010

The objectives of this program were to collect: 1) continuous cores for mapping and characterization, 2) geologic samples for geotechnical testing, including Relative Brine Release Capacity (RBRC), grain size and density, 3) brine samples using low-flow pumping methods, and 4) information for the construction of observation wells for future sampling and monitoring. The drilling reported herein was conducted between October 2009 and August 2010. DD Borehole Program drilling is summarized in Table 7.8. Twenty-nine boreholes (DDH-1 through DDH-18, plus twin holes) were completed, for a total of 5,714 m of drilling. Borehole depths range from 79 m (DDH-2) to 449.5 m (DDH-7).

Table 7.8
Borehole Drilling Summary for the DDH Program Conducted in 2009 and 2010

DDH Borehole	Drilling Interval		Drilling Length (m)	DDH Borehole	Drilling Interval		Drilling Length (m)
	From (m)	To (m)			From (m)	To (m)	
DDH-1	-	272.45	272.45	DDH-10B	-	36.80	36.80
DDH-2	-	78.90	78.90	DDH-11	165.00	260.80	95.80
DDH-3	-	322.00	322.00	DDH-12	-	309.00	309.00
DDH-4	-	264.00	264.00	DDH-12A	-	294.00	294.00
DDH-4A	-	264.00	264.00	DDH-13	-	193.50	193.50
DDH-5	-	115.50	115.50	DDH-13A	-	20.50	20.50
DDH-6A	-	338.50	338.50	DDH-13B	-	20.50	20.50
DDH-6	-	129.00	129.00	DDH-13C	-	20.50	20.50
DDH-7	371.00	449.50	78.50	DDH-13D	-	20.50	20.50
DDH-8	-	250.50	250.50	DDH-14	-	254.50	254.50
DDH-8A	-	252.50	252.50	DDH-15	-	206.50	206.50
DDH-9	-	362.50	362.50	DDH-16	-	270.00	270.00
DDH9A	-	352.00	352.00	DDH-17	-	79.00	79.00
DDH-10	-	350.50	350.50	DDH-18	-	203.50	203.50
DDH-10A	-	258.00	258.00				
Total Boreholes: 29 / Total Drilling: 5,714 m							

Note: DDH = diamond drill hole.

Major Drilling, a Canadian drilling company with operations in Argentina, was contracted to carry out the drilling using a Major-50 drill rig and support equipment. The boreholes were drilled using triple tube PQ and HQ drilling methods. During drilling, core was retrieved and stored in boxes for subsequent geological analysis. Borehole logs are provided by King (2010b). Undisturbed samples were taken from the core in PVC sleeves (two-inch diameter and five-inch length) at selected intervals, for laboratory testing of geotechnical parameters including: RBRC, grain size, and particle density. A total of 832 undisturbed samples were tested.

On completion of exploration drilling, selected DD boreholes were converted to observation wells to enable brine sample collection as a means of supplementing the brine data collected through the RC Borehole Program. The observation wells were prepared by installing Schedule 80, 2-inch diameter, PVC casing and slotted (1 mm) screen in the boreholes. The wells were completed with steel surface casing, a surface sanitary cement seal and lockable cap. Brine sampling was conducted from March to August 2010. Samples were initially collected with a low-flow pump. However, later samples were collected with a bailer, due to technical difficulties with the low-flow setup. Analytical results are summarized in Table 7.9.

Exploration drilling and sampling programs conducted between 2009 and 2011 evaluated the lithium development potential of the Project area and supported the prior 2012 Mineral Resource Estimate (LAR 2012 and 2017). A map showing exploration wells and boreholes used to evaluate the Mineral Resource Estimate is shown in Figure 7.57.

Table 7.9
Brine Concentrations (mg/L) Averaged Across Selected Depth Intervals for DDH Program Boreholes

Borehole ID	Depth (m)	Length (m)	B	K	Li	Mg	SO_4	Mg/Li
DDH-01	15-55	40	610	4.847	523	1.147	9.039	2.20
	70-105	40	765	5.253	596	1.399	10.901	2.35
	140-170	30	832	5.518	634	1.528	11.694	2.41
	205-260	55	839	5.558	636	1.463	11.572	2.30
DDH-04	15-190	175	668	4.968	544	1.039	23.038	1.91
DDH-06	100-115	15	674	3.961	515	1.100	15.934	2.14
	118-136	18	667	5.860	627	1.353	18.552	2.16
	140-190	51	719	6.698	732	1.579	20.853	2.16
DDH-08	20-75	50	611	3.735	408	1.409	10.537	3.46
	80-205	125	822	5.232	588	1.223	16.971	2.08
DDH-12	65-70	5	696	4.120	464	927	16.834	2.00
	170-185	10	800	5.050	545	1.161	17.888	2.13
	225-285	25	827	5.249	565	1.223	17.819	2.16
DDH-13	50-140	90	872	5.940	650	1.921	20.955	2.96

7.16.3 Diamond Drilling (DDH) Borehole Program 2017-2019

The objectives of this program were to collect: 1) continuous cores for mapping and characterization of the shallow, intermediate and deeper parts of the aquifer; 2) geologic samples for geotechnical testing and grain size analysis; 3) brine samples using a bailer; and 4) information for the construction of observation wells for future sampling and monitoring. The drilling reported in Table 7.10 was conducted between July 2017 and June 2019. It should be noted that the lithium resource is contained in brines and is not affected by the drill core recovery.

The 2017, 2018, and 2019 programs included drilling 50 m, 200 m and 450 to 600 m deep, smaller diameter wells from the same drilling platform. Shallow and intermediate depth boreholes were competed in the same borehole. The shallowest wells use 1" diameter PVC casing. The deeper borehole was drilled 15 m away from the shallow and intermediate well locations. The intermediate and deep wells were cased using Schedule 80, 2-inch or 2.5-inch diameter, PVC casing and slotted (1 mm) screen in the boreholes. The wells were completed with steel surface casing, a surface sanitary cement seal and lockable cap. Brine sampling was conducted prior to pump testing. Sample collection, preparation and analytical methods are described in Section 8.0.

Major Drilling, a Canadian drilling company with operations in Argentina, and Ideal Drilling, a Bolivian company, were contracted to carry out the drilling program.

The deep boreholes were drilled using HQ-diameter size, triple-tube core recovery methods. During drilling, core was retrieved and stored in metal boxes for subsequent geological analysis. The shallow and medium depth boreholes were drilled with tricone 5 ½" diameter rotary methods. Description of continuous core from the deep borehole served as overall characterization of lithologies for the location of the platform. A photo of the black sand targeted in DDH19D-001 is shown in Figure 7.54.

All borehole locations and their associated platforms are presented in Figure 7.55. Brine concentrations averaged across select intervals are presented in Table 7.11 Brine sample collection is summarized in Section 8.4.

Table 7.10
Borehole Drilling Summary for the DDH Program Conducted in 2017 and 2019

DD Borehole ID	Piezometer Name	Screen Diameter	Plataform	Contractor	Total Depth (m)	Screen Top (mbtw)	Screen Base (mbtw)	X Coordinate	Y Coordinate
DD17S-001	ML-001	2"	1	IDEAL	200	109.40	174.80	3424377.00	7378282.00
DD17S-001	SL-001	1"	1	IDEAL	50	23.80	47.73	3424377.00	7378282.00
DD17D-001	DL-001	2.5"	1	IDEAL	450	265.50	444.00	3424392.00	7378275.00
DD17D-002B	DL-002	2"	4	IDEAL	450	343.36	444.24	3427266.00	7396185.00
DD17S-002	ML-002	2"	4	IDEAL	189.1	109.20	168.70	3427273.00	7396180.00
DD17S-002	SL-002	1"	4	IDEAL	50	23.80	47.73	3427273.00	7396180.00
DD17S-003	ML-003	2"	9	IDEAL	200	151.72	193.30	3430870.00	7404487.00
DD17D-003	DL-003	2.5"	9	IDEAL	650	292.60	636.10	3430861.00	7404476.00
RC17D-003	DL-003 B	2.5"	9	Major	648	221.20	642.00	3430859.00	7404497.00
RC17S-004	ML-004	2"	2	Major	200	122.75	194.00	3422991.00	7379367.00
RC17S-004	SL-004	1"	2	Major	50	23.80	47.73	3422991.00	7379367.00
DD17D-004	DL-004	2.5"	2	IDEAL	650	427.68	617.57	3423010.00	7379367.00
RC17D-004 B	DL-004 B	2.5"	2	Major	550	196.92	547.30	3423006.00	7379355.00
RC17S-004 B	SL-004B	2.5 "	2	IDEAL	50	14.30	50.00	3423001.00	7379362.00
DD17D-005	DL-005	2.5"	7	IDEAL	604.55	309.25	576.77	3429086.00	7400627.00
RC17S-005	ML-005	2"	7	Major	192	115.00	186.40	3429092.00	7400696.00
RC17S-006	ML-006	2"	3 13 14	Major	200	122.70	194.00	3427230.00	7392980.00
RC17S-006	SL-006	1"	3 13 14	Major	50	23.80	47.73	3427230.00	7392980.00
DD17D-006B	DL-006	2.5	3 13 14	IDEAL	450	255.90	443.95	3427245.00	7393001.00
RC17S-007	SL-007	1"	8 15	Major	50	23.80	47.73	3429894.00	7398465.00
RC17S-007	ML-007	2"	8 15	Major	200	110.10	175.50	3429894.00	7398465.00
DD17D-007	DL-007	2.5"	8 15	IDEAL	450	217.10	436.70	3429885.00	7398456.00
RC17S-008	ML-008	2.5"	6	Major	160	86.10	151.50	3431846.00	7398167.00
DD17D-008	DL-08	2"	6	Major	447	267.30	439.56	3431865.00	7398168.00
RC17S-009	SL-009	2"	11 12	Major	50	23.80	47.73	3432230.00	7407612.00
RC17S-009	ML-009	2.5"	11 12	Major	200	122.90	194.00	3432230.00	7407612.00
DD17D-009	DL-09	2.5"	11 12	Major	450	218.00	444.05	3432221.00	7407596.00
RC17S-010 B	ML-010	2.5"	5	Major	200	115.97	187.1	3429367.00	7395232.00
RC17S-010 B	SL-010	2"	5	Major	50	23.80	47.73	3429367.00	7395232.00

Table 7.10
Borehole Drilling Summary for the DDH Program Conducted in 2017 and 2019

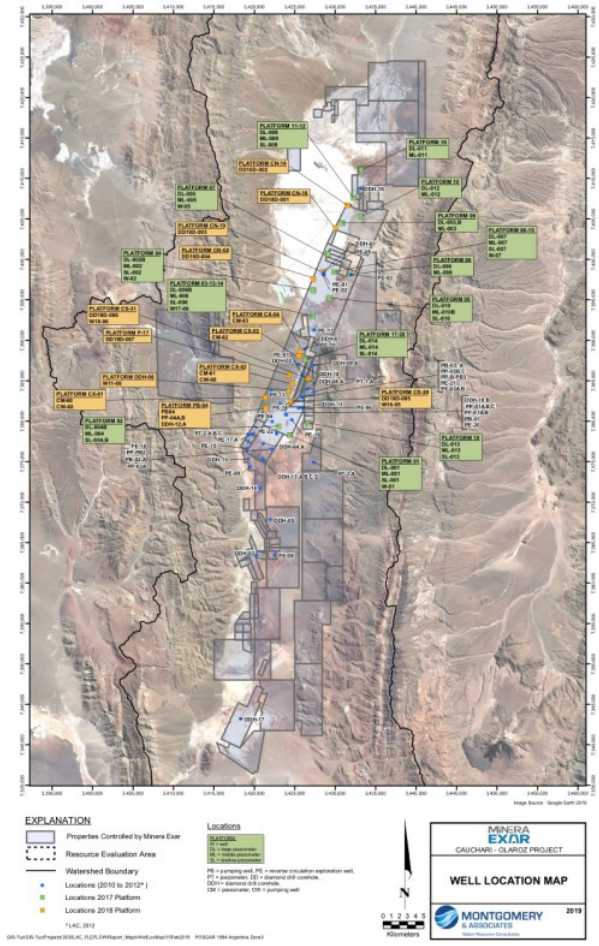
DD Borehole ID	Piezometer Name	Screen Diameter	Plataform	Contractor	Total Depth (m)	Screen Top (mbtw)	Screen Base (mbtw)	X Coordinate	Y Coordinate
DD17D-010	DL-10	2.5"	5	Major	450	230.10	444.40	3429348.00	7395235.00
RC17S-011	ML-011	2.5"	16	Major	200	101.00	166.00	3433260.00	7411045.00
DD17D-011	DL-011	2.5"	16	IDEAL	450	235.80	444.00	3433255.00	7411065.00
RC17S-012	ML-012	2.5"	10	Major	200	128.94	194.39	3433213.00	7405310.00
DD17D-012	DL-012	3"	10	Major	451.65	204.34	436	3433225.00	7405308.00
RC17S-13	SL-13	1"	18	IDEAL	50	23.8	47.6	3426671.00	7379792.00
RC17S-13	ML-013	2"	18	IDEAL	200	122.7	194	3426671.00	7379792.00
DD17D-013	DL-013	2.5"	18	IDEAL	450	279.18	443	3426658.00	7379792.00
DD17D-014	DL-014	2.5"	17 20	IDEAL	431.35	238	425.03	3426361.00	7387640.00
RC17S-014	ML-014	2.5"	17 20	IDEAL	200	104.75	194.9	3426381.00	7387647.00
RC17S-014	SL-014	1"	17 20	IDEAL	26.7	2.9	26.7	3426361.00	7387640.00
DD18D-001	Cemented	2.5"	CN-10	IDEAL	300	Cemented	Cemented	3430069.00	7403904.00
DD18D-002	Cemented	2.5"	CN-14	IDEAL	300	Cemented	Cemented	3431478.00	7406690.00
DD18D-003	Abandoned	2.5"	CN-19	IDEAL	13	Abandoned	Abandoned	3428499.00	7398500.00
DD18D-004	Cemented	2.5"	CN-02	IDEAL	300	Cemented	Cemented	3427303.00	7397557.00
DD18D-005	Cemented	2.5"	CS-28	IDEAL	300	Cemented	Cemented	3424500.00	7382499.00
DD18D-006	Cemented	2.5"	CS-31	IDEAL	300	Cemented	Cemented	3426650.00	7385299.00
DD18D-007	Cemented	2.5"	P-17	IDEAL	300	Cemented	Cemented	3424250.00	7385700.00
DD19D-001	DD19D-001	-	1	Hidrotec	632	-	-	3424376.00	7378282.00
DD19D-PE09	DD19D-PE09	2"	PE-09	Hidrotec	358	42	352	3419473.00	7374367.00

Note: DD = diamond drilling, DDH = diamond drill hole, mbtw = metres below top of well, " = inches.

Figure 7.54 Black Sand in DD19D-001



Figure 7.55 Borehole Locations and Associated Drilling Platforms



Source: Burga et al. (2020)

Table 7.11
Brine Concentrations (mg/L) Averaged Across Selected Depth Intervals for DDH Program Boreholes 2017-2019

DD Borehole ID	From - To (m)	Lenth (m)	Li (mg/L)	K (mg/L)	Mg (mg/L)	H_3BO_3 (mg/L)	SO_4 (mg/L)	Mg/Li
DL-001	0-100	100	574.0	5465.0	1584.0	5953.0	18996.0	2.8
DL-001	100-200	100	549.0	5368.0	1645.8	5782.8	20878.7	3.0
DL-001	200-300	100	502.3	4661.1	1674.6	6076.0	24260.6	3.3
DL-001	300-400	100	585.2	5186.1	1230.1	4477.4	22927.4	2.1
DL-001	400-450	50	579.4	4897.2	1230.1	5273.0	24900.6	2.1
DD19D-001	450-632	182	559.7	4768.0	1309.4	4604.7	18795.7	2.3
DL-002	0-100	100	528.0	3867.0	1182.0	6404.0	15717.0	2.2
DL-002	100-200	100	519.0	4129.0	1168.0	6355.0	15695.0	2.3
DL-002	200-300	100	588.0	4113.0	1172.0	6397.0	15578.0	2.0
DL-002	300-400	100	515.0	4208.0	1208.0	6781.0	15785.0	2.3
DL-002	400-450	50	511.6	4214.3	1315.4	6820.8	15955.8	2.6
DL-003B	0-250	250	805.9	6349.2	1271.1	9181.9	20757.0	1.6
DL-003B	250-300	50	770.5	5760.3	1289.0	9417.1	22503.2	1.7
DL-003B	300-400	100	807.2	5907.1	1235.2	9502.7	23114.7	1.5
DL-003B	400-500	100	767.3	4774.6	1609.0	7210.6	16808.4	2.1
DL-003B	500-600	100	730.8	4409.2	1814.8	6747.7	16686.6	2.5
DL-004B	0-200	200	652.9	4400.8	1594.7	4775.6	21278.4	2.4
DL-004B	200-300	100	679.0	5426.6	1831.9	4771.0	22094.8	2.7
DL-004B	300-400	100	733.2	5499.0	1936.9	4900.2	24440.0	2.6
DL-004B	400-500	100	757.0	5653.2	1871.8	4859.6	24786.3	2.5
DL-005	0-100	100	686.0	6100.5	1127.0	9205.9	31482.5	1.6
DL-005	100-200	100	685.4	5887.4	1101.6	8821.4	30967.2	1.6
DL-005	200-300	100	696.5	5938.9	1124.2	8645.7	31649.8	1.6

Table 7.11
Brine Concentrations (mg/L) Averaged Across Selected Depth Intervals for DDH Program Boreholes 2017-2019

DD Borehole ID	From - To (m)	Lenth (m)	Li (mg/L)	K (mg/L)	Mg (mg/L)	H_3BO_3 (mg/L)	SO_4 (mg/L)	Mg/Li
DL-005	300-375	75	766.1	6688.0	1349.8	8519.3	24563.2	1.8
DL-006	0-100	100	534.6	4775.0	1275.8	6196.5	17131.5	2.4
DL-006	100-200	100	552.0	4601.0	1299.0	6990.0	15762.0	2.4
DL-006	200-300	100	561.0	4627.0	1352.0	6782.0	14510.0	2.4
DL-006	300-400	100	534.0	4627.0	1357.0	7034.0	15607.0	2.5
DL-007	0-100	100	446.0	3741.8	434.9	11671.4	46958.1	1.0
DL-007	100-200	100	481.7	4223.7	705.2	9843.0	43842.5	1.5
DL-007	200-300	100	459.9	3766.3	422.6	11646.9	51584.5	0.9
DL-007	300-400	100	448.9	3865.7	425.2	11771.7	54743.3	0.9
DL-008	0-100	100	315.1	2240.6	1260.4	3517.3	11319.9	4.0
DL-008	100-200	100	315.9	2281.5	1275.3	3201.1	11115.0	4.0
DL-008	200-300	100	237.0	1968.0	1172.0	2468.0	9528.0	4.9
DL-008	300-400	100	267.0	2064.0	1236.0	3837.0	10212.0	4.6
DL-009	0-100	100	782.0	5295.0	1170.0	10505.0	19910.0	1.5
DL-009	100-200	100	769.9	5205.7	1054.6	10680.3	20040.8	1.4
DL-009	200-300	100	689.0	4034.0	685.0	11400.0	43208.0	1.0
DL-009	300-400	100	765.0	5299.0	1325.0	10586.0	21966.0	1.7
DL-010	0-19	19	411.1	3566.6	943.0	6913.1	23817.3	2.3
DL-010	19-250	231	462.1	3733.1	766.1	8028.0	25049.6	1.7
DL-010	250-300	50	463.2	3803.3	792.4	8014.9	25964.7	1.7
DL-010	300-400	100	433.3	3379.7	520.0	10683.9	44196.6	1.2
DL-011	0-100	100	549.9	3165.0	1061.9	9470.5	17963.4	1.9
DL-011	100-200	100	523.7	3191.2	1082.8	8854.9	17539.2	2.1

Table 7.11
Brine Concentrations (mg/L) Averaged Across Selected Depth Intervals for DDH Program Boreholes 2017-2019

DD Borehole ID	From - To (m)	Lenth (m)	Li (mg/L)	K (mg/L)	Mg (mg/L)	H_3BO_3 (mg/L)	SO_4 (mg/L)	Mg/Li
DL-012	0-100	100	653.9	5788.6	1421.7	4861.0	15258.6	2.2
DL-012	100-200	100	690.8	6035.8	1452.0	5708.5	15150.0	2.1
DL-012	200-275	75	663.7	5825.5	1428.1	4621.0	15485.4	2.2
DL-013	0-100	100	631.0	5351.0	1547.0	8882.0	25501.0	2.5
DL-013	100-200	100	585.6	4977.6	1450.6	8479.0	21838.0	2.5
DL-013	200-260	60	476.6	4545.8	1242.8	8541.8	25662.0	2.6
DL-014	0-225	225	476.0	5224.0	1094.0	4008.0	23495.0	2.3
DL-014	225-300	75	458.0	4705.0	1092.0	7155.0	24746.0	2.4
DL-014	300-400	100	453.0	4790.0	1073.0	6424.0	25694.0	2.4
ML-001	0-50	50	715.0	6104.0	2067.0	5291.0	37239.0	2.9
ML-001	50-100	50	679.0	7422.0	1701.0	5972.0	40111.0	2.5
ML-001	100-150	50	580.0	6357.0	1232.0	5904.0	29900.0	2.1
ML-002	0-50	50	641.0	4850.0	1264.0	6255.0	17492.0	2.0
ML-002	50-100	50	623.0	5164.0	1328.0	6240.0	18615.0	2.1
ML-002	100-150	50	557.1	5074.1	1093.5	4747.1	19376.0	2.0
DD19D-PE09	286-301	15	545.05	4552.8	1385.4	5168.7	19077.0	2.5
DD19D-PE09	325-340	15	532.4	4573.8	1458.05	4917.4	20328.0	2.7

7.16.4 Production Well Drilling

Information from the exploration drilling and pump tests was used to select the locations of the production wells that are used to pump lithium brine to the evaporation ponds. Since 2011, a total of 43 production wells have been drilled on the Property.

The production wellfield uses three wells drilled in 2011; these wells had a smaller diameter (8 inches). The wells drilled in 2018/2019 were drilled deeper and used a larger diameter according to the expected flow. The production wells were drilled with conventional rotary rigs and a surface casing at the top of the wells to ensure the stability of the well head over time. The design of the deeper wells used larger diameter casing in the upper 200/250 m, continuing with smaller diameter casing below. This telescopic design saves costs and drilling time. An example of brine being pumped from a well is shown in Figure 7.56.

The production wells use stainless steel screen, which guarantees a long life and avoids corrosion. The Stanley steel screen casing is inserted in each well at different intervals and is inserted facing the productive horizons of the aquifer. As a rule, the minimum length used is two metres. The solid screen casing is generally used in front of massive halite and clay layers (aquicludes and aquitards). The solid and screen casing alternate through the aquifer.

Details of the production wells and length of screened casing and solid casing used in each well are provided in Table 7.12. Well locations are shown in Figure 7.57.

FIGURE 7.56 PUMPING WELL W18-05



Source: Exar

Table 7.12
Production Well Drilling and Construction Details

Pumping Well	Year	Total Depth (m)	Coordinates		Drilling Method	Drilling Diameter (Inches)	Well Construction		Construction Material	
			X	Y			Total Length of Casing Inserted (m)	Total Length of Screen Casing Inserted (m)	Solid Casing	Screen Casing
PB-03A	2011	204	7383015	3425965	Rotary	22" (0-39 m) 13 1/4" (39-205 m)	8" (122.9 m)	8" (77.89 m)	Carbon Steel	Galvanized Steel
PB-04	2011	201	7381604	3421378	Rotary	22" (0-57 m) 12 1/4" (57-305 m)	8" (220.7 m)	8" (80.88 m)	Carbon Steel	Galvanized Steel
PB-06A	2011	305	7377554	3419220	Rotary	18" (0-47 m) 12 1/4" (47-194 m)	8" (114.5 m)	8" (79.0 m)	Carbon Steel	Galvanized Steel
W18-05	2018	270	7382499	3424500	Rotary	17" (0-273.7 m) 13" (273.7-278 m)	10" (138.0 m)	10" (132.4 m)	Carbon Steel	Stainless Steel
W17-06	2018	455	7392988	3427261	Rotary	27"(0-12 m) 17"(12-229.5 m) 13"(229.5-455 m)	20" (12 m) 10" (123.5 m) 6" (35.5 m)	 10" (99.0 m) 6" (187.0 m)	Carbon Steel	Stainless Steel
W18-06	2019	460	7385299	3426650	Rotary	27" (0-44.5 m) 17" (44.5-253 m) 12 1/4" (253-450 m)	20" (44 m) 10" (104.0 m) 6" (51 m)	 10" (146.0 m) 6" (149.0 m)	Carbon Steel	Stainless Steel
W11-06	2019	434	7383792	3424279	Rotary	27" (0-41.3 m) 17" (41.3-212.7 m) 12 1/4" (212.7-434 m)	20" 10" (127.5 m) 6" (59.5 m)	 10" (74.0 m) 6" (167.0 m)	Carbon Steel	Stainless Steel
W18-23	2019	484	7381500	3423500	Rotary	27" (0-36 m) 18 1/2" (36-230 m) 12 1/4" (230-486 m)	20" 10" (91.5 m) 6" (73.5 m)	 10" (134.0 m) 6" (185.0 m)	Carbon Steel	Stainless Steel
W-04A	2019	478	7379360	3423300	Rotary	27" (0-51 m) 17" (51-478 m)	10" (292.0 m)	10" (181.0 m)	Carbon Steel	Stainless Steel

Table 7.12
Production Well Drilling and Construction Details

Pumping Well	Year	Total Depth (m)	Coordinates		Drilling Method	Drilling Diameter (Inches)	Well Construction		Construction Material	
			X	Y			Total Length of Casing Inserted (m)	Total Length of Screen Casing Inserted (m)	Solid Casing	Screen Casing
WR-10	2019	445	7380009	3420981	Rotary	27" (0-23 m) 18" (23-190 m) 13 1/2" (190-355 m)	10" (114.5 m) 6" (33.5 m)	10" (70 m) 6" (132 m)	Carbon Steel	Stainless Steel
WR-28	2019	464	7391301	3427390	Rotary	27" (0-65.44 m) 17 1/2" (65.44-225 m) 12 1/4" (225-464 m)	20" 10" (123.5 m) 6" (63.5 m)	 10" (97 m) 6" (174 m)	Carbon Steel	Stainless Steel
WR-23	2019	469	7387343	3426988	Rotary	27" (0-43.5 m) 17 1/2" (43.5-214 m) 12 1/4" (214-469 m)	20" 10" (100.5 m) 6" (79.5 m)	 10" (116 m) 6" (170 m)	Carbon Steel	Stainless Steel
W-02B	2019	505	7396259	3427137	Rotary	27" (0-41 m) 18 1/2" (41-223.8 m) 15" (223.8-505 m)	20" 12" (103.5 m) 8" (70.5 m)	 12" (115 m) 8" (212 m)	Carbon Steel	Stainless Steel
WR-21	2019	493	7385987	3425367	Rotary	27" (0-52.8 m) 17 1/2" (52.8-230 m) 14" (230-480 m)	20" 10" (129.5 m) 6" (67.5 m)	 10" (96 m) 6" (202 m)	Carbon Steel	Stainless Steel
W09-06	2019	355	7381651	3425959	Rotary	24" (0-47.38 m) 18" (47.38-200 m) 12 1/4" (20-355 m)	20" 10" (170.5 m) 6" (15.5 m)	 10" (125 m) 6" (141 m)	Carbon Steel	Stainless Steel
W-2	2019	475	7382500	3423500	Rotary	27" (0-19 m) 17" (19-220 m) 12 1/4" (220-470 m)	20" 10" (122.5 m) 6" (56.5 m)	 10" (94 m) 6" (199 m)	Carbon Steel	Stainless Steel

Table 7.12
Production Well Drilling and Construction Details

Pumping Well	Year	Total Depth (m)	Coordinates		Drilling Method	Drilling Diameter (Inches)	Well Construction		Construction Material	
			X	Y			Total Length of Casing Inserted (m)	Total Length of Screen Casing Inserted (m)	Solid Casing	Screen Casing
W-14	2019	494	7395200	3427355	Rotary	27" (0-24 m)	20"		Carbon Steel	Stainless Steel
						17" (24-212.1 m)	10" (85.5 m)	10" (124 m)		
						13 1/2" (212.1-607.7 m)	6" (107.5 m)	6" (288 m)		
W-6	2019	514	7380503	3423495	Rotary	27" (0-26 m)	20"	27" (0-24 m)	Carbon Steel	Stainless Steel
						17 1/2" (26-210 m)	10" (128.5 m)	10" (80 m)		
						13 1/2" (210-514 m)	6" (97.5 m)	6" (201 m)		
W-11	2020	435	7381499	3422495	Rotary	27" (0-29 m)	20"		Carbon Steel	Stainless Steel
						17 1/2" (29-218 m)	10" (113.5 m)	10" (101 m)		
						12 1/4" (218-435 m)	6" (22.5 m)	6" (193 m)		
W-17	2020	680	7395459	3426522	Rotary	27" (0-26.9 m)	20"		Carbon Steel	Stainless Steel
						17 1/2" (26.9-212 m)	10" (122 m)	10" (89 m)		
						12 1/4" (212-680 m)	6" (74 m)	6" (392 m)		
W-15	2020	607	7393711	3426282	Rotary	27" (0-25 m)	20"		Carbon Steel	Stainless Steel
						17 1/2" (25-242 m)	10" (208 m)			
						12 1/4" (242-607 m)	6" (96 m)	6" (299 m)		
W-1	2019	386.6	7380788	3421631	Rotary	27" (0-30.22 m)	20"		Carbon Steel	Stainless Steel
						18" (30.22-204.95 m)	10" (99 m)	10" (98 m)		
						12 1/4" (204.95-386.6 m)	6" (41 m)	6" (144 m)		
WR-07	2019	338.6	7378442	3420554	Rotary	27" (0-29 m)	20"		Carbon Steel	Stainless Steel
						17" (29-220 m)	10" (154 m)	10" (84 m)		
						13 1/2" (220-338.6 m)	6" (17 m)	6" (145 m)		

Table 7.12
Production Well Drilling and Construction Details

Pumping Well	Year	Total Depth (m)	Coordinates		Drilling Method	Drilling Diameter (Inches)	Well Construction		Construction Material	
			X	Y			Total Length of Casing Inserted (m)	Total Length of Screen Casing Inserted (m)	Solid Casing	Screen Casing
W-9	2020	511	7378500	3422500	Rotary	27" (0-34 m)	20"		Carbon Steel	Stainless Steel
						18 1/2" (34-233 m)	10" (78 m)	10" (147 m)		
						13 1/2" (233-511 m)	6" (44 m)	6" (229 m)		
W-18	2021	530	7396871	3427605	Rotary	27" (0-36 m)	20"		Carbon Steel	Stainless Steel
						17" (36-205 m)	10" (108.5 m)	10" (89 m)		
						13 1/2" (205-530 m)	6" (33.5 m)	6" (294 m)		
W10-04	2020	434.1	7377243	3421092	Rotary	27" (0-30 m)	20"		Carbon Steel	Stainless Steel
						18 1/2" (30-224.68 m)	10" (71.5 m)	10" (126 m)		
						13 1/2" (224.68-434.1 m)	6" (45.5 m)	6" (168 m)		
W-8	2020	308	7376655	3419086	Rotary	27" (0-34 m)	20"		Carbon Steel	Stainless Steel
						17" (34-136 m)	10" (89.5 m)	10" (45 m)		
						13 1/2" (136-308 m)	6" (10.5 m)	6" (149 m)		
W-16	2020	715	7394024	3227420	Rotary	27" (0-31.2 m)	20"		Carbon Steel	Stainless Steel
						17" (31.2-240 m)	10" (158.5 m)	10" (78 m)		
						13 1/2" (240-715 m)	6" (69.5 m)	6" (392 m)		
WR-03	2021	366	7376056	3420007	Rotary	27" (0-40.5 m)	20"		Carbon Steel	Stainless Steel
						17" (40.5-211 m)	10" (55.5 m)	10" (134 m)		
						13 1/2" (211-366 m)	6" (16.5 m)	6" (140 m)		
W-7	2020	565	7375500	3421500	Rotary	27" (0-28 m)	20"		Carbon Steel	Stainless Steel
						17 1/2" (28-220.7 m)	10" (68.5 m)	10" (147 m)		
						13 1/2" (220.7-561.81 m)	6" (48.5 m)	6" (295 m)		

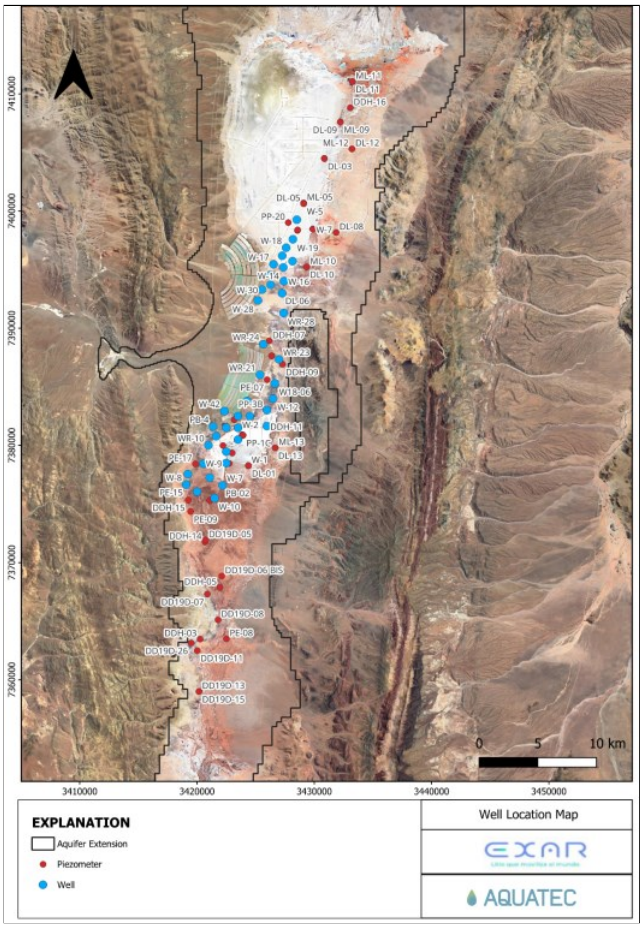
Table 7.12
Production Well Drilling and Construction Details

Pumping Well	Year	Total Depth (m)	Coordinates		Drilling Method	Drilling Diameter (Inches)	Well Construction		Construction Material	
			X	Y			Total Length of Casing Inserted (m)	Total Length of Screen Casing Inserted (m)	Solid Casing	Screen Casing
W-12	2020	530	7383998	3426498	Rotary	27" (0-30 m)	20"		Carbon Steel	Stainless Steel
						17" (30-214.8 m)	10" (108.5 m)	10" (102 m)		
						13" (214.8-499 m)	6" (39.5 m)	6" (272 m)		
						10 5/8" (499-530 m)				
W-5	2021	675	7394545	3426260	Rotary	27" (0-30 m)	20"		Carbon Steel	Stainless Steel
						17" (30-211 m)	10" (143.5 m)	10" (54 m)		
						13 1/2" (211-675 m)	6" (65.5 m)	6" (398 m)		
W-19	2021	571.2	7397593	3428178	Rotary	27" (0-41 m)	20"		Carbon Steel	Stainless Steel
						18" (41-223.4 m)	10" (88.5 m)	10" (127 m)		
						13 1/2" (223.4-571.2 m)	6" (33.5 m)	6" (314 m)		
W-13	2021	578	7397557	3427303	Rotary	27" (0-33 m)	20"		Carbon Steel	Stainless Steel
						17 1/2" (33-218 m)	10" (132 m)	10" (78 m)		
						12 1/4" (218-578 m)	6" (72 m)	6" (286 m)		
W-10	2021	493	7375500	3421500	Rotary	27" (0-23 m)	20"		Carbon Steel	Stainless Steel
						17 1/2" (23-218 m)	10" (159.5 m)	10" (59 m)		
						12 1/4" (218-490 m)	6" (111.5 m)	6" (158 m)		
W-4	2021	696	7399263	3428517	Rotary	27" (0-12 m)	20"		Carbon Steel	Stainless Steel
						17 1/2" (12-210 m)	10" (43.5 m)	10" (160 m)		
						12 1/4" (210-696 m)	6" (302.5 m)	6" (166 m)		
W-42	2021	416	7382929	3422340	Rotary	27" (0-32 m)	20"		Carbon Steel	Stainless Steel
						17" (12-245 m)	10" (154 m)	10" (84 m)		
						13 1/2" (245-416 m)	6" (17 m)	6" (145 m)		

Table 7.12
Production Well Drilling and Construction Details

Pumping Well	Year	Total Depth (m)	Coordinates		Drilling Method	Drilling Diameter (Inches)	Well Construction		Construction Material	
			X	Y			Total Length of Casing Inserted (m)	Total Length of Screen Casing Inserted (m)	Solid Casing	Screen Casing
W-31	2023	650	7382440	3425495	Rotary	26" (0-26.1 m)	20"		Carbon Steel	Stainless Steel
						19" (26.1-237.5 m)	12" (128 m)	12" (102 m)		
						15" (237.5-645.4 m)	8" (63 m)	8" (342 m)		
						12 1/4" (645.4-650 m)				

Figure 7.57 Pumping Well Locations



Note: orange area = 2019 Mineral Resource area, black dot = production well, black line = mineral property.
Source: Aquatec (2025)

7.16.5 Exploration Diamond Drilling (DDH) Borehole and Production Well Drilling Program 2022-2024

The objective of this drilling program was to increase knowledge of the southern sector of Cauchari, outside of the previously certified resource area in the basin. In this new sector, three HQ diameter diamond drill holes were advanced, to a maximum depth of 600 m. Relevant information was obtained in terms of lithology, drilling cores, brine sampling and the continuity of deep production levels. The drilling program is summarized in Table 7.13.

To complement this exploration program in order to determine the hydraulic parameters of the area, 6 wells were drilled with the construction characteristics of production wells. These wells reached a depth of 700 m, are cased in 12" for the first 250 m and then in 8" at the bottom. In these wells, pumping tests are currently being carried out to determine the flow rates and chemical composition.

Based on these exploration campaigns, progress was made in understanding the southern sector of the Cauchari basin. Further work will be required to define a new Mineral Resource in the 15,000-ha area known as "Cauchari Sur." Well details are presented on Table 7.13 and lithological profiles are presented in Figure 7.58 through Figure 7.65. Borehole locations are presented in Figure 7.66.

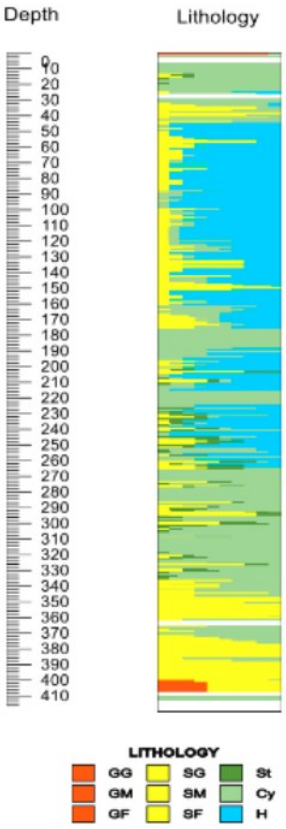
7.16.6 Conclusion

The QP, David Burga, determined that the drilling work was done to industry standards and that there were no factors that could materially impact the accuracy and reliability of the results. The drilling work was appropriate to be used in the Mineral Resource Estimate and Mineral Reserve Estimate. The recommendation is made to update the Mineral Resource Estimate and Mineral Reserve Estimate.

Table 7.13
Borehole Drilling Summary for the DDH and Production Well Drilling Program Conducted in 2022 and 2024

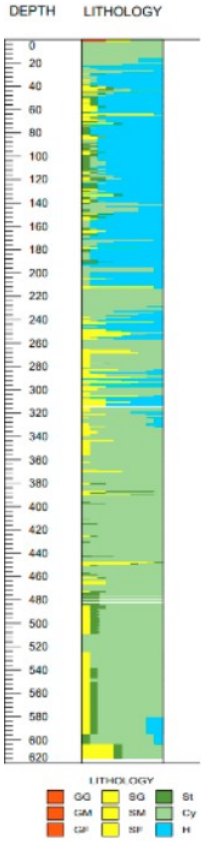
Borehole ID	Piezometer Name	Screen Diameter	Type	Plataform	Contractor	Total Depth (m)	Screen Top (mbtw)	Screen Base (mbtw)	Coordinates	
									X	Y
DD19D-05		2"	DDH	DD19D-05	Conosur	415	41,07	410,97	3420723	7371919
DD19D-06	DD19D-06 BIS	2"	DDH	DD19D-06	Conosur	88	12	84	3422112	7368852
DD19D-07		8", 12"	Rotary	DD19D-07	Wichi Toledo	493,7	90	421	3420882	7367309
DD19D-08		8", 12"	Rotary	DD19D-08	Wichi Toledo	624	96	608	3421788	7365110
DD19D-11		8", 12"	Rotary	DD19D-11	Wichi Toledo	706,8	72,11	700,23	3422049	7360087
DD19D-13		8", 12"	Rotary	DD19D-13	Wichi Toledo	465	70	537	3420167	7358999
DD19D-15		8", 12"	Rotary	DD19D-15	Wichi Toledo	652,83	66	607	3419956	7356406
DD19D-26 BIS	DD19D-26	8", 12"	Rotary	DD19D-26	Wichi Toledo	533	80	524	3419508	7363138

Figure 7.58 DD19D-05 Lithological Profile



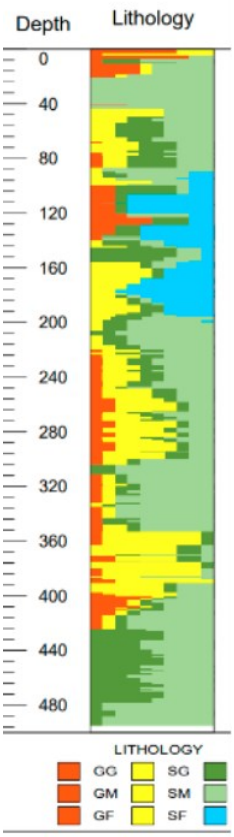
Source: Exar

Figure 7.59 DD19D-06 Lithological Profile



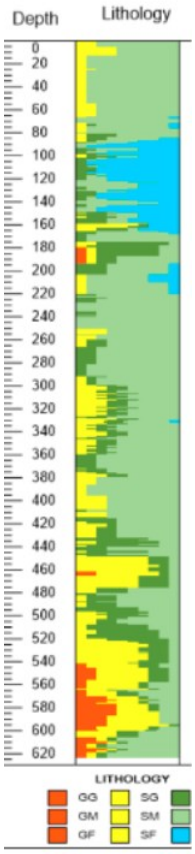
Source: Exar

Figure 7.60 DD19D-07 Lithological Profile



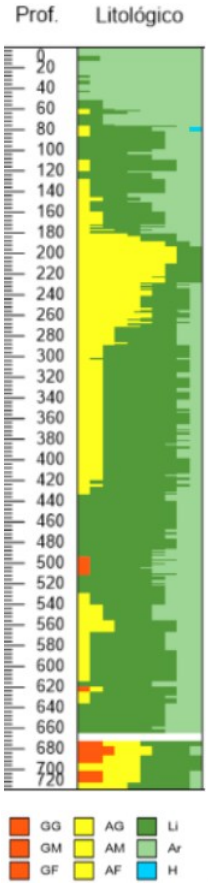
Source: Exar

Figure 7.61 DD19D-08 Lithological Profile



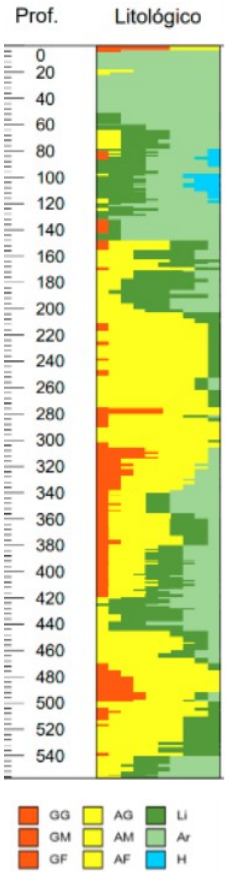
Source: Exar

Figure 7.62 DD19D-11 Lithological Profile



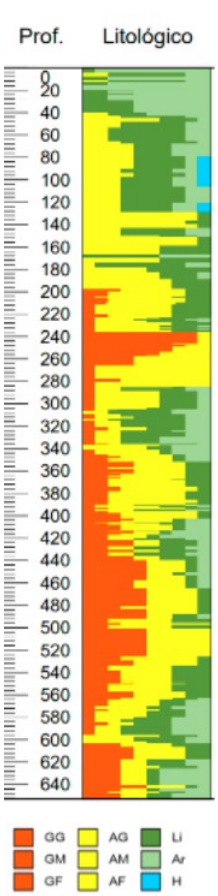
Source: Exar

Figure 7.63 DD19D-13 Lithological Profile



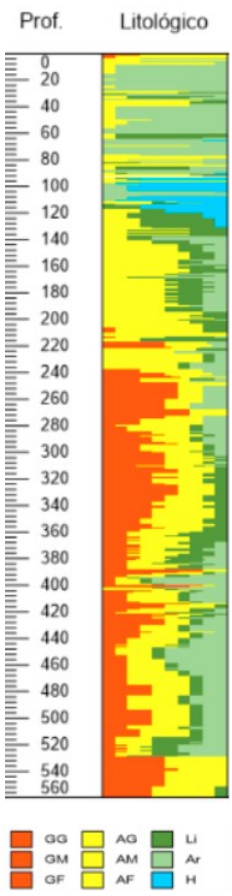
Source: Exar

Figure 7.64 DD19D-15 Lithological Profile



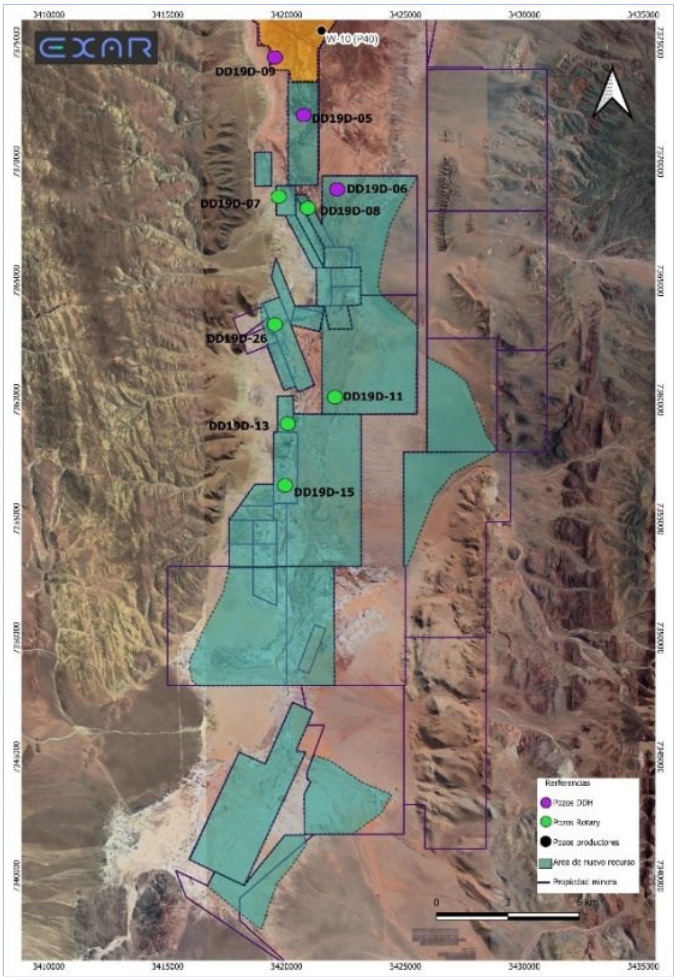
Source: Exar

Figure 7.65 DD19D-26 BIS Lithological Profile



Source: Exar

Figure 7.66 2022-2024 Drill Hole Locations



Source: Exar (2024)

8.0 SAMPLE PREPARATION, ANALYSES AND SECURITY

8.1 SAMPLING METHOD AND APPROACH

Exar established the following procedures for sample preparation, analyses and security at the Project from 2010 to 2012. These procedures are discussed in the 2017 Feasibility Study, authored by Burga et al. Drilling, brine sampling and pumping tests for the 2017-2019 campaigns were supervised by Exar personnel.

Drilling was subject to daily scrutiny and coordination by Exar geologists. On the drill site, the full drill core boxes are collected daily and brought to the core storage warehouse where the core is laid out, measured, logged for geotechnical and geological data, and photographed.

Core boxes are placed on core racks and covered with a black PVC sheet to protect the integrity of the core and stored outside. RBRC values were not measured during the 2017 to 2018 drilling program, however, 33 drill samples were tested for RBRC during the 2019 drilling campaign and results were in line with other RBRC sampling. The core was well logged to include the lithological data required for the Mineral Resource Estimate.

8.2 ROTARY DRILLING SAMPLING METHODS

Rotary drilling was conducted by Hidrotec and Wichi Toledo for the purpose of installing pumping wells for testing purposes. Exar personnel recorded the time it took to advance 1 m and sampled the cuttings by placing them in a rock chip tray (Figure 8.1) and brought back to the field office for logging. Samples were not taken during rotary drilling for chemical analysis.

Figure 8.1 Rock Chip Tray with Dry and Wet Samples



Source: King, Kelley, Abbey, (2012).

8.3 DIAMOND DRILLING BOREHOLE SOLIDS SAMPLING METHODS

Diamond drilling was performed by Major Drilling and Ideal Drilling. During diamond drilling, PQ or HQ diameter cores were collected through a triple tube sampler. The cores were taken directly from the triple tube and placed in wooden or metal core boxes for geologic logging, sample collection, and storage. During the 2009-2011 drilling, undisturbed geologic samples were collected by driving a two-inch diameter, five inch long, PVC sleeve sampler into the core at three metre intervals (Figure 8.2 and Figure 8.3). The DD boreholes were used to help select the pumping well locations.

During the 2009-2011 drilling campaigns, a total of 1,244 undisturbed samples were collected from the cores of DDH-1 through DDH18. Undisturbed samples were shipped to D.B. Stephens & Associates Laboratory in the USA for analysis of geotechnical parameters, including: RBRC (total of 865 samples), particle size (total of 58 samples), and dry bulk density (total of 36 samples). Geotechnical analytical methods are described in Section 8.8.

Figure 8.2 Collecting an Undisturbed Sample



Source: King, Kelley, Abbey, (2012).

Figure 8.3 Collecting an Undisturbed Sample from Core



Source: Exar

8.4 DIAMOND DRILLING BOREHOLE BRINE SAMPLING METHODS

Samples were further analyzed in the field laboratory for confirmation of field parameters. After analysis of field laboratory parameters, brine samples were split into three clean 250 ml, clean, plastic sample bottles. The three bottles were tagged with pre-printed tag numbers. Two bottles were used per sample, one for density and one for geochemistry, which was shipped to ASL in Jujuy or sent to the onsite Exar laboratory. One sample was maintained in the Exar field office, as a backup.

8.5 SAMPLING PREPARATION, ANALYSIS AND SECURITY

There is an established and firm chain of custody procedure for Project sampling, storage, and shipping. Samples were taken daily from the drill sites and stored at the on-site facility. All brine samples were stored inside a locked office, and all drill cores were stored inside the core storage area on site. Brine samples were taken by Exar staff to the on-site laboratory or transported to Jujuy in a company truck. Solid samples were periodically driven in Project vehicles to Jujuy, approximately three hours from the site. In Jujuy, solid samples were delivered to a courier (DHL) for immediate shipment to the appropriate analytical laboratory.

Brine samples were analyzed by Alex Stewart Argentina S.A. (ASA) and the internal Exar laboratory. ASA is an ISO 9001 and ISO 14001 certified laboratory with facilities in Jujuy and Mendoza, Argentina and headquarters in England. The internal Exar laboratory handles samples from the pilot processing plant and hydrogeology and is not a certified laboratory.

Analytical methods for all brine samples are described in Section 8.6.1. Quality Assurance/Quality Control (QA/QC) for brine samples collected is discussed in Section 9.0.

D.B. Stephens and Associates Laboratory in Albuquerque, New Mexico, USA was used for the geotechnical property analyses of the undisturbed core samples from the DD Borehole Program in the 2009-2011 drilling campaigns. D.B. Stephens and Associates is certified by the U.S. Army Corps of Engineers and is a contract laboratory for the U.S. Geological Survey.

8.5.1 Brine Samples from the Piezometers

Piezometers were installed for sampling prior to pump testing. These samples were collected at 20 m intervals using bailers. Bailers would be manually lowered to the desired depth, pulled up one metre quickly to fill the bailer then lowered slowly to obtain a sample at the desired depth. Brine from the bailer would be used to rinse out a plastic bucket and then the remainder of the brine would be emptied into the bucket. Brine from the bucket would be used to rinse out three 250 ml bottles before being filled with a sample and marked with the borehole and depth. Back at the field office, samples would be logged into a field book and assigned a unique sample code and any identifying information about the borehole would be removed from the bottle using rubbing alcohol. Data from the logbook is then entered into the sampling database.

Samples were not filtered after collection because the pumping wells produced brine with negligible suspended solids.

8.5.2 Brine Samples from the Pumping Test Program

In 2017-2019 each well had a pump test to help define the pumping rate and lithium concentration. 2018 pumping production wells helped define the lithium concentration and flow rate in each location where the production wells are being drilled. The first test is well development which lasts for 7 days to clean the well, generally starting with 20 hz, then ramping up to clear the silt and sediment. Prior to taking samples the well is developed to clean all the fine sediments in the area immediately adjacent to the screen. The development lasts from 3 to 7 days. The well is considered developed when the percentage of solids during pumping is less than 0.1 ml measured in an Imhoff cone (Figure 8.4). Measurements are taken with the frequency shown in Table 8.1. The parameters measured include dynamic water level, flow (m^3/h), and turbidity. After the test is done, recovery is measured using a water level tape with readings being taken with the same frequency shown in Table 8.1 until 95% recovery is achieved. During and after the pumping tests, technicians measure the drawdown and recovery of nearby wells.

Table 8.1 Summary Pumping Test Measurement Frequency	
Time	**Frequency of Sampling**
0-5 minutes	Every 30 seconds
5-10 minutes	Every minute
10-30 minutes	Every 2 minutes
30-60 minutes	Every 5 minutes
1 - 2 hours	Every 10 minutes
2 - 3 hours	Every 20 minutes
3 - 4 hours	Every 30 minutes
4 hours - end	Hourly

Figure 8.4 Measuring Sediment in an Imhoff Cone



Source: Exar.

Once the water level has recovered to 95%, a short sampling pump test (2-4 hours) is conducted. This test is to find the maximum pumping rate without draining the well. The well is allowed to recover afterwards.

An 8-12 hour, pumping rate test follows, which is broken up into 4 parts at 25% of the maximum pumping rate, 50% of the maximum pumping rate, 75% of the maximum pumping rate and 100% of the maximum pumping rate. This test is to see which rate the well stabilizes at. The well is allowed to recover afterwards.

The final pump test is a constant rate pump test that is conducted for a minimum of 7 days. Water measurements are taken with the same frequency listed on Table 8.1. Brine sampling is done at 10 min, 30 min, 60 min, 2 h, and then every 4 hours to the end of the test. Brine from a valve on the side of the hose coming out of the well would be used to rinse out a plastic bucket and then refilled. Brine from the bucket is used to rinse out three 250 ml bottles before being filled with a sample and marked with the borehole and date. Back at the field office, samples would be logged into a field book and assigned a unique sample code and any identifying information about the borehole is removed from the bottle using rubbing alcohol. Data from the logbook is then entered into the sampling database.

8.6 BRINE ANALYSIS

8.6.1 Analytical Methods

ASA in Jujuy and the on-site Exar laboratory were the primary laboratories for analysis of brine samples. In order to provide a quick response, ASA used Inductively Coupled Plasma ("ICP") as the analytical technique for the primary constituents of interest, including sodium, potassium, lithium, calcium, magnesium, and boron. Samples were diluted by 100:1 before analysis. Density was measured via pycnometer and sulphates were measured using the gravimetric method. The argentometric method was used for assaying chloride and volumetric analysis (acid/base titration) was used for carbonates (alkalinity as $CaCO_3$).

In the internal Exar laboratory, a 20 g sample is taken from the 250 ml bottle. The sample is entered into the laboratory database. Sulphates were measured using the gravimetric method and volumetric analysis (acid/base titration) was used for calcium, magnesium and chloride. Brine samples were diluted before being passed through the AA spectrometer which analyzes Li, Na, and K.

A larger laboratory was built on site to handle the increased number of samples to be tested along the production circuit. Once exploration was complete and production commenced, The Company used the internal laboratory exclusively. This resulted in quicker analysis times which allowed for better monitoring of project activities. Samples are taken at the following points:

- Production Wells - 1 sample per week;
- Evaporation Ponds - 1 sample per pond per week;
- Liming Plant - 2 samples per day;
- Post Concentration Ponds - 1 composite per week for the first pond with the remaining ponds sampled daily;

- Solvent Extraction - 2 samples per day taken at various points;
- Purification Plant - 2 samples per day;
- KCl Circuit - 2 samples per day; and
- Carbonation - 1 sample taken every 2 tonnes.

The control room in geology also constantly monitors various points along the process circuit (i.e. - vapor distribution and freshwater pressure) and can inform the appropriate group if specifications are not being met.

The laboratory can process 100-150 samples per day. A Laboratory Information Management System was installed in 2020.

8.6.2 Sample Security

There is an established and firm chain of custody procedure for Project sampling, storage and shipping. Samples were taken daily from the drill sites and stored at the core storage facility on site. Brine samples are taken by Exar personnel to the on-site analytical laboratory or by truck to the Alex Stewart facility in Jujuy.

8.7 SAMPLE PREPARATION ANALYSIS AND SECURITY CONCLUSIONS AND RECOMMENDATIONS

The field sampling, preparation, security, and analysis of drill core and brines from the piezometers and pumping tests and production wells are adequate and are being executed to industry standards. Security procedures are adequate for the sampling program. The recommendation is made that sample books with dedicated tickets be used for future sampling. It is also recommended that a separate building be dedicated to the storage of the duplicate sample bottles and that a selection of samples of low, medium, and high-grade lithium be submitted to Alex Stewart for analysis.

The Company was ISO 9001 certified in 2023, but this certification expired in 2024. The recommendation is made for the Exar internal lab to seek ISO 17025 certification for analytical laboratories.

8.8 GEOTECHNICAL ANALYSIS

8.8.1 Overview

D.B. Stephens and Associates Laboratory carried out selected geotechnical analyses on undisturbed samples from the geologic cores (DDH-1 through DDH-18), from the 2009-2011 drilling campaigns as summarized in Table 8.2. RBRC results were used in the Resource Estimate (King, 2010b) to estimate the volume of recoverable brine present in various geological materials. 33 RBRC samples were taken from DD19D_PE09 from the 2019 drilling campaigns.

Table 8.2 Summary of Geotechnical Property Analyses	
Analysis	**Procedure**
Dry bulk density	ASTM D6836
Moisture content	ASTM D2216, ASTM D6836
Total porosity	ASTM D6836
Specific gravity (fine grained)	ASTM D854
Specific gravity (coarse grained)	ASTM C127
Particle size analyses	ASTM D422
Relative brine release capacity	Developed by D.B. Stephens (see Section 8.9.2)

8.9 ANALYTICAL METHODS

Results of dry bulk density, moisture content, and total porosity are geotechnical parameters and are not used in the Mineral Resource and Reserve Estimates. The results of those tests are not discussed here.

8.9.1 Specific Gravity

Specific gravity testing was conducted for four formation samples (012714, 012715, 012716, and 012743). Density results for these samples ranged from 2.47 g/cm^3 to 2.75 g/cm^3. It was subsequently determined that these values could be skewed due to the high salt content. Consequently, no attempt was made to apply these measured values to the remaining samples, and an assumed particle density of 2.65 g/cm^3 was used for all other samples.

8.9.2 Relative Brine Release Capacity (RBRC)

The RBRC method was developed by D.B. Stephens and Associates Laboratory, in response to some of the unique technical challenges in determining porosity for brine-saturated samples (Stormont, et al., 2010). The method predicts the volume of solution that can be readily extracted from an unstressed geologic sample.

According to the RBRC method, undisturbed samples are saturated in the laboratory using a site- specific brine solution. The bottom of the sample is then attached to a vacuum pump using tubing and permeable end caps and are subjected to a suction of 0.2 to 0.3 bars for 18 to 24 hours. The top of the sample is fitted with a perforated latex membrane that limits atmospheric air contact with the sample, to avoid evaporation and precipitation of salts. Depending on the pore structure of the material, there may be sufficient drainage so that a continuous air phase is established through the sample. The vacuum system permits testing multiple samples simultaneously in parallel. After extraction, the samples are oven dried at 110°C.

The volumetric moisture (brine) content of the sample is calculated based on the density of the brine, the sample mas`s at saturation, and the sample mass at "vacuum dry". The difference between the volumetric moisture (brine) content of the saturated sample and the volumetric moisture (brine) content of the 'vacuum dry' sample is the specific yield or "relative brine release capacity".

RBRC test samples are taken in the field during drilling. Mr. Burga was not present on site at the time that RBRC sampling was being conducted and could not obtain a sample for verification purposes. Once the samples dry and the salts in the brine precipitate, the characteristics of the sample change and cannot be relied upon. D.B. Stephens and Associates Laboratory is an independent laboratory, and results were obtained directly from the laboratory for verification purposes. No errors were noted.

8.9.3 Particle Size Analysis

Particle size analyses were carried out on 58 undisturbed samples after the drainable porosity testing was completed. Uniformity and curvature coefficients (Cu and Cc) were calculated for each sample and samples were classified according to the USDA soil classification system.

8.9.4 Exar Porosity Test Lab

In addition to the on-site analytical laboratory, the Project site also has a porosity test lab. This lab tests total porosity (as opposed to drainable porosity) which helps to distinguish between types of halites and clays and silts. Samples dried in an oven at 70 degrees Celsius, weighed, measured, and then put through a gas pycnometer. Volume, porosity, and density are obtained. Samples are photographed and given a bar code, and the equipment is calibrated at the end of each day.

The lab also conducts grain size analysis on the gravel pack used by the drillers for well construction.

It should be noted that results from the Exar Porosity Test Lab have not been used for Mineral Reserve Estimate Purposes (porosity values are not considered in the Mineral Resource Estimate).

The Exar Porosity Test Lab was no longer operational in 2024.

9.0 DATA VERIFICATION

9.1 OVERVIEW

The Data Verification for data obtained prior to the 2017-2019 drilling campaigns is elaborated in the 2017 Feasibility study (Burga et al., 2017).

9.2 SITE VISITS

Mr. D. Burga visited the site and the Exar office on January 24 and 25, 2017, February 18-21, 2019, and June 10-12, 2019. Project features inspected and reviewed during these visits, which are relevant to data verification, included the following:

- Several drill hole locations were visited, and several active pumps were observed;
- 27 brine samples were obtained from 13 wells
- 5 duplicate samples were taken from the sample storage tent;
- 4 standard samples were collected for analysis;
- Review of Exar sampling procedures;
- Inspection of the 2017-2019 Project database;
- Inspection of digital laboratory certificates for the Exar brine dataset, and the Project database;
- The sample storage facility and security systems were observed and are considered appropriate; and
- Tours of the Exar Analytical Lab and the Exar Grain Size Analysis were conducted.

Mr. D. Burga conducted interviews with Exar employees who were present during the drilling and pump testing of the new wells.

Digital copies of the lab certificates were obtained directly from Alex Stewart and compared to the Exar database.

Mr. D. Burga visited the site and the Exar office between November 19 and 25, 2024. Project features inspected and reviewed during these visits, which are relevant to data verification, included the following:

- One production well (P26) was observed;
- Tour of Production Well Control Room;
- Review of Exar sampling procedures;
- Inspection of the 2019-2024 Project database;

- Inspection of digital laboratory certificates for the Exar brine dataset, and the Project database;
- The sample storage facility and security systems were observed and are considered appropriate; and
- Tour of the Exar Analytical Lab was conducted.

Digital copies of the lab certificates were obtained directly from Exar laboratory and compared to the database.

9.3 FEBRUARY 2019 SITE VISIT AND DUE DILIGENCE SAMPLING

Mr. D. Burga collected 23 brine samples during his site visit from 10 wells during the site visit. Each sample consisted of three 250 ml plastic bottles. 4 samples were taken from pumping well sites (PB-06, W18-05, W11-06, and PB-03). For the pumping well samples, a valve was opened on the main pipe coming out of the well, a plastic pail was rinsed with brine, filled again and then the brine was used to rinse out each sample bottle before being filled with the sample. 19 samples were taken from various depths in six different observation piezometers (DL-014, ML-014, DL-005, W-05, DL-09, and ML-09). A bailer was lowered to the desired depth, pulled up a metre and lowered again to obtain a sample at that depth then pulled back to the surface. A small amount of brine was used to rinse out a plastic pail and then dumped out and the remainder of the brine from the bailer was emptied into the pail. Each bottle was marked with the well and depth and brought back to field office where each sample was given a sample code, entered into a logbook and identifying well information was removed from the sample bottles with rubbing alcohol.

The samples were taken by Mr. Burga directly to Alex Stewart Laboratories in Jujuy for chemical analysis. The samples were analyzed for lithium using and ICP with an OES finish.

Results of the site visit due diligence samples are listed in Table 9.1 and presented graphically in Figure 9.1.

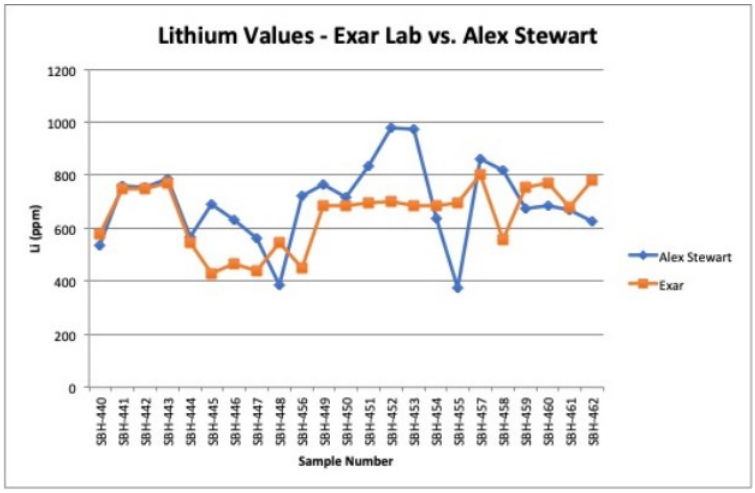
TABLE 9.1
RESULTS OF DUE DILIGENCE SAMPLING - FEBRUARY 2019

ACSI Sample No.	Well No.	Depth (m)	Li (mg/L) Alex Stewart	Li (mg/L) Exar
SBH-440	PB-06A	-	537	580
SBH-441	W18-05	-	760	750
SBH-442	W11-06	-	753	750
SBH-443	PB-03A	-	784	772
SBH-444	DL-014	100	565	548
SBH-445	DL-014	200	689	430
SBH-446	DL-014	300	631	464
SBH-447	DL-014	370	564	440
SBH-448	ML-014	100	387	548
SBH-449	ML-014	115	721	449
SBH-450	DL-005	100	763	686
SBH-451	DL-005	200	717	685

Table 9.1
Results of Due Diligence Sampling - February 2019

ACSI Sample No.	Well No.	Depth (m)	Li (mg/L) Alex Stewart	Li (mg/L) Exar
SBH-452	DL-005	300	833	696
SBH-453	DL-005	320	979	699
SBH-454	W-05	100	973	686
SBH-455	W-05	200	639	685
SBH-456	W-05	300	375	696
SBH-457	ML-09	100	859	801
SBH-458	ML-09	200	817	559
SBH-459	DL-09	100	676	757
SBH-460	DL-09	200	685	769
SBH-461	DL-09	300	669	681
SBH-462	DL-09	400	626	780

Figure 9.1 Due Diligence Sample Results for Lithium: February 2019



The results for the due diligence sampling were similar in tenor between ASA and the internal Exar laboratories, with the samples from ASA being higher than the Exar labs in 16 of 23 samples. During the on-site interviews one of the hydrogeologists indicated that sample SBH456 was taken at the bottom of an observation well that had drillers mud in it that would have settled at the bottom, because of its density, thus diluting the sample. This is a possible explanation for the difference, the Exar sample had 696 mg/L Li and the ASA sample taken by ACSI had 375 mg/L.

9.4 JUNE 2019 SITE VISIT AND DUE DILIGENCE SAMPLING

Mr. D. Burga collected four (4) brine samples from four (4) wells during his site visit. Five (5) samples were duplicate samples taken from the sample storage tent and 4 samples were taken of the standards used by the Exar laboratory. Each sample consisted of two 250 ml plastic bottles. 4 samples were taken from pumping well sites (W11-06, WR-10, W18-23, and W-04A). For the pumping well samples, a valve was opened on the main pipe coming out of the well, a plastic pail was rinsed with brine, filled again and then the brine was used to rinse out each sample bottle before being filled with brine.

The duplicate samples and standard samples were selected from the sample storage tent. It should be noted that the samples are stored on shelves and the area is not temperature controlled in any way. Older duplicate bottles, which have been exposed to colder temperatures for more time, showed evidence of sulphate precipitation. These samples would not be suitable for duplicate analysis.

The standard samples were created at the internal Exar laboratory as elaborated in Section 9.7.

All bottles were brought back to field office where each sample was given a sample code, entered into a logbook and identifying well information was removed from the sample bottles with rubbing alcohol. In the case of the duplicates, the old stickers were removed from the bottles and replaced with a new sample number.

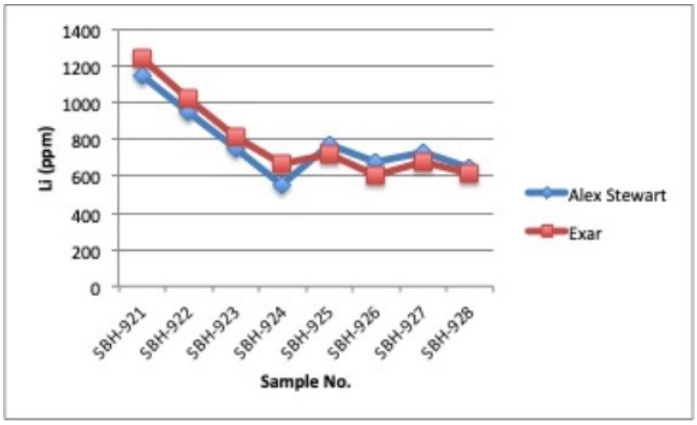
The samples were taken by Mr. Burga directly to Alex Stewart Laboratories in Jujuy for chemical analysis. The samples were analyzed for lithium using and ICP with an OES finish.

Results of the site visit due diligence samples are listed in Table 9.2 and presented graphically in Figure 9.2.

TABLE 9.2
RESULTS OF DUE DILIGENCE SAMPLING - JUNE 2019

ACSI Sample No.	Well No.	Depth (m)	Li (mg/L) Alex Stewart	Li (mg/L) Exar
SBH-922	-	-	119	126.84
SBH-923	-	-	118	126.84
SBH-924	-	-	116	116.38
SBH-926	-	-	1151	1238.00
SBH-927	-	-	948	1027.00
SBH-928	-	-	752	815.00
SBH-929	-	-	553	671.00
SBH-930	W11-06	-	770	716.61
SBH-931	WR-10	-	680	604.18
SBH-932	W18-23	-	727	682.85
SBH-933	W-04A	-	647	615.06

FIGURE 9.2 DUE DILIGENCE SAMPLE RESULTS FOR LITHIUM: JUNE 2019



9.5 QUALITY ASSURANCE/QUALITY CONTROL PROGRAM

Exar implemented and monitored a thorough quality assurance and quality control program (QA/QC or QC) for the brine sampling undertaken at the Project over the 2017-2018 period. QA/QC protocol included the insertion of QC samples into every batch of samples. QC samples included one standard, one blank and one field duplicate. Check assaying is also conducted on the samples at a frequency of approximately 5%.

A total of 4,356 samples, including QC samples, were submitted during Exar's brine sampling program at the Project (2017 through the end of 2018), as shown in Table 9.3. A total of 164 check samples were also submitted to an external laboratory for check assaying.

TABLE 9.3
QA/QC SAMPLING

Samples	No. of Samples	Percentage (%)
Blanks	63	1.5%
Standards	618	14.2%
Duplicates	285	6.5%
Normal	3,390	77.8%
Total	**4,356**	**100%**
Check Samples	164	2.51%

9.6 PERFORMANCE OF BLANK SAMPLES

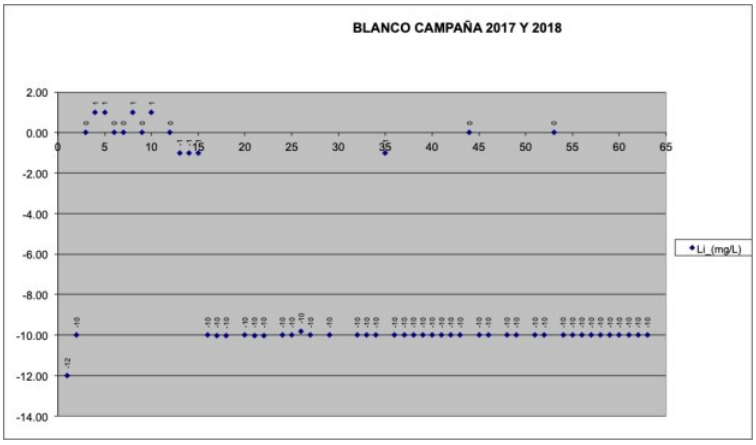
Blank samples were inserted to monitor possible contamination during both preparation and analysis of the samples in the laboratory. The blank material used was initially distilled water and then switched to tap water which is sourced from a freshwater well that contains trace amounts of lithium.

Blank samples should be inserted at an average rate of approximately 1 in 120 samples, with a total of 63 blank samples submitted accounting for 1.5% of the samples submitted. Three of the samples were submitted to ASA with the remainder of the samples submitted to the internal Exar laboratory.

At the time of the site visit there was not a set of Standard Operating Procedures that set tolerance limits for QA/QC samples. It is recommended that the tolerance limit used for the blank samples be 2 times the minimum detection limit (mdl) for the internal Exar AA samples and 10 times the lower detection limit for ASA AA samples (the Exar lab uses AA with a mdl 10 mg/L and ASA uses AA with a mdl 1 mg/L). It should be noted that at times the Exar laboratory used 10, 1, 0 and -10 mg/l as the lower limit depending on dilution used. ASA used -1 mg/L denoting dilution at the sample preparation stage.

The results of the blank sampling are shown graphically in Figure 9.3. There were no failures for the blank samples.

FIGURE 9.3 PERFORMANCE OF LITHIUM BLANK SAMPLES



9.7 CERTIFIED REFERENCE MATERIALS

Certified Reference Materials ("CRM") are used to monitor the accuracy of a laboratory. Exar did not use CRM for their QA/QC sampling program. Standards ("Patrons") were prepared at the uncertified on-site laboratory by Exar staff and were submitted at an average frequency of 1 in 7 samples. These Patrons were prepared by taking high-grade lithium brines and diluting them to prepare high, medium, and low-grade samples. These Patrons were prepared in 50 L batches and when they were used up a subsequent batch was prepared. The first round of Patron samples were analyzed solely at the Exar laboratory. The second and third rounds of Patron samples were analyzed at both the Exar and ASA laboratories. At the time of this report, the third round of Patron samples was being used. A total of 545 standards were used during the 2017-2019 drilling campaigns. The standards/Patrons' results are summarized in Table 9.4.

Table 9.4
Results of Due Diligence Sampling

Round 1 - Created March 2017			
Name	**Target Value (mg/L)**	**Lab Exar Value (mg/L)**	**Avg of All Samples (mg/L)**
Patron A	1,500	1,345	1,382
Patron B	1,100	1,144	1,163
Patron C	850	876	894
Standard A	550	579	615
Round 2 - Created April 2018			
Name	Target Value (mg/L)	Lab Exar Value (mg/L)	**ASA Value** (mg/L)
Patron AA	1,200	1,151	1,121
Patron BB	1,000	923	933
Patron CC	750	751	740
Patron DD	540	523	542
Round 3 - Created October 2018			
Name	Target Value (mg/L)	Lab Exar Value (mg/L)	**ASA Value** (mg/L)
Patron 1	540	528	-
Patron 2	770	804	-
Patron 3	1,000	1,152	-
Patron 4	1,200	1,296	-

For the purposes of the QA/QC review, all of the Exar samples for each Patron were averaged to find a mean value and standard deviation. Patrons were submitted randomly in the sample stream and were plotted as a different series to check bias with regards to the Exar results. The results for each Patron are shown graphically in Figure 9.4 through to Figure 9.11.

FIGURE 9.4 PERFORMANCE OF PATRON A

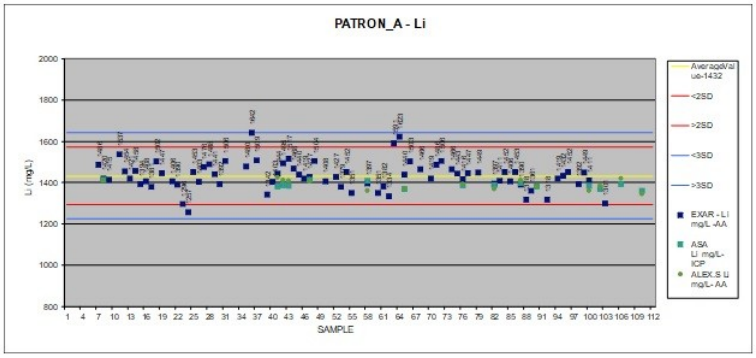


FIGURE 9.5 PERFORMANCE OF PATRON B

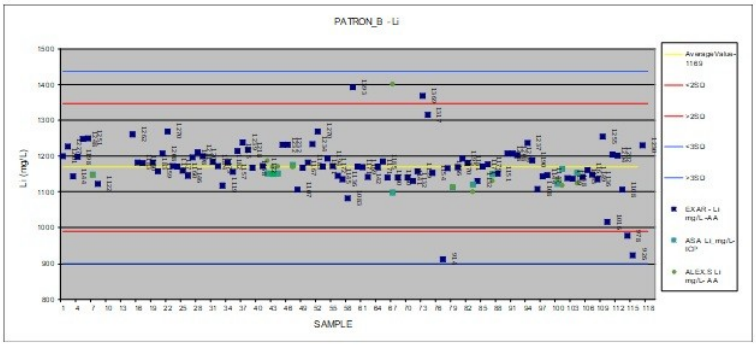


FIGURE 9.6 PERFORMANCE OF PATRON C

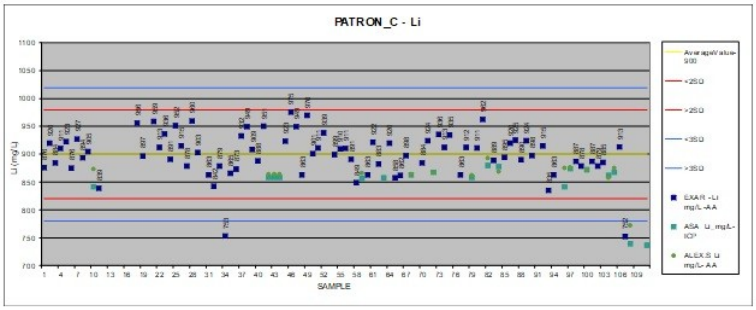


FIGURE 9.7 PERFORMANCE OF STANDARD A

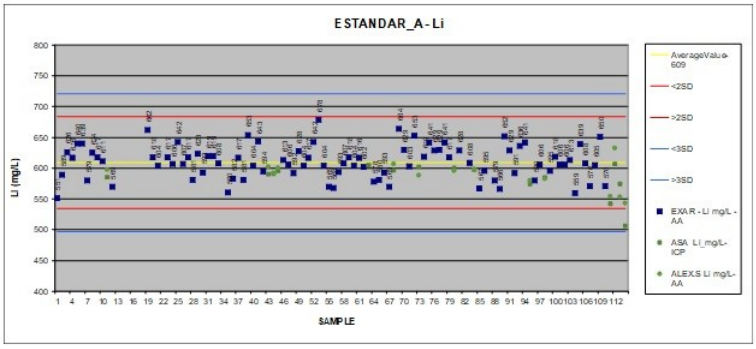


FIGURE 9.8 PERFORMANCE OF PATRON AA

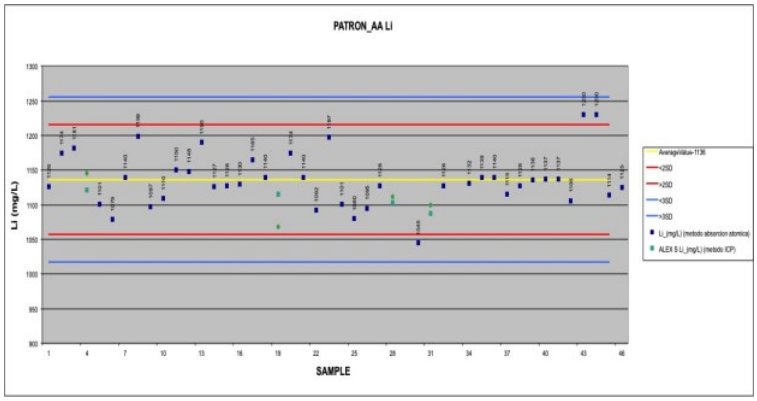


FIGURE 9.9 PERFORMANCE OF PATRON BB

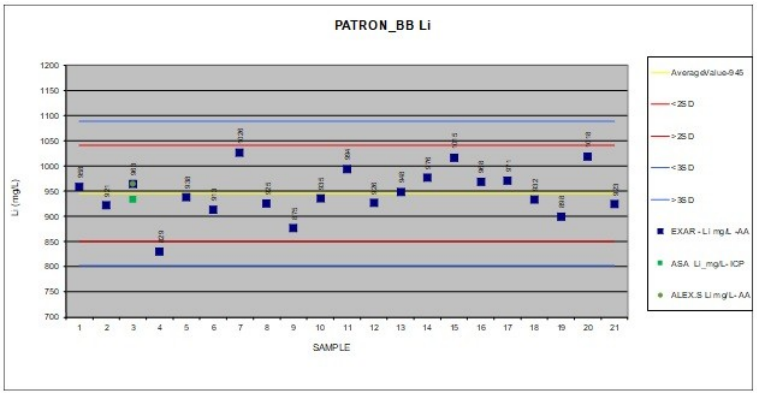


FIGURE 9.10 PERFORMANCE OF PATRON CC

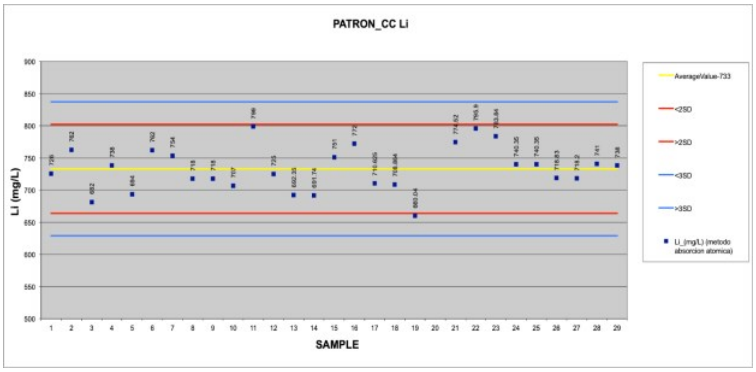
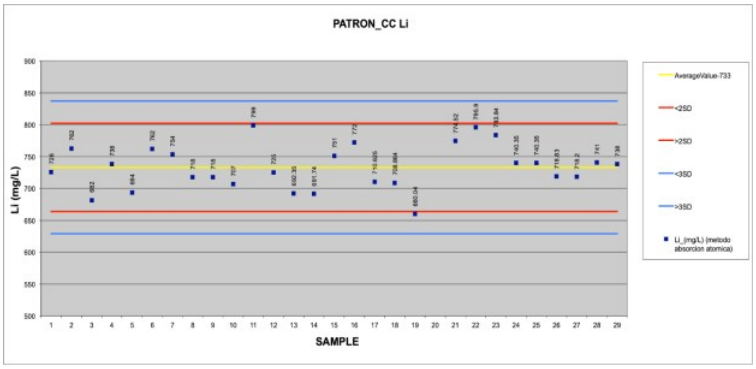


FIGURE 9.11 PERFORMANCE OF STANDARD AA



Although there were no Standard Operating Procedures in place, a failure should be considered a result that is greater than +/- 3 standard deviations. None of the results for the standards were outside of this range indicating consistent results from the Exar laboratory. As seen in Figure 9.4, Figure 9.5, Figure 9.6, and Figure 9.8, the analytical results for lithium from Alex Stewart, for both AA and ICP, were slightly below the average.

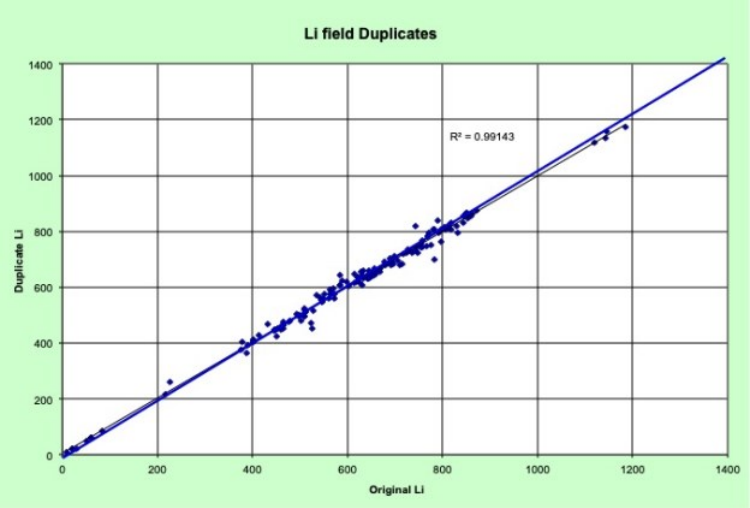
9.8 DUPLICATES

As part of their regular QA/QC program, Exar routinely used duplicate samples to monitor potential mixing up of samples and data precision. Duplicate samples were collected in the field by Exar personnel and preparation involved filling an additional three bottles of brine at the same depth. The original and duplicate samples were tagged with consecutive sample numbers and sent to the laboratory as separate samples. Duplicate samples were collected at a rate of approximately 1 in 20 samples.

A total of 285 duplicate samples were taken representing 6.5% of total samples.

The results of duplicate sampling are shown graphically in Figure 9.12. Data precision was strong with a correlation coefficient value of 0.99143.

FIGURE 9.12 DUPLICATE SAMPLES - EXAR LABORATORY



9.9 CHECK ASSAYS EXAR VERSUS ALEX STEWART

Exar routinely conducted check analyses at ASA to evaluate the accuracy of the Exar laboratory.

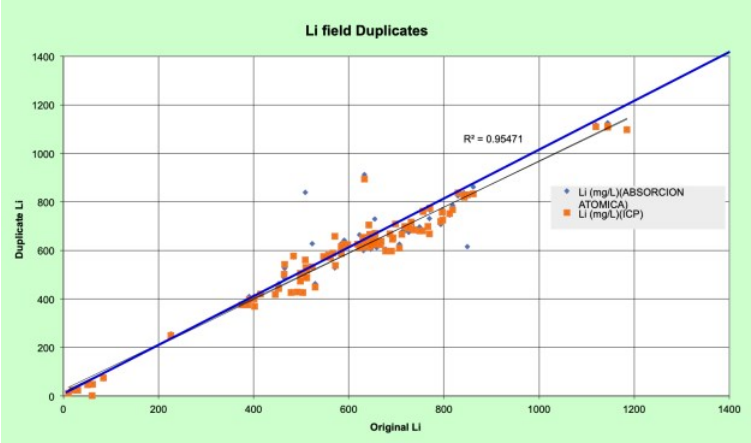
Duplicate samples were collected and sent to a second laboratory to verify the original assays and monitor any possible deviation due to sample handling and laboratory procedures. Exar uses the ASA laboratory in Jujuy, Argentina, for check analyses.

A total of 105 check samples were sent to a third-party laboratory for check analysis, equating to approximately 2.5% of the total samples taken during the sampling program.

Correlation coefficient is high (0.95471) for Lithium, showing strong overall agreement between the original Exar analysis and the ASA check analysis.

The results of the check sampling program are shown by way of scatter diagrams in Figure 9.13.

Figure 9.13 Check Assays - Exar Laboratory Versus ASA Laboratories

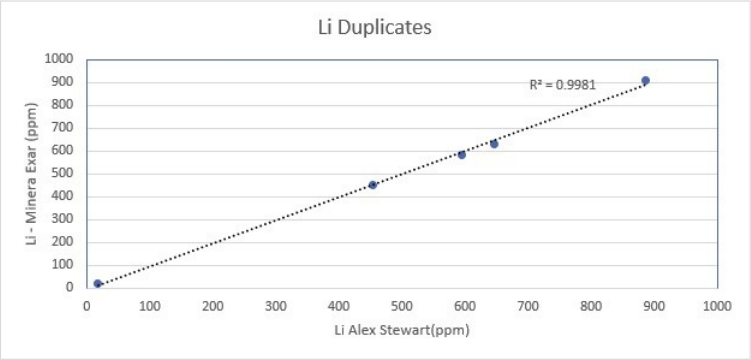


The Company sent duplicates of production well samples to Alex Stewart to check the accuracy of analysis conducted at the Exar Laboratory located on site. This work was done until the end of 2023 and then production well samples were analyzed exclusively at the Exar Laboratory.

An example of check assays from November 2023 are presented in Table 9.5 and presented on Figure 9.14.

Table 9.5 Check Assay Sampling		
Well	**Li - Exar Lab (ppm)**	**Li - Alex Stewart (ppm)**
PB-4	585	595
WR-28	454	453
W09-06	911	887
W-14	632	646
CW-60	22	18

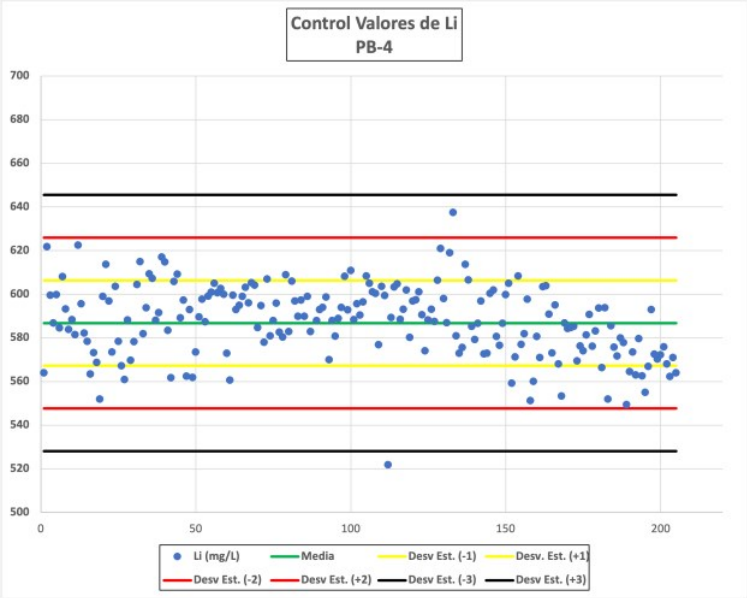
Figure 9.14 Check Assays - Exar Laboratory Versus ASA Laboratories - November 2023



9.10 2024 QA/QC PROCEDURES

In January of 2024, due to the number of samples collected and the laboratory workload, Exar made the decision to stop using standards, blanks and duplicates. The team generated new QA/QC procedures that used well sample averages as a reference. The process identifies three standard deviations for each well and samples that fall outside of two standard deviations requires a sample reanalysis. It was observed that well lithium values remained stable over time and that the laboratory's error rate was low. An example of the lithium values is presented on Figure 9.15.

FIGURE 9.15 LITHIUM VALUES IN WELL PB-4 2020-2025



9.11 CONCLUSIONS AND RECOMMENDATIONS

Mr. David Burga has personally met, and had technical discussions with, most of the technical experts working on the Project on behalf of LAR. These individuals are competent professionals, with experience within their respective disciplines. Their interpretations demonstrate a conservative approach in assigning constraints on the estimate, which increases the technical strength of the results.

The field sampling of brines from the pumping tests is being done to industry standards. The quality control data based upon the insertion of standards, field blanks and field duplicates indicate that the analytical data is accurate, and the samples being analyzed are representative of the brine within the aquifer.

It is the QP's opinion that the data is adequate for the purpose used in this report.

The following recommendations are made with regards to QA/QC procedures:

- Proper certified lithium standards, with values comparable to the grades found on site, should continue to be used for the exploration brine sampling.
- Exploration samples should continue to be sent Alex Stewart.
- Verification sampling should be conducted prior to creating a Mineral Resource Estimate on the expansion area in 2026.
- The Exar internal laboratory should seek ISO 17025 certification for analytical laboratories.

10.0 MINERAL PROCESSING AND METALLURGICAL TESTING

In the 2012 Feasibility Study, LAR developed a process model for converting brine to lithium carbonate based on evaporation and metallurgical testing. The proposed process followed industry standards:

- Pumping brine from the aquifers;
- Concentrating the brine through evaporation ponds; and
- Taking the brine concentrate through a hydrometallurgical facility to produce high-grade lithium carbonate.

The 2012 process model employed proprietary, state-of-the-art physiochemical estimation methods, and process simulation techniques for electrolyte phase equilibrium. From the execution of the Shareholders Agreement between LAR and SQM in 2016 until October 2018, SQM advanced the process engineering work, employing their proprietary technology and operational experience. In 2018, SQM left the joint venture and the Project, and LAR and Ganfeng reviewed the process and design of the plant for 40,000 tpa output with an engineering consulting firm. The revised process work was implemented in the plant design, and it is reflected in this study. The basis of the process methods had been tested and supported by laboratory evaporation and metallurgical test work.

Multiple additional tests were conducted in different qualified laboratories and in pilot facilities located at the Project site to develop a brine processing methodology. Testing objectives included:

- Determine the evaporation path as the brine gets more concentrated and determine the type of salts which are formed during the process.
- Determine the amount of CaO required to accomplish Mg, SO_4 and B reduction in the evaporation process.
- A trade off between yield and the maximum allowable and attainable lithium concentration throughout the evaporation train.
- Complete the testing and design of the Boron solvent extraction facility with a performance guarantee supplied by the equipment vendor.
- Determine the reactant consumption and conditions for brine purification.
- Investigate ion exchange equipment, resins and operating conditions for impurity removal.
- Specify the KCl removal system in terms of design and operating conditions.
- Determine the carbonation conditions for lithium carbonate to produce high purity product.

The following outlines the testing work completed during the previous 2012 Feasibility Study and current updated progress that is the basis for this revised Technical Report.

10.1 POND TESTS - UNIVERSIDAD DE ANTOFAGASTA, CHILE

In late 2010 and early 2011, Universidad de Antofagasta (Chile) conducted evaporation testing on raw, CaO-treated and $CaCl_2$-treated brines. $CaCl_2$ was used in addition to CaO to determine the most cost-effective removal of sulphate ions. A temperature-regulated and air flow-regulated evaporation chamber was used (Figure 10.1). The brine is contained in the tubs in the base of the chamber, while heat lamps (shown top left) are used to simulate solar radiation. Dry, cool air is circulated through the chamber using an electric fan to simulate the environment expected at the site. Digital thermometers are shown in the pan. Samples of the brine and salt were taken to determine the change in salt precipitated from the brine during natural evaporation. These samples were analyzed for composition.

The site is located at more than 4,000 m above sea level. To simulate the effect of lower air pressure, a series of dry air, negative pressure evaporation tests were carried out in parallel with the evaporation pans. The negative pressure test apparatus is shown in Figure 10.2. These tests were done to simulate the effect of brine evaporation at elevation under natural conditions.

FIGURE 10.1 EVAPORATION PANS AND LAMPS



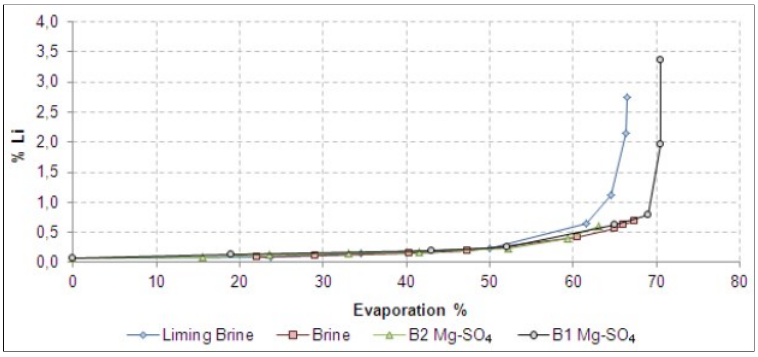
Test results demonstrated that it is possible and cost effective to obtain a concentrated brine through an evaporation process by treating the brine with CaO liming process alone to control Mg levels while reducing SO_4 and boron levels. The cost of $CaCl_2$ per tonne of sulphate removed was significantly higher, and the reduction of other ions by precipitating double salts was not more cost effective than removal later in the process.

Figure 10.2 Dry Air Evaporation Tests



Figure 10.3 shows the change of Li ion concentration in the brine as water is evaporated in an example test. The y-axis is the weight percent lithium, while the x-axis represents the percentage of the initial brine mass evaporated. In brines treated with either CaO or $CaCl_2$, concentrations close to 4% Li were achieved with minimal lithium loss.

Figure 10.3 Li Concentration Changes in the Brine During the Evaporation Process



Results suggested treatment with CaO alone (i.e. liming) is ideal. CaO has a lower cost than $CaCl_2$, and the increase in brine pH removes a portion of the Mg at the same time. Limed brine precipitated Sylvinite with KCl (potash) concentrations up to 20%. This suggests that fertilizer-grade potash could be produced by floatation at Cauchari (although potash production is not contemplated at this time). The precipitation of KCl and NaCl from solution purifies the brine naturally during evaporation and reduces the cost of operation and equipment in the processing plant after evaporation in the ponds.

Testing of the CaO-treated brine resulted in a 60% reduction in sulphate ions. This reduction in sulphate ion is sufficient to produce concentrated lithium brines by natural solar evaporation and $CaCl_2$ treatment is not necessary.

10.2 TESTS - EXAR, CAUCHARI SALAR

10.2.1 Salar de Cauchari Evaporation Pan and Pilot Pond Testing

To validate the bench scale tests obtained at Universidad de Antofagasta, Chile, and obtain brine evaporation rate data at the site, pilot ponds and Class A evaporation pans were installed at the site. These ponds and pans are still under operation to allow correlation of the Class A pan, brine pan and pilot pond test data and determine the scale-up factor of the full-scale ponds.

The first seven months of evaporation pan testing at the Salar de Cauchari pilot facility:

- Validated the composition of Cauchari brine exposed to the Project site seasonal environmental conditions;
- Obtained concentrated brine for additional pilot and bench scale testing; and
- Obtained precipitated salts to determine the entrainment of brine in the salt during the different salt regimes precipitated during concentration.

A total of 6 pilot ponds, pre-concentration, liming, settling, and concentration ponds, totalling 11,180 m^2 were constructed as well as the liming equipment for treating the brine. Pre-concentration, liming, settling, and concentration ponds were represented. Over 20,000 liters of 1% Li brine was generated over a 7-month period. These ponds continue to operate and provide material for pilot testing at the site and with equipment vendors. The pilot ponds can be seen in Figure 10.4.

These ponds were installed with liners that consist of a geotextile underlay overlain by a polyethylene waterproofing liner to minimize the leakage from the ponds. Samples of the brine and salt are taken regularly and analyzed for composition and brine entrainment in the salt. This validates the process model used for the ponding operation and allows for the estimation of the shape factor for the full-scale ponds.

10.2.1.1 Pond Pilot Testing

- Validated the continuous operation of evaporation ponds;
- Provided data for all seasonal environmental effects (wind, temperature, rain, etc.);
- Provided concentrated brine for the purification pilot plant;
- Developed the operating philosophy of the ponds and lime system; and

- Trained the staff (engineers and operators) who work in the commercial operation.

Salar testing results were consistent with prior laboratory and mathematical model results. The test data has been used to update the mathematical process model and ensure accurate design information. Exar's Project site evaporation and analytical results were independently validated by testing at ASA (Mendoza, Argentina).

The pond process performance improved when liming was performed after pre-evaporation and 10% or more excess lime was used. It was verified that the use of $CaCl_2$ was not necessary because the Ca from the CaO reduced sulphate ions sufficiently to avoid downstream $LiKSO_4$ precipitation at a lower operating cost than $CaCl_2$ addition.

FIGURE 10.4 PILOT PONDS



10.2.2 2017 Evaporation Tests

In 2017, Exar completed a 35-month evaporation test program with the intention to define the relation of brine evaporation to water evaporation. This data was obtained from the brine pan and Class A water pan data observed between June 2013 and April 2016.

Figure 10.5 presents the monthly evaporation rate of the brine during the year and Figure 10.6 presents the monthly evaporation rate of the water. Table 10.1 displays the monthly evaporation ratio of brine to water. The minimum brine evaporation rate occurs in June at 3.77 mm/day for the bottom quartile of observed test data. The minimum median evaporation rate for brine observed is 5.00 mm/day in June while November has the highest median evaporation rate of 9.8 mm/day. Comparing this to the original evaporation used to engineer the ponds of 2.54 mm/day annual average evaporation for brine in the full-scale ponds results in an increase in pond productivity per evaporative area. When applying a conservative pond shape factor of about 0.65 to the 8.2 mm/day median brine evaporation observed, the effective pond productivity for 1,200 ha of ponds roughly doubles versus the originally estimated evaporation used in the 2017 Feasibility Study (Burga, et al 2017). Mass balances on the full-scale operating pond segments confirm this shape factor.

Figure 10.5 Brine Evaporation

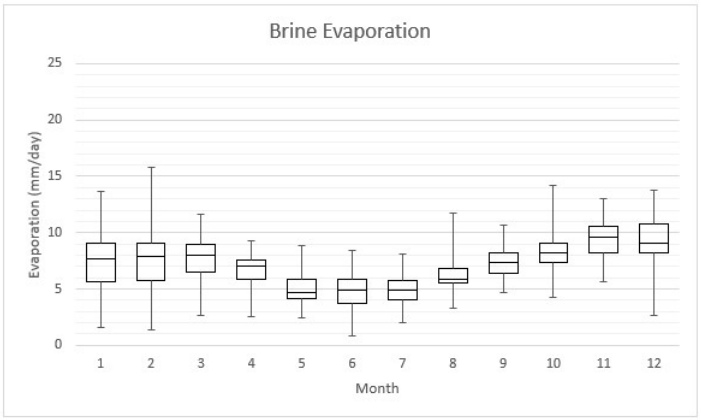


Figure 10.6 Water Evaporation

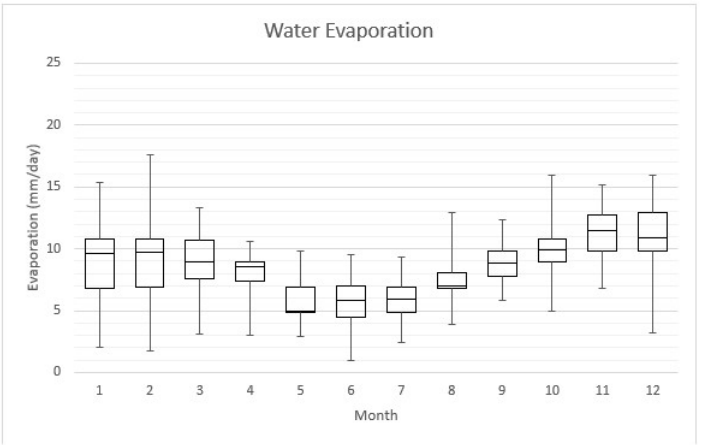


Table 10.1
Monthly Evaporation Ratio

Monthly Evaporation ratio												
	2017											
Month	1	2	3	4	5	6	7	8	9	10	11	12
Evaporation ratio brine/w	84%	82%	85%	84%	86%	84%	83%	84%	82%	83%	83%	83%

As a result of this test evaluation, the factor for water to brine design was changed from the assumed value of 0.7 to an average of 0.84.

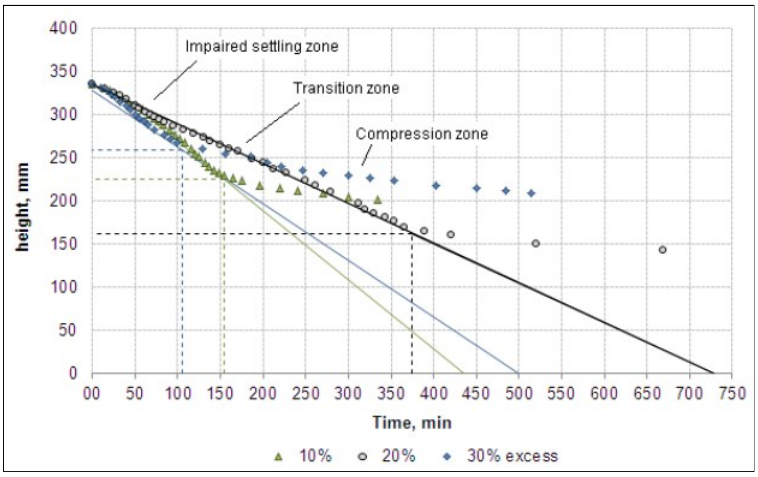
Detailed simulations were then carried out using brine chemistry observed in the test ponds and pans, and with the observed rainfall and evaporation data to determine the annual productivity of the ponds. Currently, the operations team at Exar is working on detailed operating strategy to ensure a robust and safe operation based on ongoing mass balance calculations on the ponds and responses to actual weather / brine conditions.

10.2.3 Liming Tests - Exar, Cauchari Salar

Lime ratio, sedimentation, and flocculent performance testing with locally sourced CaO were performed at Exar's Laboratory. Testing was completed in order to determine the required excess CaO (the liming operation) and residence time at an intermediate location in the ponds to reduce Mg, Ca, SO_4 and boron in the brine entering the Purification and Carbonation Plant.

Figure 10.7 shows the sedimentation rate data from example tests. The time is shown on the x-axis, while the y-axis shows the depth of solids during natural settling. Three tests are shown here with a 10% (green triangle), 20% (green circle) and 30% (blue diamond) excess of CaO added to the brine. The excess is estimated based on the mass of magnesium in the initial brine. The solid lines plotted on the diagram is the initial settling rate which is used to design settling equipment.

FIGURE 10.7 SEDIMENTATION RATE OF LIMED PULPS WITH DIFFERENT AMOUNTS OF EXCESS LIME



The lime ratio required to precipitate of 99.6% of Mg ions and 60% of SO_4 ions was utilized for cost estimation. Testing is presently underway at vendors to design the thickener and filters for downstream processing.

10.3 SOLVENT EXTRACTION TESTS - SGS MINERALS AND IIT, UNIVERSIDAD DE CONCEPCIÓN

Solvent extraction (SX) bench tests were performed at SGS Minerals in Lakefield, Canada, and Instituto de Investigaciones Tecnológicas (Technology Investigations Institute) of the Universidad de Concepción (ITT).

This testing determined:

- The most effective organic reagents for the extraction of boron from the brine;
- The pH effect on the extraction of boron;
- Extraction isotherms for extraction and re- extraction required in the project;
- The extraction and re-extraction kinetics in the system;
- The phase separation rate at two temperatures previously defined; and
- The required number of extraction and re-extraction stages.

Typical brine feed to SX is shown in Table 10.2.

Table 10.2
Composition of the Brine Used for Testing SX

Li (g/L)	B (mg/L)	Ca (mg/L)	K (g/L)	Na (g/L)	Mg (mg/L)	SO_4 (g/L)	pH
10.5	5,565	266	32.3	65.4	< 0.02	26.0	11

Several organic extract formulations were tested targeting boron removal over 97%.

Tests at both institutions showed that the extraction process should be performed at pH ≤ 4, and re-extraction of the extractant should occur at basic pH. The process uses HCl to adjust the brine pH for extraction, and a solution of NaOH for re-extraction of the boron from the organic mixture.

Figure 10.8 and Figure 10.9 show the isotherms in a McCabe-Thiele diagram. These diagrams have been used to determine the number of extraction and re-extraction steps. In Figure 10.8, the x-axis is the boron concentration in the aqueous phase, while the y-axis is the concentration of boron in the organic phase during extraction. In Figure 10.9, the x-axis is the boron concentration in the organic phase, while the y-axis is the boron concentration in the aqueous phase during re-extraction. The bold, straight line is the operating line for the proposed equipment, while the thin, stair-steps are the individual operating stages. Perfect extraction efficiency was not assumed to design the equipment to develop a realistic sizing.

Figure 10.8 Extraction Isotherm at 20°C Using Mixed Extractants

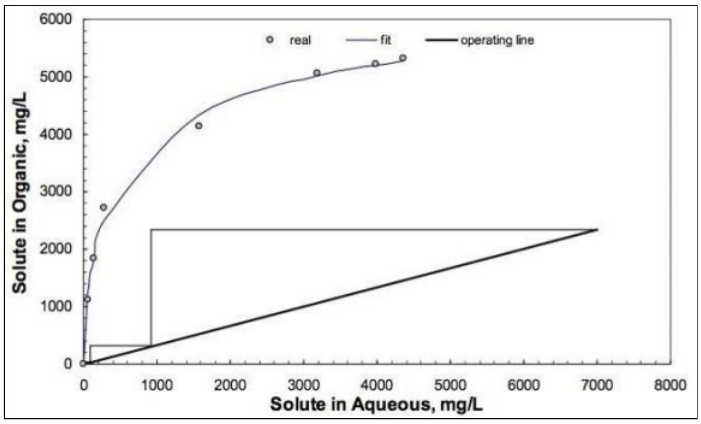
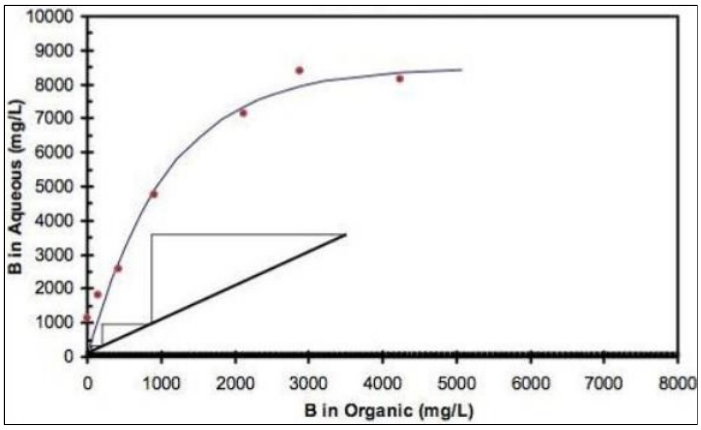


FIGURE 10.9 RE-EXTRACTION ISOTHERM AT 20ºC USING MIXED EXTRACTANTS



10.4 CARBONATION TESTS - SGS MINERALS (CANADA)

Carbonation tests were conducted by SGS Minerals on boron-contaminated brine.

The following tests were conducted:

- Removal of remaining Mg using NaOH solution;
- Removal of remaining Ca using a solution of Na_2CO_3; and
- Carbonation reaction of Li using Na_2CO_3 solution to precipitate Li_2CO_3.

Differing reagent dosage, residence time, and temperatures were investigated. NaOH was found to be effective to remove the remaining Mg, and careful control of the Na_2CO_3 solution was required to remove the Ca without loss of Li. The test results of these carbonation tests were used to set the temperature, residence time and dosage of reagent ranges for the pilot plant tests.

10.5 PILOT PURIFICATION TESTING - SGS MINERALS

SGS Minerals piloted removal of contaminants and lithium carbonate production. The pilot program used 10,000 liters of concentrated brine obtained from the Salar de Cauchari pilot pond system. The results were used for plant design in this study. The pilot plant flowsheet includes solvent extraction for B removal, regeneration of solvent, removal of the Ca and Mg impurities, and lithium carbonate precipitation and washing.

The main objectives of the pilot plant were to:

- Test the continuous process developed from bench testing; and

- Validate and obtain parameters and design criteria for the development of the industrial plant engineering.

Figure 10.10 shows the equipment for the pilot plant where the first tests were performed. The solvent extraction banks are on the left of the photograph, and the other reactors and filters are shown in the center and right of the image.

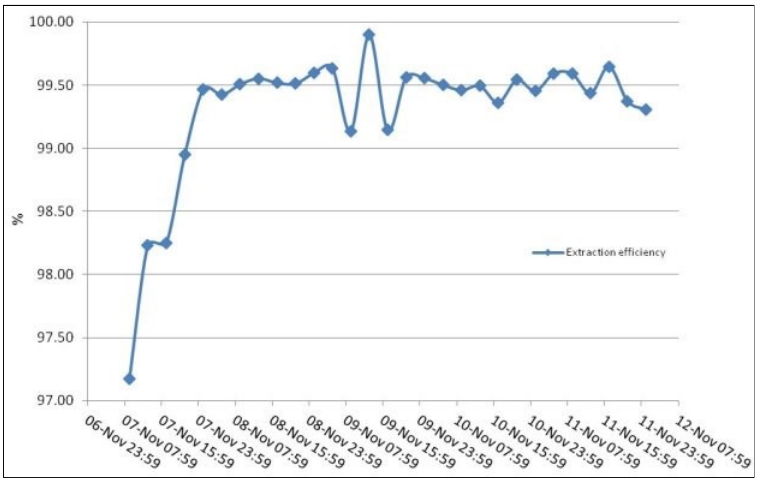
Figure 10.10 Pilot Plant (SX-Purification-Carbonation-Filtration-Washing Pulp)



This plant was subsequently installed in the Salar de Cauchari for further testing and training of the operators at site. The pilot plant provides data for brines of varying compositions from seasonal effects and final lithium concentration. The results of the pilot plant test work have been incorporated to the engineering for the final facility to ensure a robust, reliable operation capable of producing the demanded product quality at the committed rate.

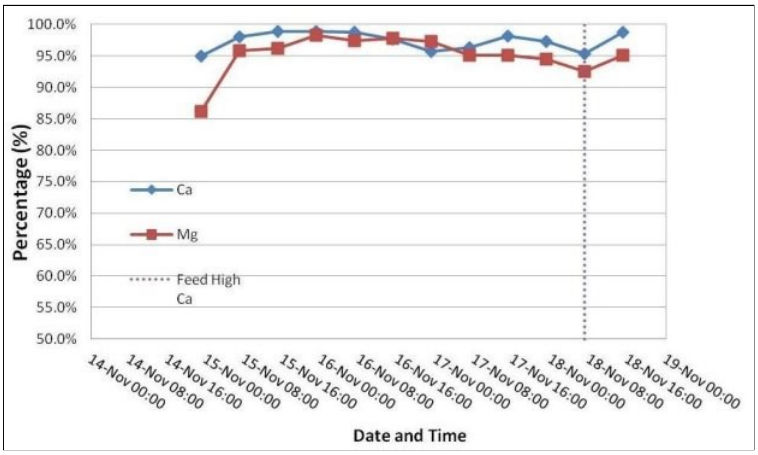
The SX pilot plant achieved an extraction efficiency of over 99.5% as shown in Figure 10.11. The x-axis in Figure 10.11 shows the date and time of the run, while the y-axis shows the percent of the boron mass in the feed that was removed during the test. The solvent extraction process was operated for 5 days during this test with no loss of boron removal efficiency.

Figure 10.11 SX Process Boron Extraction Efficiency



Mg and Ca polishing testing succeeded in obtaining over 95% removal efficiency, as shown in Figure 10.12. The x-axis is the date and time, while the y-axis shows the removal efficiency as a percentage of the mass of Ca or Mg in the feed brine. The Ca and Mg precipitation maintains the 95% removal efficiency over 4 days of operation in this test.

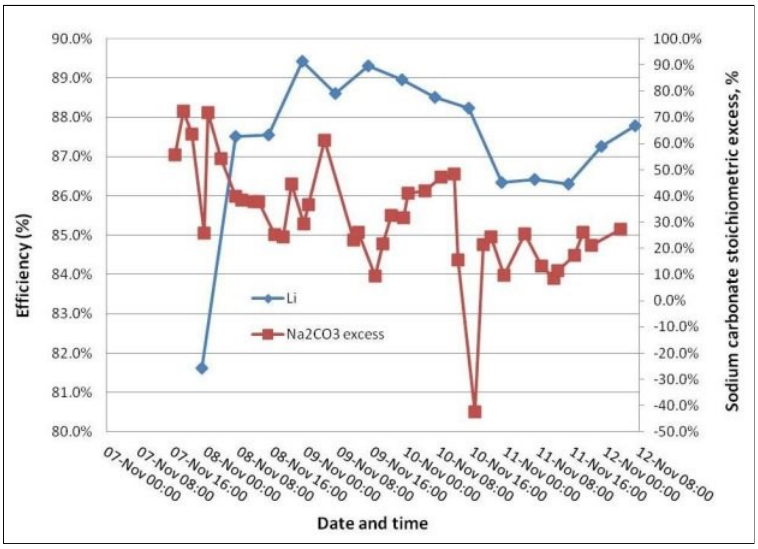
FIGURE 10.12 CA AND MG PRECIPITATION EFFICIENCY



10.5.1 Lithium Carbonate Precipitation

Figure 10.13 demonstrates that over 86% recovery of lithium carbonate at acceptable excess-soda ash ratios was obtained. In Figure 10.13, the x-axis is the date and time of the test, while the left y-axis shows the percent of lithium mass precipitated during the tests, and the right y-axis shows the excess sodium carbonate being fed to the reactor. During this testing, excess soda ash varied from -40% to 70%. The optimum excess of soda ash is between 5 and 20% based on the lithium in the feed.

FIGURE 10.13 LI PRECIPITATION EFFICIENCY



Washing of lithium carbonate filter cake with soft water resulted in sufficient product purity for the intended markets and use.

Control of lithium carbonate crystal habit and particle size via precipitation reaction parameters was effective in minimizing impurities. The lithium carbonate was then dried and packaged. A sample of dried lithium carbonate was shipped to the United States for micronization testing.

10.6 RECENT TESTING WORK PERFORMED IN THE PILOT PLANT

The pilot plant works constantly to provide process support and monitor efficiency improvement and resource optimization in the lithium carbonate production process.

10.6.1 Monitoring the Consumption of Lime Reagent in the Liming Plant

During 2024, important work has been carried out monitoring the consumption of lime reagent for optimizing reagent consumption in the liming plant.

The reactions that take place precipitate magnesium hydroxide, gypsum, and calcium borates. The unbalanced reactions produce the following products:

$$(Mg)^{+2} + Ca(OH)_{2,(s)} \rightarrow Mg(OH)_{2,(s)} + Ca^{+2}$$

$Ca^{+2} + SO_4^{-2} \rightarrow CaSO_{4,(s)}$

$2Ca^{+2} + 3B_2O_4 \rightarrow Ca_2B_6O_{11} \cdot 5H_2O_{(s)}$

Through tests carried out in the pilot plant by the process team to determine the equilibrium curve of magnesium hydroxide, calcium sulphate, and calcium borates, the optimal lime consumption was identified. This study enabled a 50% reduction in the consumption required by design. This improvement not only reduced OPEX but also enhanced downstream performance in the purification process.

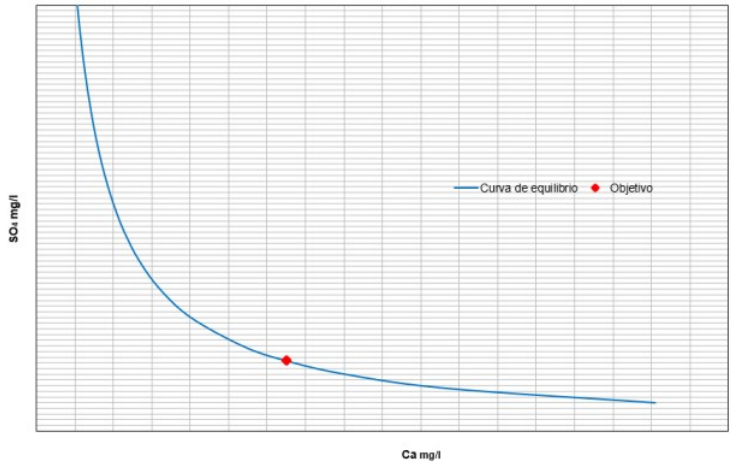
- Optimization of reagent consumption in the purification stages.

Additionally, other studies conducted in the pilot plant also allowed for the optimization of reagent consumption in the purification stages.

In purification, through preliminary tests carried out in the pilot plant, the lime consumption was reduced from a molar ratio of 300% relative to the incoming magnesium to 250%, representing a 16.7% decrease in consumption.

An empirical equilibrium curve was also established (Figure 10.14), which serves as the basis for calculating the addition of calcium chloride to achieve the desired sulphate removal in primary purification.

FIGURE 10.14 SULPHATE-CALCIUM EQUILIBRIUM CURVE



Additionally, a simulation was developed that, by considering the prices of various reagents, determines the optimal economic route for sulphate removal during the purification process (Table 10.3 and Figure 10.15). This tool establishes a target concentration at the output of primary purification, thereby identifying the most efficient scenario in terms of the consumption of calcium chloride, barium chloride, and sodium carbonate.

Table 10.3
Reagent Optimization in Primary Purification

$[SO_4]$ OBJETIVO PRODUCTO FINAL	400	mg/kg
[Li] OBJETIVO PRODUCTO ENTRADA CARBO	25000	mg/L

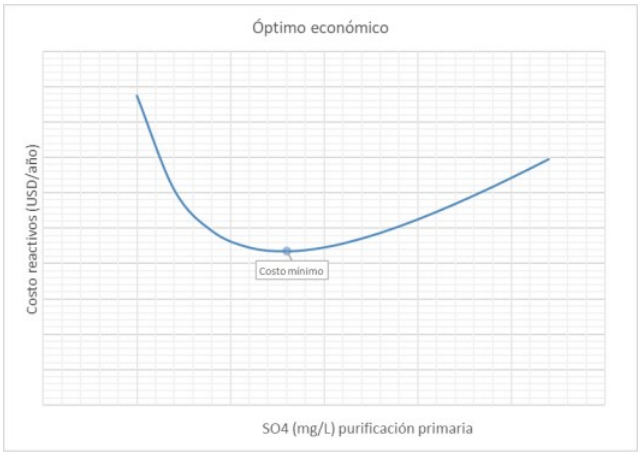
OPTIMIZACIÓN DE CONSUMO DE REACTIVOS EN PURIFICACIÓN Y CALIDAD EN EL PRODUCTO FINAL

PURIFICACIÓN PRIMARIA		
Parámetro	Valor	Unidad
Salmuera	90	m^3/h
[Li] ENTRADA PUR-1	12381	mg/L
$[SO_4]$ ENTRADA PUR-1	19825	mg/L
[Ca] ENTRADA PUR-1	265	mg/L
[Mg] ENTRADA PUR-1	570	mg/L
% $Ca(OH)_2$	20%	%
Densidad Lechada de cal	1131	kg/m^3
R.Molar	2,50	-
% $CaCl_2$	37%	%
Densidad solución $CaCl_2$	1385	kg/m^3
Lechada de cal	1,73	m^3/h
Solución de $CaCl_2$	3,82	m^3/h
R.Molar	0,95	-
[Li] SALIDA PUR-1	11894	mg/L
$[SO_4]$ SALIDA PUR-1	2567	mg/L
[Ca] SALIDA PUR-1	3137	mg/L
[Mg] SALIDA PUR-1	<1	mg/L

PURIFICACIÓN SECUNDARIA		
Parámetro	Valor	Unidad
Salmuera	94	m^3/h
% Na_2CO_3	25,1%	%
Densidad soda ash	1280	kg/m^3
$BaCl_2.2H_2O$	0,37	t/h
R.Molar	0,61	-
Solución soda ash	2,85	m^3/h
R.Molar	1,20	-
[Li] SALIDA PUR-2	11612	mg/L
$[SO_4]$ SALIDA PUR-2	1003	mg/L
[Ca] SALIDA PUR-2	<10	mg/L
[Ba] SALIDA PUR-2	2,1	mg/L
COSTO MENSUAL	1.975.426	USD/mes
COSTO ANUAL	23.705.113	USD/año

OPTIMO ECONOMICO

Figure 10.15 Example of Economic Optimization Curve



With the support of the pilot plant, a new operating temperature was established in purification. Lowering it from 70°C to 55°C reduced lithium loss in the precipitated solids during secondary purification.

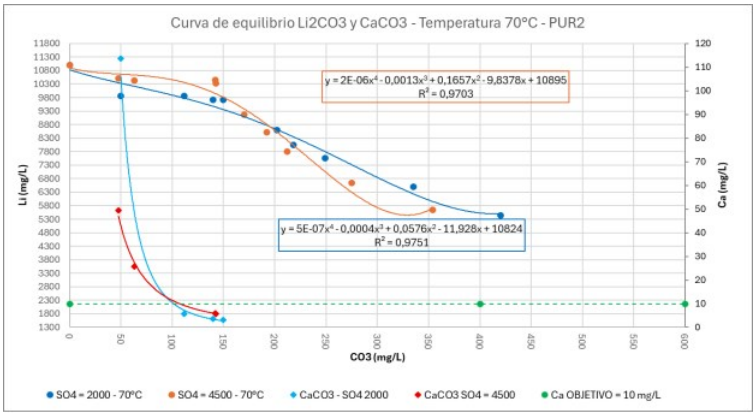
10.6.2 Lithium Losses in the Secondary Purification Filter Cake

During 2025, it was determined that lithium losses in PUR-2 are exclusively due to the precipitation of Li_2CO_3 and are strongly influenced by the chemical matrix, particularly by the SO_4^{2-} concentration and the Ca^{2+}/SO_4^{2-} ratio. In matrices with higher sulfate content, losses are lower, whereas lower SO_4^{2-} concentrations significantly increase lithium precipitation. Sodium carbonate overdosing is a critical factor that amplifies this effect, potentially leading to substantial lithium losses regardless of temperature. Operating with matrices richer in SO_4^{2-} and poorer in Ca^{2+} minimizes precipitation losses and improves the economic performance of the process.

The results showed that, as total lithium losses decrease, the combined total process cost is significantly reduced. Optimization of the chemical matrix allows lithium recovery to be increased from 95% to 97.3%, summarized in Figure 10.16.

At the time of the study, from an economic standpoint, optimizing lithium recovery had an impact approximately three times greater than reducing reagent consumption; therefore, lithium recovery should be considered the critical variable in process optimization.

Figure 10.16 Equilibrium Curve of Li_2CO_3 Versus Ca and CO_3



10.6.3 SO_4^{2-} Adsorption During Li_2CO_3 Precipitation

The study made it possible to characterize the phenomenon as a sulfate adsorption process onto the Li_2CO_3 solid, ruling out the possibility that it is merely due to impregnation by the mother liquor.

Laboratory-scale studies during all 2025 indicated variability in the percentage of SO_4^{2-} adsorbed, and correlation analysis identified the variables directly linked to the phenomenon, such as the initial Li^+ concentration.

The analysis was subsequently scaled up to industrial conditions in order to evaluate the effective elution percentage during the centrifugation stage. Based on the industrial-scale results, it was concluded that:

- The percentage of SO_4^{2-} adsorbed in the final product, under the operating conditions at the time, was on the order of 1% on average, confirming the existence of a true adsorption mechanism.
- The percentage of SO_4^{2-} removed during the washing (elution) stage showed an average value close to 15-16%, in agreement with the simulation results and with the concentrations experimentally determined in the washed solids.

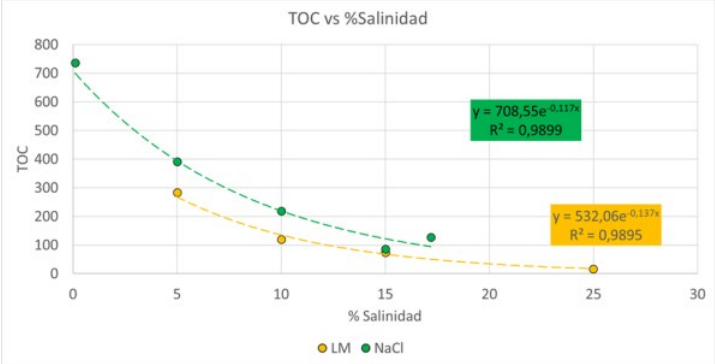
10.6.4 Effect of Salinity on Organic Adsorption

The identification, differentiation, and quantification of chemical- and physical-nature organic entrainment mechanisms present in the Solvent Extraction (SX) plant were carried out during 2025.

The analysis made it possible to discriminate the relative contribution of each entrainment mechanism, establishing a technical basis for evaluating the behavior of the organic-aqueous system and for defining control strategies aimed at operational optimization of the SX circuit.

The results confirm an inverse relationship between salinity and total organic carbon ("TOC"), with lower levels of organic entrainment observed at higher salinity, and an increase in TOC as salinity decreases, as shown in Figure 10.17.

Figure 10.17 Graph of Total Organic Carbon Versus Salinity



10.7 RECENT WORK PERFORMED IN EXTERNAL LABORATORIES

Chromatographic analysis in external laboratories to monitor the concentration of organic solvents in the SX process streams has been carried out in:

- Refined brine.
- Stripping streams.

10.8 CONTINUING WORK PLAN FOR SUPPORTING THE PLANT OPERATIONS

The following work and activities are being carried out at the pilot plant to support the operation.

Homologation Tests for Inputs Used in Lithium Carbonate Production

- Testing and evaluation of new inputs in different areas.

Evaluation of Suppliers for Various Production Inputs

- Procedure for evaluating new suppliers.
- Tests required for evaluation.

Work Required According to Plant Needs for Process Optimization, Operational Problem Resolution, or Development of Alternatives

- Solvent extraction tests to reduce organic traces in the ouput streams.
- Support for the analysis of new scenarios arising from new specifications across different areas.
- Studying of the use of process water and mother liquors in the liming process.
- Pilot Plant IX tests to evaluate IX resins.
- Implement a process support program for ensuring that product quality is achieved more consistently.
- Implementation of mathematical tools/models to predict plant operating conditions.

11.0 MINERAL RESOURCE ESTIMATES

11.1 OVERVIEW

The footprint of the current lithium Mineral Resource Estimate is shown in Figure 11.1. LAR has previously filed the following NI 43-101 and S-K 1300 technical reports documenting lithium Mineral Resource Estimates:

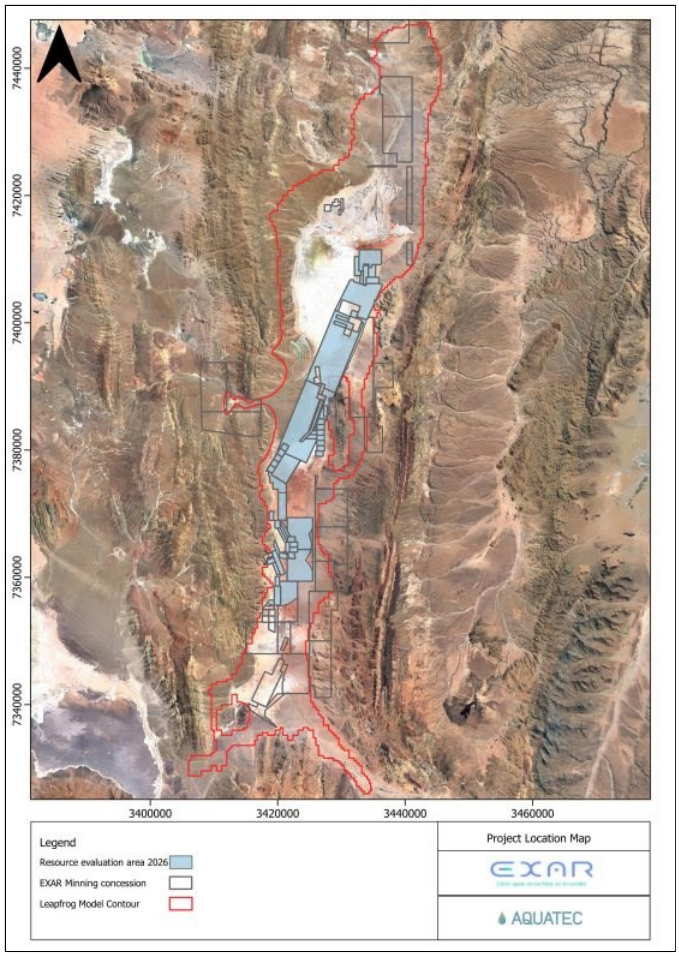
- King, M., 2010a. Amended Inferred Resource Estimation of Lithium and Potassium at the Cauchari and Olaroz Salars, Jujuy Province, Argentina. Report prepared for LAR. Effective Date: February 15, 2010.
- King, M., 2010b. Measured, Indicated and Inferred Resource Estimation of Lithium and Potassium at the Cauchari and Olaroz Salars, Jujuy Province, Argentina. Report prepared for LAR. Effective Date: December 6, 2010.
- King, M., Kelley, R., and Abbey, D., 2012. Feasibility Study Reserve Estimation and Lithium Carbonate and Potash Production at the Cauchari-Olaroz Salars, Jujuy Province, Argentina. Report prepared for LAR. Effective Date: July 11, 2012.
- Burga, E., Burga, D., Rosko, M., King, M., Abbey, D., Sanford, T., Smee, B., and Leblanc, R., 2017. Updated Feasibility Study Reserve Estimation and Lithium Carbonate Production at the Cauchari-Olaroz Salars, Jujuy Province, Argentina. Report prepared for LAR. Effective Date: March 29, 2017. Filing Date: January 15, 2018.
- Burga, D., Burga, E., Genck, W., and Weber, D., 2019. Updated Mineral Resource Estimate for Cauchari-Olaroz, Jujuy Province, Argentina. Report prepared for LAR. Effective Date: March 1, 2019. Filing Date: March 31, 2019.
- Burga, E., Burga, D., Genck, W., Weber, D., Sandford, A., Dworzanowski, M. 2020. Updated Feasibility Study and Mineral Reserve Estimation to Support 40,000 tpa at the Cauchari-Olaroz Salars, Jujuy Province, Argentina, NI 43-101 Report, Prepared for LAR. Effective Date: September 30th, 2020. Filing Date: October 19, 2020.
- Burga, E., Burga, D., Genck, W., Weber, D., Sandford, A., Dworzanowski, M. 2025. NI 43-101 Technical Report. Operational Technical Report at the Cauchari-Olaroz Salars, Jujuy Province, Argentina. Prepared for LAR. Effective Date: December 31, 2024. Filing Date: January 8, 2025.
- Burga, E., Burga, D., Genck, W., Weber, D., Sandford, A., Dworzanowski, M. 2025. S-K 1300 Technical Report. Operational Technical Report at the Cauchari-Olaroz Salars, Jujuy Province, Argentina. Prepared for LAR. Effective Date: December 31, 2024. Filing Date: January 8, 2025.
- King, M., Burga, D., Gibson, J., Cushing, A., Sandford, A., Dworzanowski, M. 2026. 2026 Cauchari-Olaroz NI 43-101 Technical Report, Jujuy Province, Argentina. Prepared for LAR. Effective Date: February 27, 2026. Filing Date: March 19, 2026.

- King, M., Burga, D., Gibson, J., Cushing, A., Sandford, A., Dworzanowski, M. 2026. 2026 Cauchari-Olaroz S-K 1300 Technical Report, Jujuy Province, Argentina. Prepared for LAR. Effective Date: February 27, 2026. Filing Date: March 19, 2026.

The Mineral Resource Estimate reported in this section was completed using a new Leapfrog Geo model that incorporates the hydrostratigraphic (HSU) units described in Section 6.5 that are described in Section11.2.3. This new model is based on the full basin model developed by Aquatec. The Mineral Reserve Estimate, documented in Section 12.0, uses the same HSU framework.

The results of drilling, exploration, and production carried out in recent years have enabled an updated Mineral Resource evaluation. Based on this new information, a significant portion of the Mineral Resources previously classified as Inferred in the Burga et al (2019) Mineral Resource Estimate has been reclassified to Indicated and Measured Mineral Resources. This reclassification is due to an increase in the spatial and temporal continuity of the supporting data.

Figure 11.1 Location Map for Mineral Resource Estimate



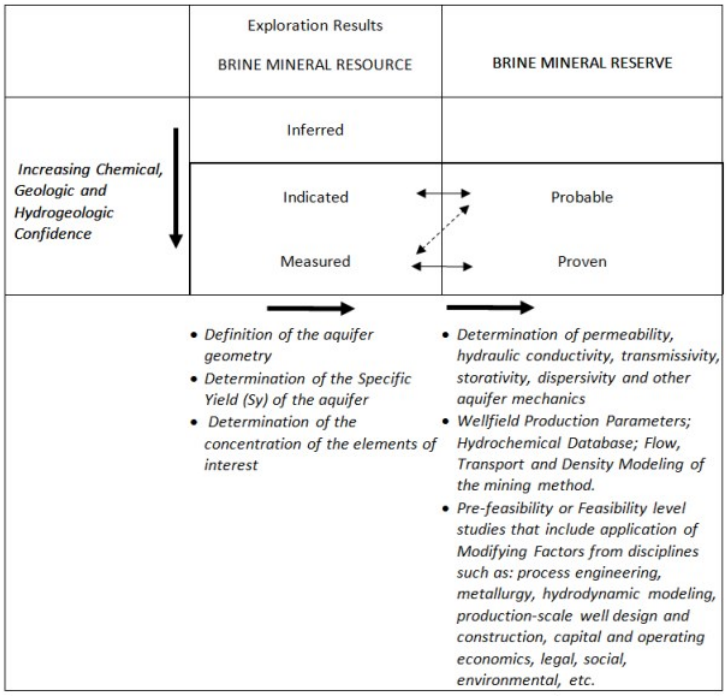
Source: Aquatec, (2025)

11.1.1 Statement for Brine Mineral Prospects and Related Terms

Lithium occurs as a dissolved mineral species in subsurface brine of the Project area. The brine is contained within an aquifer comprised of alluvial, lacustrine, and evaporite deposits that have accumulated in the SdC and SdO structural basin. Mineral Resource estimation for brine mineral deposits is based on knowledge of the geometry of the brine aquifer, the variation in specific yield (also known as drainable porosity), and concentration or grade of dissolved lithium in the brine aquifer.

Following CIM standards and guidelines for technical reporting, classification standards for a Mineral Resource are applied as indicators of confidence level classifications: Measured, Indicated, and Inferred. According to these standards, "Measured" is the most confident classification and Inferred is the least confident (CIM, 2012 and 2014). Estimation of Mineral Reserves considers additional technical parameters such as permeability (hydraulic conductivity), storativity, diffusivity and the overall groundwater flow regime, in addition to so called "modifying factors" such as cost considerations and processing. These are jointly applied to predict how the Mineral Resource will change over the life of mine plan (CIM, 2012 and 2014). The evaluation framework used for brine Mineral Resource and Mineral Reserve estimation, based on CIM standards and best practice guidelines, is shown in Figure 11.2.

Figure 11.2 Methodology for Evaluating Brine Mineral Resources and Mineral Reserves



Source: Modified from CIM (2014)

Mineral Resource classifications used in this study conform to the 2018 S-K 1300 Definition Standards:

Mineral Resource: *a Mineral Resource is a concentration or occurrence of material of economic interest in or on the Earth's crust in such form, grade or quality, and quantity that there are reasonable prospects for economic extraction. A Mineral Resource is a reasonable estimate of mineralization, taking into account relevant factors such as cut-off grade, likely mining dimensions, location or continuity, that, with the assumed and justifiable technical and economic conditions, is likely to, in whole or in part, become economically extractable. It is not merely an inventory of all mineralization drilled or sampled.*

Measured Mineral Resource: *a Measured Mineral Resource is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of conclusive geological evidence and sampling. The level of geological certainty associated with a measured mineral resource is sufficient to allow a qualified person to apply modifying factors, as defined in this section, in sufficient detail to support detailed mine planning and final evaluation of the economic viability of the deposit. Because a Measured Mineral Resource has a higher level of confidence than the level of confidence of either an Indicated Mineral Resource or an Inferred Mineral Resource, a Measured Mineral Resource may be converted to a Proven Mineral Reserve or to a Probable Mineral Reserve.*

Indicated Mineral Resource: *an Indicated Mineral Resource is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of adequate geological evidence and sampling. The level of geological certainty associated with an Indicated Mineral Resource is sufficient to allow a qualified person to apply modifying factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Because an Indicated Mineral Resource has a lower level of confidence than the level of confidence of a Measured Mineral Resource, an Indicated Mineral Resource may only be converted to a Probable Mineral Reserve.*

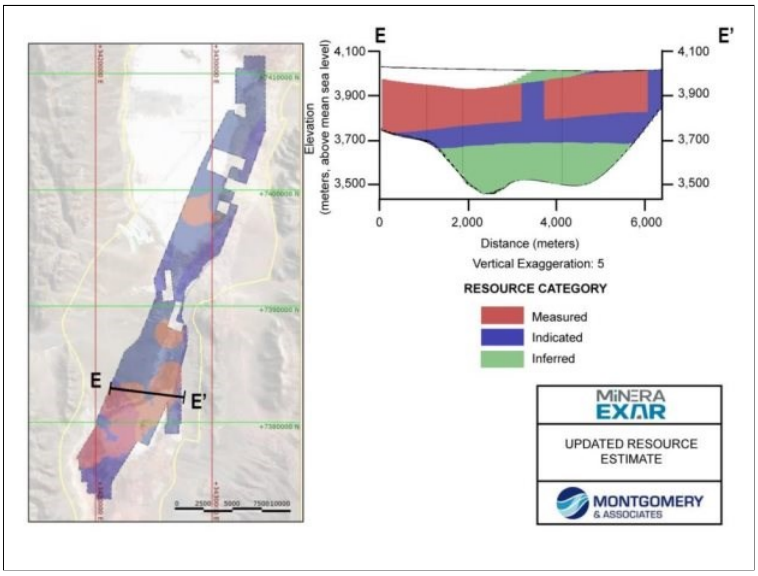
Inferred Mineral Resource: *an Inferred Mineral Resource is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. The level of geological uncertainty associated with an Inferred Mineral Resource is too high to apply relevant technical and economic factors likely to influence the prospects of economic extraction in a manner useful for evaluation of economic viability. Because an Inferred Mineral Resource has the lowest level of geological confidence of all Mineral Resources, which prevents the application of the modifying factors in a manner useful for evaluation of economic viability, an Inferred Mineral Resource may not be considered when assessing the economic viability of a mining project, and may not be converted to a Mineral Reserve.*

11.2 MINERAL RESOURCE ESTIMATE METHODOLOGY

11.2.1 Most Recent Previous Mineral Resource Estimate (Burga et al., 2025)

The most recent Mineral Resource Estimate was originally prepared in 2019 (Burga et al., 2019) and subsequently carried forward into Burga et al (2025). Plan and section views of the previous Resource Evaluation Area are shown in Figure 11.3.

FIGURE 11.3 REPRESENTATIVE PLAN AND SECTION VIEWS OF THE 2019 MEASURED, INDICATED, AND INFERRED MINERAL RESOURCE ESTIMATE



Source: Burga et al. (2025)

11.2.2 Background of the Current Hydrostratigraphic Model

A three-dimensional hydrostratigraphic model was initially prepared by Montgomery and Associates, (Montgomery, 2025) and Aquatec built upon this work. The model is based on a comprehensive compilation, evaluation, and integration of historical datasets from both operators, and publicly available sources. This work resulted in a unified and internally consistent database of data records through December 31, 2023. The delineation of Hydrostratigraphic Units (HSUs) was based on detailed lithological descriptions, analysis of groundwater (piezometric) levels, and hydraulic parameters derived from pumping tests. The model was constructed in Leapfrog software (Seequent, 2018).

Data consolidation activities resulted in the compilation of 19 inter-related data types, including the following:

- **Station Inventory**: Detailed records of production wells, exploration and test wells, gauging stations, meteorological stations, evaporation domes, and environmental monitoring locations.

- **Geological and Lithological Data:** Lithological descriptions from 339 wells with depths ranging from 3 to 1,410 meters below natural ground level (m b.g.l.); 133 of these wells include grain-size distribution analyses and were drilled using diamond core methods.
- **Well Construction and Geophysical Logging:** Records of casing configuration, annular backfill, and raw geophysical logging data.
- **Hydraulic Parameters:** Results from 206 pumping tests, including 31 constant-rate pumping tests involving 31 pumping wells and 61 observation wells. These tests provided estimates of hydraulic conductivity, storage coefficients, and drainable porosity using brine release capacity (RBRC) analytical methods.
- **Piezometric Levels:** Measurements of static and dynamic groundwater levels.
- **Production Data:** Flow rates and dynamic water levels from brine and industrial water production wells.
- **Hydrochemical and Isotopic Data:** Analytical results from surface water and groundwater sampling programs; 30 isotopic samples were collected in October 2024.
- **Surface Water Flow Data:** Streamflow measurements collected at designated control points.
- **Meteorological Records:** Raw data obtained from climate monitoring stations.
- **Environmental Monitoring:** Inventory and records of environmental monitoring stations.

Some of these were used to construct the Leapfrog geological model and were subsequently updated through the current work, to support Resource estimation. Others supported development of the dynamic flow model used for the Reserve Estimate, described in Section 12.0.

To ensure consistency and accuracy in elevation control, a high-precision topographic survey was completed by the independent firm Arq&Top between September and October 2024. This survey harmonized piezometric and topographic elevation datasets. Evaluation of the saline interface was further supported by targeted exploration datasets, including:

- deep laboratory chemical analyses,
- near-surface physicochemical testing (0-5 m),
- electrical conductivity (EC) geophysical logs, and
- geophysical resistivity surveys conducted using Vertical Electrical Soundings (VES), Transient Electromagnetics (TEM), and Audiomagnetotelluric (AMT) methods.

The Leapfrog model developed by Montgomery (2025) was further updated through the current work, to support Resource Estimation. The updates included the following:

- Two additional, recent wells (W28 and W30) were incorporated in the HSU work-up. These wells provided a significant amount of geological information, as both penetrated the entire thickness of salar deposits in the Olaroz area.

- A three-dimensional interpolation of lithium grades was conducted throughout the model domain (Section 11.2.5).
- Resource classifications were delineated according to accepted practices (Section 11.2.6).

A profile and sections through the updated (current) hydrostratigraphic model are shown in Figure 11.3.

11.2.3 Hydrostratigraphic Units

The hydrostratigraphic model constructed by Montgomery (2025) was simplified from previous versions, and includes five primary hydrostratigraphic units (HSUs) and the base of the model, interpreted as hydrogeological basement (HSU 6). The HSUs are described in Section 6.5 and include:

- HSU1 - Upper Proximal Alluvial.
- HSU2 - Intermediate Alluvial.
- HSU3 - Upper Distal Alluvial.
- HSU4 - Evaporite-Alluvial Interbedded Unit.
- HSU5 - Lower Alluvial fan.
- HSU6 - Base of the Current Aquifer for Resource Estimation.

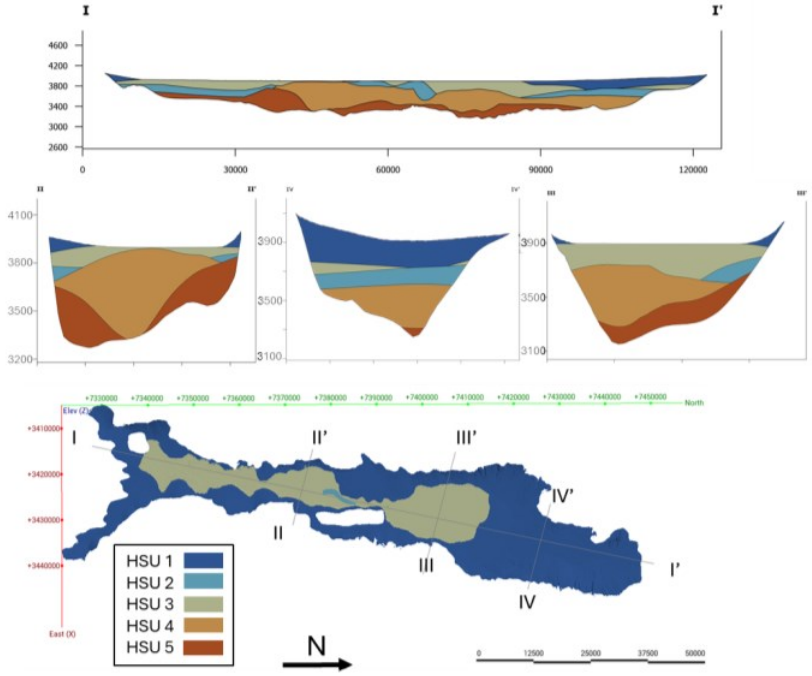
A comparison of these HSUs with the previous iteration of the of hydrostratigraphic model (Burga et al., 2025) is provided in Table 11.1.

Table 11.1
Hydrostratigraphic Units Assigned in Previous and Current Studies

Burga et al. (2025)	**Current Resource Model (same HSUs as Montgomery (2025))**
Alluvial Fan Sand and Gravel	HSU 1 - Upper proximal Alluvial
Clay and Silt;	HSU 2 - Intermediate Alluvial
Sand;	HSU 3 - Upper distal alluvial
Sand and Clay/Silt; Halite	HSU 4 - Evaporite-Alluvial Interbedded Unit
Basal Sand	HSU 5 - Lower alluvial
Basement Rock	HSU 6 - Base of Resource Zone

Figure 11.4 displays the hydrogeostratigraphic units in vertical cross sections and as an aerial plan view.

Figure 11.4 Vertical Cross Sections and Aerial View Showing the Distribution of the Hydrogeostratigraphic Units



Source: *Aquatec, (2025)*

11.2.4 Specific Yield

Specific yield ("Sy") or drainable porosity is the total volume of pore space in saturated media that drains, under the influence of gravity, expressed as a percentage of bulk porous media volume. Samples collected for the determination of specific yield during the various exploration campaigns were analyzed using Relative Brine Release Capacity (RBRC) testing. Table 11.2 summarizes Sy testing results for each HSU, and sampling locations are shown in Figure 11.5. A total of 714 EXAR samples were selected for inclusion in the Mineral Resource Evaluation model, for units HSU 1, HSU 2, HSU 3, and HSU 4.

The specific yield for HSU 5 is based on previously published values (Basal Sand = 13.7%, Burga et al., 2019). Sampling from six boreholes between 2017-2019 showed a slightly higher value of 14%. Therefore, the previous value (13.7%) was considered reasonable and maintained for the current Mineral Resource Estimate.

Table 11.2
Specific Yield values assigned to the Hydrogeological Units (Mean)

Hydrogeological Unit	n	Sy (%)
Total (Sy_pc)	714	8.58
HSU 1	8	19.96
HSU 2	95	15.35
HSU 3	232	8.89
HSU 4	379	6.44
HSU 5	-	13.7

Figure 11.5 Drill Hole Locations Where Porosity Analyses Were Conducted



Source: Aquatec, (2025)

11.2.5 Lithium Grade

A systematic filtering process was applied to EXAR's brine chemistry database, to select appropriate samples for Resource Estimation. The objective of this process was to ensure that only reliable and representative data were used. The filtering process included the following steps:

- Exclusion of samples collected at locations for which complete well construction information was not available, including coordinates, screened intervals, and related construction details.
- Removal of duplicate samples and samples with incomplete chemical analyses.
- In consideration of the different sampling methodologies employed, a hierarchy of sampling methods was applied to determine the most representative sample, as follows (from highest to lowest priority):
    - Samples collected from production wells: For each sampling location an average of the most recent available chemical analyses was calculated, up to a maximum of ten samples. The screened intervals were subdivided into 100-metre intervals. The midpoint of each interval was used to spatially assign the representative chemical sample.
    - Samples collected during pumping tests: the same procedure than for the production wells was used for these types of samples.
    - Samples collected during packer tests: The most recent packer samples were selected. Each representative sample was applied at the corresponding depth at which it was collected.
    - Samples collected using electronic bailers.
    - Samples collected using plastic bailers.

For samples collected using both electronic and plastic bailers, preference was given to those used in the 2019 Mineral Resource Estimate (Burga et al., 2025), provided that the well had been previously purged using the airlift method. Where this condition was not met, the average of the ten most recent available sample results were used. As in previous types of samples, the screened intervals were subdivided into 100-metre intervals, and the same value was applied to each interval. These samples are generally from ongoing monitoring conducted by EXAR.

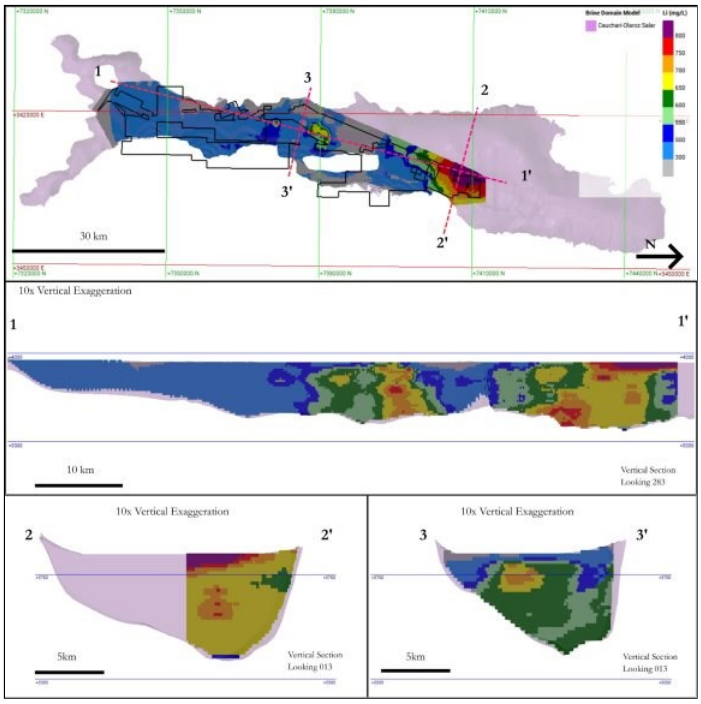
In addition to the samples from wells included in EXAR's database, a number of samples previously used in Burga et al. (2020) were also incorporated into the interpolation dataset. The sampling points included are: ELCRMN, PZCSCLRD, PZLCRMN, PZPRVNRBRX, PZSLFTR, QD. ESTN2, QD. ESTN3, W01, W02, W04, W05, W06, W06 Bis, W07, W08, W10, W11, W12, W14 Bis, W16 Bis, W19, W22, CAU01D, CAU03D, CAU04D, CAU05D, CAU06R, CAU07R, and CAU17D. These sample results were checked and considered valid and useful for strengthening the dataset.

In addition, 13 samples collected in 2010 and reported in King, M., 2010b were included. These locations are wells: DDH-01, DDH-04, DDH-06, DDH-12, PE-06, PE-09, PE-10, PE-13, PE-17, PE-18, PE-19, PE-20, and PE-21. Again, these sample results were checked and considered valid and useful.

Prior to most of the bailer sampling campaigns, the wells were purged using airlift, and some samples were collected from the pumped water. However, the current Resource Estimate does not use any samples collected by airlift methods, as these samples were considered less reliable than those obtained using other methods.

This filtering process resulted lithium grade dataset that was used as input for the interpolation process. In total, 506 lithium grade results are represented in the 3-D interpolation that supports the current Mineral Resource Estimate. Interpolation results are shown in Figure 11.6.

Figure 11.6 Lithium Grade Interpolation for the Current Mineral Resource Estimate



Source: Aquatec, (2025)

11.2.6 Mineral Resource Block Model Variography, Methods, and Validation

The block Mineral Resource model was developed and validated through the following methodology:

1. **Spatial analysis of the lithium grades** - An updated exploratory variographic analysis was performed to evaluate spatial continuity within the Li-Domain. Both dip and dip azimuth were set to 0°, and the analysis included a modelled omnidirectional variogram as well as a 2-D polar variogram with directional structures. The updated variograms indicate the following:

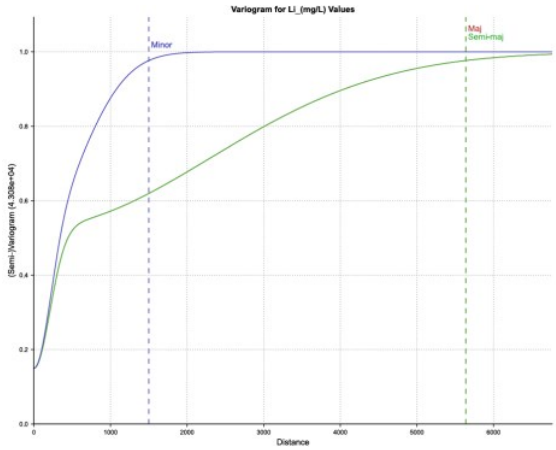
   a. Strong lateral continuity within the horizontal (X-Y) plane, with the major, semi-major, and minor directions displaying similar structures and ranges, indicating moderate isotropy at the basin scale.

   b. Limited continuity along the vertical (Z) axis, consistent with typical fluid density variations in salars and the stratified nature of the hydrostratigraphic units and typical of lithium brine systems.

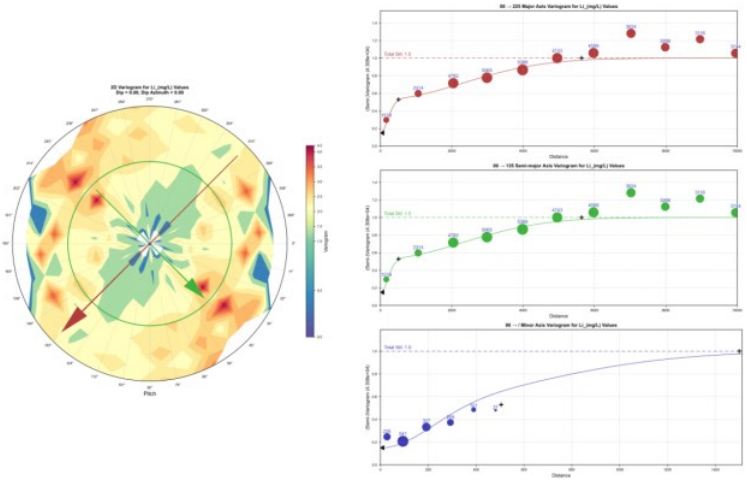
   c. These results indicate that the Li Domain behaves laterally as a continuous hydrogeochemical volume, with no dominant directional anisotropy. This supports the use of a horizontally isotropic model and provides additional justification for the application of a deterministic inverse distance (ID) approach for grade estimation, rather than a geostatistical kriging method (Figure 11.7).

Figure 11.7 Modelled Variogram for Li and 2-D Variogram and Directional Variograms for the Li-Domain

A) Modelled Variogram for Li



B) 2-D Variogram and Directional Variograms for the Li-Domain



Source: Aquatec, (2025)

2. **Block model construction** - The Mineral Resource block model within the Resource Evaluation Area was defined with a block size of x = 100 m, y = 100 m, and z = 25 m. The drainable volume is calculated directly within the block model using:

   a. the geometric volume of each block (100 × 100 × 25 = 250,000 m³), and

   b. the specific yield (Sy) assigned to each block. Block SY values are assigned per each blocks HSU categorization. Block HSU values are determined by on a majority composite basis of each blocks intersection with the HSU model.

   c. The lithium content (in tonnes) is calculated as the Drainable volume (m^3) x Lithium Concentration (mg/L)/10^6. Where Lithium Concentration (Li) corresponds to the field obtained from inverse distance interpolation (mg/L). Because each block contains a different volume of brine depending on its assigned Sy value, the average lithium grade used for reporting is calculated as a brine-volume-weighted average, rather than a simple arithmetic mean.

3. **Inverse Distance (ID) Interpolation** - Lithium grade estimation was performed exclusively using the ID method to the second power, also known as Inverse Distance Squared (ID^2). The interpolation followed a four-pass strategy (MP1-MP4) with progressively increasing search radii. This approach was selected because ID interpolation produces stable results with fewer artifacts compared to alternative methods that were evaluated. The four ID passes were applied sequentially, with each block receiving the first valid estimate found. Operational parameters are summarized in Table 11.3.

Table 11.3 ID Interpolation Parameters					
Estimator	**Max Range (m)**	**Interpolation Range (m)**	**Min Range (m)**	**Min No. of Samples**	**Max No. of Samples**
MP1	2,500	2,500	100	6	20
MP2	5,000	5,000	200	4	20
MP3	7,500	7,500	300	2	20
MP4	25,000	25,000	500	2	20

Note: Common Parameters for All Passes

- Method: Inverse Distance (ID), exponent = 2.0.
- Declustering: None applied.
- Sectorization: None applied.
- Capping / Top-cut: None applied.
- Orientation: Dip = 0°, Azimuth = 0°, Pitch = 90°.

4. **Statistical Validation of Interpolated Lithium Grades -** The statistical validation of lithium grades was performed by comparing descriptive statistics of the input sample values with those obtained in the block model using the combined ID2 Li estimator (Table 11.4).

   a. The comparison between the descriptive statistics of the original lithium samples and the block model estimated using ID2 shows behavior consistent with expectations for this type of interpolation.

   b. The characteristic smoothing effect of the ID method is evident, reflected in a reduction of both the standard deviation and variance in the estimates compared to the original data. While the samples have a standard deviation of 207.56 mg/L, the estimated model shows a lower value of 156.49 mg/L, indicating reduced dispersion in the interpolated values.

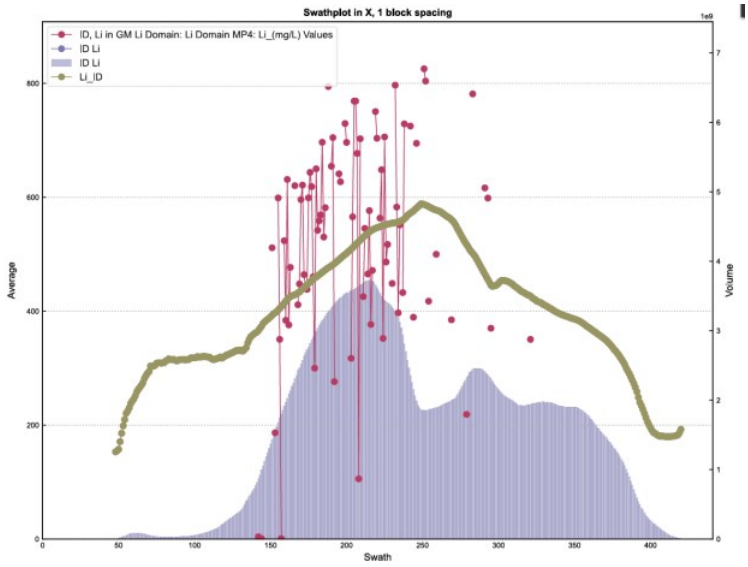
Table 11.4 Key Statics of Datasets Used										
Variable	**n**	**Mean**	**Std. Dev.**	**CV**	**Variance**	**Min**	**Q1**	**Median (Q2)**	**Q3**	**Max**
Li_(mg/L)	506	531.27	207.56	0.391	43,081.3	0.802	443.71	555.68	661.49	1,267.0
Interpolated Lithium field	2,345,183	468.73	156.49	0.334	24,489.3	2.277	361.45	466.05	594.64	1,109.9

Note: n = sample size as in number of samples, Std Dev = standard deviation, CV = coefficient of variation, Min = minimum, Q1 = first quartile, Q3 = third quartile, Max = maximum.

c) The ID estimates show slight smoothing compared to the sample data, with a lower mean and moderated extreme values, which is typical of deterministic interpolation methods. Quartile comparisons indicate that the model adequately reproduces the central tendency and overall distribution shape of the dataset.

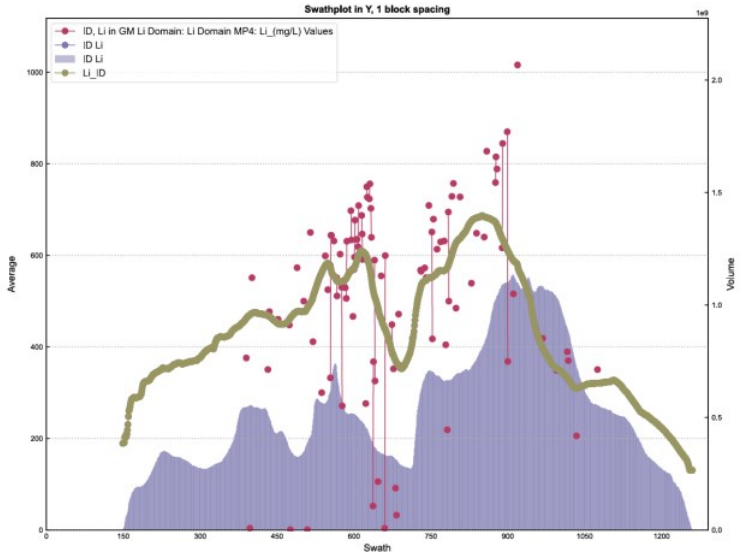
Swath plots in the X, Y, and Z directions (Figure 11.8, Figure 11.9 and Figure 11.10, respectively) confirm that spatial trends are consistent, with no artifacts or non-geological discontinuities observed. The vertical and lateral profiles reflect the expected geological behavior and data continuity. Overall, the analysis indicates that the interpolation method is reasonable and valid, providing a stable and reliable representation of lithium distribution.

FIGURE 11.8 SWATH PLOT IN X FOR LI DOMAIN



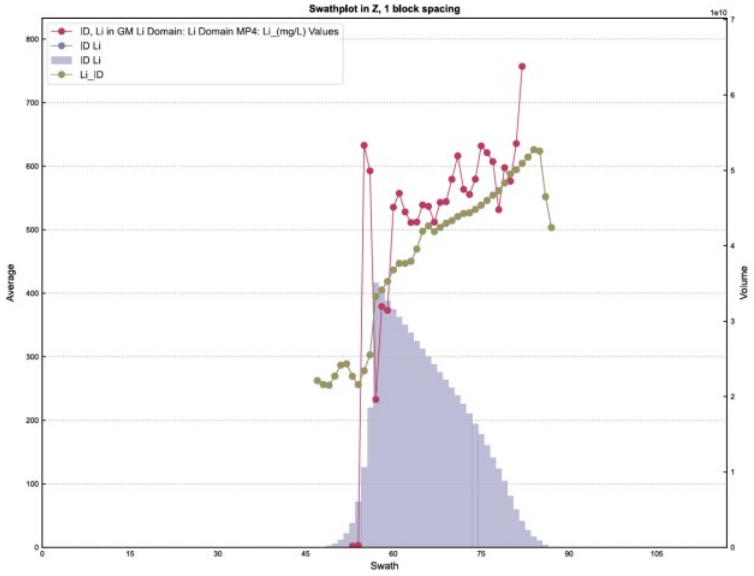
Source: Aquatec, (2025)

Figure 11.9 Swath Plot in Y for Li Domain



Source: Aquatec, (2025)

FIGURE 11.10 SWATH PLOT IN Z FOR LI DOMAIN



Source: Aquatec, (2025)

11.2.7 Resource Classification

Mineral Resource zones were classified using drill hole spacing and density criteria outlined by Houston et al. (2011) for lithium brine deposits Figure 11.11). Different classification approaches were applied to Olaroz N and Cauchari South to reflect their different stages of development. Mineral Resource zones are summarized in Table 11.5 and described below.

Olaroz North is an advanced-stage area supported by a high density of drilling, sampling, and production data. Given the maturity of exploration and the substandial database, Mineral Resource classification in this area was based on drill hole density.

For classification purposes, Olaroz North was subdivided into two domains (Figure 11.11):

- Central Olaroz N, corresponding to the active production wellfield; and
- Northern Olaroz N, representing the northernmost project area.

Drill density was calculated within defined polygonal areas using the following relationship:

$$\text{Drill Density } (\text{km}^2\text{per BH}) = \frac{\text{Polygon Area } (\text{km}^2)}{\text{Number of Platforms}}$$

The polygons used in the calculations were extended beyond the property boundary, which increases the area attributed to each borehole and results in a more conservative density estimate. Individual platforms were used to represent grouped boreholes. Only platforms with brine chemistry data were included in the density calculation for each depth interval.

Mineral Resource classes were assigned based on the drill density thresholds for immature (clastic dominated) salars as defined by Houston et al. (2011) and are presented in Table 11.5:

- Inferred: up to 100 km²/BH.
- Indicated: up to 25 km²/BH.
- Measured: up to 6.25 km²/BH (Table 11.5).

Cauchari South

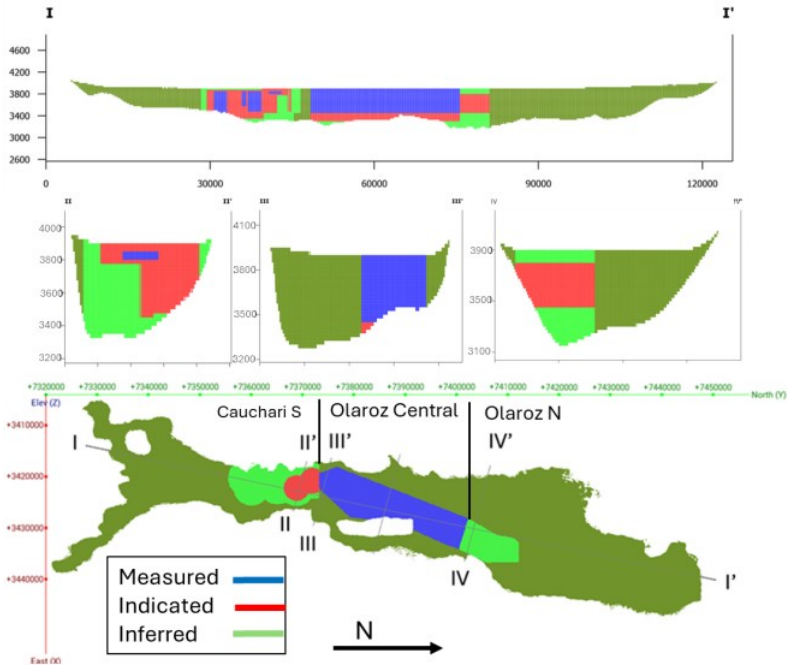
Cauchari South is at an earlier stage of exploration and is characterized by lower data and borehole density. Resource classification in this area was therefore based on drill hole spacing rather than density. Classification categories were defined using radial distances from boreholes and wells with brine chemistry data, as follows:

- Measured: radius = 1,250 m.
- Indicated: radius = 2,500 m.
- Inferred: radius = 3,500 m.

Table 11.5
Drill Platform Density and Preliminary Classification by Elevation Interval

Polygon Area	Depth Interval (mbgs)	No. of Platforms with Samples	Drill Density (km²/BH)	Classification
Northern Olaroz N Polygon Area = 63 km²	3900-3800	2	31.7	Inferred
	3800-3450	3 - 5	21.1 - 12.7	Indicated
	3450-basement	1	63.3	Inferred
Central Olaroz N Polygon Area = 200 km²	3900-3450	40 - 76	5.0 - 2.6	Measured
	3450-3300	12 - 27	16.7 - 7.4	Indicated
	3300-basement	4 - 6	50.0 - 33.3	Inferred

Figure 11.11 Representative Cross Sections and Aerial View of the 2026 Measured, Indicated, and Inferred Mineral Resource Estimate



Source: Aquatec, (2025)

11.3 2026 MINERAL RESOURCE STATEMENT

The Mineral Resource Estimate is presented in Table 11.6 and the following is noted:

- A lithium grade cut-off of 300 mg/L is used to define the Mineral Resource.
- Mineral Resources are also expressed in the industry standard Lithium Carbonate Equivalent (LCE = *Lithium × 5.323).*
- Mineral Resources are calculated with grade data from both before and during brine production, which started in 2018. Consequently, the mass of lithium produced up to Month and Year is conservatively excluded from the Mineral Resource Estimate.
- According to operational data recorded for the 2018-2025 period, a total of 52,786 t of lithium.
- It is noted that the mass of produced lithium is exceedingly small (<1%) relative to the total Measured and Indicated Mineral Resources.

Table 11.6
Summary of 2026 Lithium Mineral Resource Estimate - Exclusive of Mineral Reserves (1-12)

Mineral Resource Classification	Aquifer Volume (m^3)	Brine Drainable Volume (m^3)	Average Li Concentration (mg/L)	Li (t)	LCE (t)	LCE LAR's 44.8% Portion (t)
Measured	5.94E+10	5.89E+09	557	2,742,686	14,599,317	6,540,494
Indicated	3.87E+10	3.82E+09	571	2,122,708	11,299,172	5,062,029
Measured + Indicated	**9.81E+10**	**9.71E+09**	562	**4,865,393**	**25,898,489**	**11,602,523**
Inferred	2.77E+10	3.24E+09	567	1,806,125	9,614,004	4,307,073

Notes:
1. S-K 1300 definitions were followed for Mineral Resources and Mineral Reserves.
2. The independent Qualified Person for the 2026 Mineral Resource Estimate is Mark King, PhD. PGeo, FGC.
3. Mineral Resources are also expressed in the industry standard Lithium Carbonate Equivalent (LCE = Lithium × 5.323).
4. The mass of lithium produced from 2018-2025 period (52,786 t = 280,982 t LCE) has been removed from the Mineral Resource.
5. The Effective Date of the Mineral Resource Estimate is December 31st, 2025.
6. The Mineral Resource Estimate is not a Mineral Reserve Estimate and does not have demonstrated economic viability. There is no certainty that all or any part of the Mineral Resources will be converted to Mineral Reserves.
7. Calculated brine volumes only include Measured, Indicated, and Inferred Mineral Resource volumes above cut-off grade.
8. Comparisons of values may not add due to rounding of numbers and the differences caused by use of averaging methods.

9. A lithium grade cutoff of 300 mg/L is used to define the Mineral Resource.
10. The Mineral Resources Estimates are net of Mineral Reserves (421,854 t Li) without Process efficiency that has been removed from the Estimated Measured Resources
11. The commodity price of $18,000 / tonne for lithium carbonate (2025) for the life of the project was used to assess the economic viability for the mineral estimates, as described below.

A lithium cut-off concentration grade of 300 mg/L was conservatively applied for the 2019 Mineral Resource and Mienral Reserve Estimate. For comparison of the utilized cut-off grade to a breakeven cut-off grade calculation, the following analytical formula can be used based on the controlling inputs as quantified for LOM:

$$Cutoff\ Grade = \frac{\frac{(Total\ Capital\ Expenditure + Total\ Operating\ Expense)}{Total\ Brine\ Extracted}}{(Recovery * Conversion\ from\ Li\ to\ Li2CO3 * Projected\ LCE\ Price * (1 - Export\ Duties) * (1 - Royalties))}$$

Where, for Expansion Project are:

- Total Capital Expenditure = US$ 1,592 million
- Total Operating Expenditure = US$ 9,087 million
- Cost of Capital = US$ 127 million (8 percent of Total Capital)
- Total Brine Extracted = 944 Mm^3
- Conversion from Li to Li_2CO_3 (LCE) = 5.323
- Projected LCE Price = US$ 18,000 per metric ton of LCE
- Export Duties = 4.31%
- Royalties = 1.6%
- Calculated Recovery = 75%.

Resulting in a calculated breakeven cut-off grade of approximately 170 mg/L.

Where, for Exar Stage 1 are:

Total Capital Expenditure= US$ 1,950 million
Total Operating Expenditure = US$ 8,766 million
Cost of Capital = US$ 195 million (10 percent of Total Capital)
Total Brine Extracted = 859 Mm3
Conversion from Li to Li2CO3 (LCE) = 5.323
Projected LCE Price = US$ 18,000 per metric ton of LCE
Export Duties =4.31%
Royalties= 1.6%
Calculated Recovery= 63 %.

Resulting in a calculated breakeven cut-off grade of approximately 224 mg/L.

11.4 REASONS FOR DIFFERENCES FROM PREVIOUS ESTIMATE (BURGA, 2025)

Table 11.7 compares the current and previous (Burga et al. 2025) Mineral Resource Estimate. The current Mineral Resource is 8% larger for the Olaroz North Project Area and 42% in total. The differences between the two Mineral Resource Estimates are attributable to the following factors:

- The current Mineral Resource Estimate includes production samples that provide evidence of sustainable grades during the sustained production pumping, supporting expansion of Measured and Indicated Mineral Resource zones.
- An updated Mineral Resource classification method was used, that is based on well density instead of well spacing. The updated method is acceptable due to the enhanced resource certainty that is afforded primarily by sustained production pumping, and also by additional drilling and sampling. This classification update has resulted in zones that are relatively continuous, as opposed to the discontinuous zones derived through well spacing.
- The Mineral Resource zone in Olaroz North has been expanded by 19% due to the classification update carried out due to the reasons exposed above.

The new Mineral Resource zone also includes areas of the Cauchari South basin that were not included in the previous Mineral Resource Estimate. The major increase in Mineral Resources is because of the addition of Cauchari South Exploration Campaign data which account for 6,746,787 t LCE Measured + Indicated and 4,467,557 t LCE Inferred Mineral Resources, making a total addition of 11,214,344 t LCE coming from Cauchari South area.

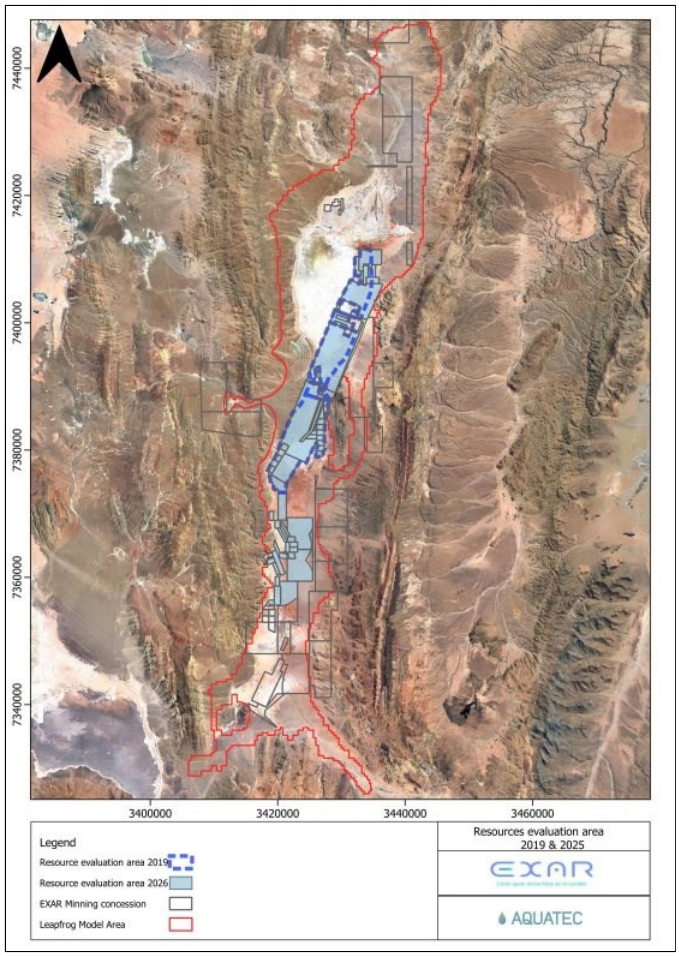
- An updated characterization of porosity values for the hydrostratigraphic units, based on 762 samples taken from the different wells and piezometers (Section 11.2.4) during different field campaigns carried out in the previous years.

Figure 11.12 shows a comparison between the current and previous Mineral Resource Estimation areas (Burga et al., 2025).

Table 11.7
Comparison Between the Current and Previous (Burga et al., 2025)
Mineral Resource Estimates

Resource Classification	Resources LEC (tonnes)		Difference	
	Current (Effective date December 31, 2025)	**Previous (Burga et al. (2025)) (Effective date December 31, 2024)**	**Tonnes**	**%**
Measured	14,599,317	3,040,109	11,559,208	380%
Indicated	11,299,172	13,177,246	-1,878,074	-14%
Measured + Indicated	**25,898,489**	**16,217,355**	**9,681,134**	60%
Inferred	9,614,004	4,722,700	4,891,304	104%

Figure 11.12 Comparison Between the Extension of the Current and Previous (Burga, 2025) Mineral Resource Estimates



Source: Aquatec, (2025)

11.5 CONFIDENCE IN THE MINERAL RESOURCE ESTIMATE

In the opinion of the Qualified Person, the Mineral Resource Estimate has been prepared using data of sufficient quality, quantity, and spatial distribution to support the geological, hydrogeological, and hydrostratigraphic interpretations on which it is based. Confidence in the estimate is supported by:

- Extensive exploration data collected during the 2017, 2018, and 2019 programs, which have been previously published, together with production and operating data provided by Exar, including brine chemistry, lithium concentration, lithological information, and data used to inform the updated hydrostratigraphic model
- The estimate has further benefited from an extended period of production pumping since 2018, during which 39 production wells were progressively brought online in the current exploitation area at Cauchari-Olaroz and 82,847,494 m^3 of brine was extracted between 2018 and 2025, equivalent to 280,982 t of LEC or 52,786 t of lithium.
- Recommendations from previous technical reports have been implemented through further field investigations, including specific yield testing. The resulting updated specific yield dataset, comprising 714 samples collected during multiple campaigns, has improved the basis for estimation and supports the classification of the Mineral Resource.

Consequently, the new Mineral Resource Estimate is based on a more robust conceptual model, supported by a significantly larger validated dataset of:

- Chemical data with an addition of samples from 39 production wells and 20 pumping tests, and
- Lithological information from 340 locations (wells, piezometers).

To the QPs knowledge, there are no other known factors-such as environmental, permitting, legal title, taxation, socio-economic, or political issues-that could materially impact this Mineral Resource estimate, except as disclosed in this report. For details on relevant environmental and community activities, see Section 17.0.

12.0 MINERAL RESERVE ESTIMATE

12.1 BACKGROUND

Mineral Reserve classifications used in this section conform to the S-K regulations:

- **Mineral Reserve:** *a Mineral Reserve is an estimate of tonnage and grade or quality of Indicated and Measured Mineral Resources that, in the opinion of the qualified person, can be the basis of an economically viable project. More specifically, it is the economically mineable part of a Measured or Indicated Mineral Resource, which includes diluting materials and allowances for losses that may occur when the material is mined or extracted.*

- **Modifying Factors:** *modifying factors are the factors that a qualified person must apply to Indicated and Measured Mineral Resources and then evaluate in order to establish the economic viability of Mineral Reserves. A qualified person must apply and evaluate modifying factors to convert Measured and Indicated Mineral Resources to Proven and Probable Mineral Reserves. These factors include, but are not restricted to: Mining; processing; metallurgical; infrastructure; economic; marketing; legal; environmental compliance; plans, negotiations, or agreements with local individuals or groups; and governmental factors. The number, type and specific characteristics of the modifying factors applied will necessarily be a function of and depend upon the mineral, mine, property, or project.*

- **Probable Mineral Reserve:** *a Probable Mineral Reserve is the economically mineable part of an Indicated and, in some cases, a Measured Mineral Resource.*

- **Proven Mineral Reserve:** *A Proven Mineral Reserve is the economically mineable part of a Measured Mineral Resource and can only result from conversion of a Measured Mineral Resource.*

The mining method to be employed for the Project involves an extraction wellfield using production-scale wells for pumping brine from the aquifer in the Resource Evaluation Area. As such, the Mineral Reserve for the Project is identified based on the extraction wellfield unit and the Measured and Indicated Mineral Resources within the resource model (Section 11.0).

The division between Proven and Probable Mineral Reserves is based on: (1) sufficiently short duration of wellfield extraction to allow a higher degree of predictive confidence, yet long enough to enable significant production, and (2) a duration long enough to enable accumulation of a strong data record to allow subsequent conversion of Probable Mineral Reserves to Proven Mineral Reserves. Provided a detailed data record for monitoring wellfield operations and further updates to model calibration, the authors believe it will be possible to convert Probable Mineral Reserves to Proven Mineral Reserves on an ongoing basis.

12.2 OVERVIEW

This Mineral Reserve Estimate was developed using MODFLOW-USG (Panday et al., 2013), a control volume finite difference code, coupled with the Groundwater Vistas modeling interface (ESI, 2015). The MODFLOW-USG platform is publically available groundwater flow and transport code that is an industry standard for a wide variety of groundwater applications. It has been verified and validated in public forums and in professional publications by the United States Geological Survey (Panday et al., 2013). MODFLOW-USG software is an effective tool for salar modelling because it enables stable simulation of two challenging and critical salar processes: evaporative flux from the salar surface and lithium capture at production wells. This software was also used for the previous Mineral Reserve Estimate (Burga et al., 2025).

- The primary steps and considerations used to develop and apply the numerical groundwater model for the purposes of Mineral Reserve estimation were as follows:
- The calibrated MODFLOW model was developed to reliably simulate pumping from the production wellfield. Specifically, it was used to verify the feasibility to produce 40,000 tpa LCE from the Project Processing Plant until end of 2060). In other words, the target production considers processing losses.
- The MODFLOW model was used to simulate wellfield pumping, to estimate two primary feasibility parameters: lithium recovery and drawdown in production wells. A previous Mineral Reserve Estimate study by LAR (2012) concluded that rigorous consideration of variable density within the aquifer did not materially affect these two parameters. Consequently, variable-density flow and transport was not simulated in the previous and current numerical modelling analyses.
- The geology (HSUs), lithium distribution, Sy distribution and Mineral Resource classes were transferred directly into MODFLOW from the Leapfrog model described in Section 11.0. Some differences were incurred in this transfer, due to the differing size of the MODFLOW mesh. However, these differences were generally small.
- The lateral and vertical extents of the model were defined to coincide with the natural boundaries of the salar. The objective in defining the model domain was to position its boundaries sufficiently beyond the Resource Evaluation Area so that they would not significantly constrain the production wellfield simulations, while still maintaining the domain at a practical size for numerical modelling.
- Hydraulic and grade conditions were assigned along each boundary of the numerical groundwater model based on an evaluation of sub-watershed boundaries and interpreted surficial contacts alluvium and bedrock following the updated HSU model, as well as through the incorporation of a basin-wide water balance model of the entire basin (Sections 12.5 and 12.6).
- Hydraulic and transport properties were evaluated and assigned for each HSU in the model (Section 12.7). A 3-D lithium concentration field was imported directly into MODFLOW from the updated resource (Leapfrog) model (Section 11.0). In zones with no available data outside of the Resource Evaluation Area, initial lithium concentrations were conservatively set to 11 mg/l.
- Steady state (pre-development) calibration was conducted with spatially representative pre-development hydraulic head data. Transient calibration was conducted with head data from historic pumping tests, recent pumping tests, and recent production pumping.

- A conceptual well design was input to the model, based on the current and projected well construction details and production rates. The wellfield was simulated over the life of mine estimate of 40 years from the start of production. Well locations and production rates were adjusted as required, to maximize overall extraction (Section 12.10).
- To align with future expansions, the total brine pumped from the production wellfield through the end of 2060 is lower than the amount considered in previous Reserve estimations. Therefore, the Stage I Reserve estimate is consistent with the planned Stage 2 expansion. Ongoing dynamic modelling work to scale the project beyond 80 ktpa LCE, including the introduction of DLE technology with higher recovery efficiencies, will further support the Stage 2 expansion.
- The wellfield was simulated with the MODFLOW Well Package, forming the basis. of the Mineral Reserve Estimate. Extracted concentrations represent a composite value that is weighted by the transmissivity of each model layer. The simulated wells are assumed to be 100 percent efficient.
- The Mineral Reserve Estimate has been conservatively modeled and stated as a Proven Mineral Reserve from the start of Year 1 through to the end of Year 10. These years are relative to the Effective Date of this Estimate (that is, from 2026 to 2035). It is stated as a Probable Mineral Reserve from the start of Year 11 to the end of the forecasted production period (2060)

12.3 CONCEPTUAL MODEL

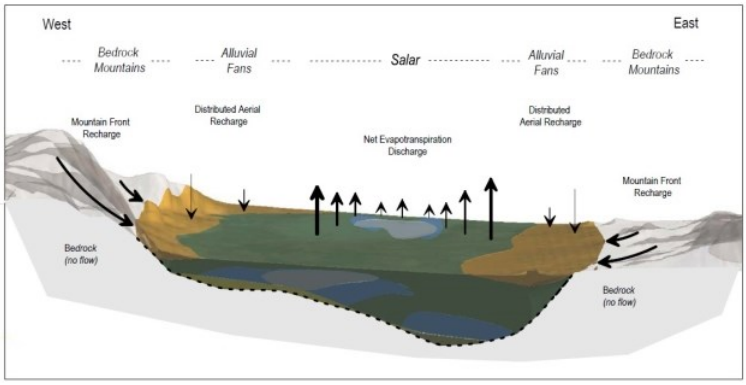
Exar has advised the authors that it is unaware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, or political factors, that may materially affect the Mineral Reserve Estimate contained in this Report

The conceptual model of recharge and discharge for a closed-basin, salar watershed is shown in Figure 12.1. As shown, groundwater is recharged by precipitation in upland mountainous areas and directly to the salar. Under natural conditions, 100% of discharge occurs through evapotranspiration, primarily on the margins of the salar where the water table may be at or near the surface, but also in the more central zones.

Groundwater inflow from upland areas to the salar occurs at the margins of the salar and moves towards the centre of the salar, while simultaneously undergoing evapotranspiration. Consequently, inflowing water is relatively fresh as it enters the salar and its salinity increases with movement towards the centre. The evapotranspiration rate is highest in the salar margins, where the water table is closest to the surface and the water is relatively fresh (freshwater evaporates more quickly). The rate decreases towards the centre of the salar.

Groundwater flow in the salar is influenced by standard hydraulic gradients caused by recharge in elevated areas and discharge (due to evaporation) in lower areas. It is also influenced by density gradients, whereby freshwater entering the salar tends to flow on top of the higher density brine that has accumulated within the salar.

FIGURE 12.1 CONCEPTUAL MODEL AND MODEL BOUNDARY CONDITIONS



Source: Burga et al. (2020)

12.4 NUMERICAL MODEL CONSTRUCTION

The model domain is shown in Figure 12.2. It covers an area of about 1,410.5 square kilometres and encompasses the sedimentary and evaporite deposits comprising Cauchari-Olaroz area. The model domain (Figure 12.3) was designed with the following features, to represent the Conceptual Model and to enable Mineral Reserve estimation:

- It includes the Mineral Resource estimation area.
- It is large enough to minimize influence of applied boundary conditions on production well simulations. and
- The base of the model domain was set at the top of bedrock basin in which the salar sediments were deposited.
- It enables freshwater inflow from drainage sub-basins that surround the salars.
- It promotes discharge from the basin via evaporation from the moist salar surfaces.
- It promotes groundwater movement is from the margins of the salars, where mountain front recharge enters the model domain as groundwater underflow, toward the center of the salar.

Precipitation recharge is generally applied to the model surface outside evaporative zones (consistent with Figure 12.1).

The boundaries of a numerical model also represent the conditions defined in the Conceptual Model, and are as follows:

- **Western Boundary:** Cenozoic volcanic units form a high-relief hydrogeological divide, limiting groundwater flow toward the salar.
- **Eastern Boundary:** Topographic highs form a regional hydraulic divide, restricting lateral inflow from eastern basins.
- **Southern Boundary:** Elevated structures create a partially closed boundary, limiting groundwater exchange to the south.
- **Northern Boundary:** Ignimbritic plateaus form a topographic and hydrogeological divide, restricting flow toward the Salar de Olaroz.

The model domain encompasses the sedimentary and evaporite deposits comprising Cauchari-Olaroz area. The extent of the model domain, which covers an area of about 1,410.5 square kilometres, is shown on Figure 12.1.

12.5 NUMERICAL MODEL MESH

The horizontal discretization of the domain was initially defined with a grid of 800 × 800 m cells, with progressive refinement applied in the area where the wells used in the long-term pumping tests and production are located. In this area, the cell size was reduced to 100 × 100 m to improve local hydraulic resolution.

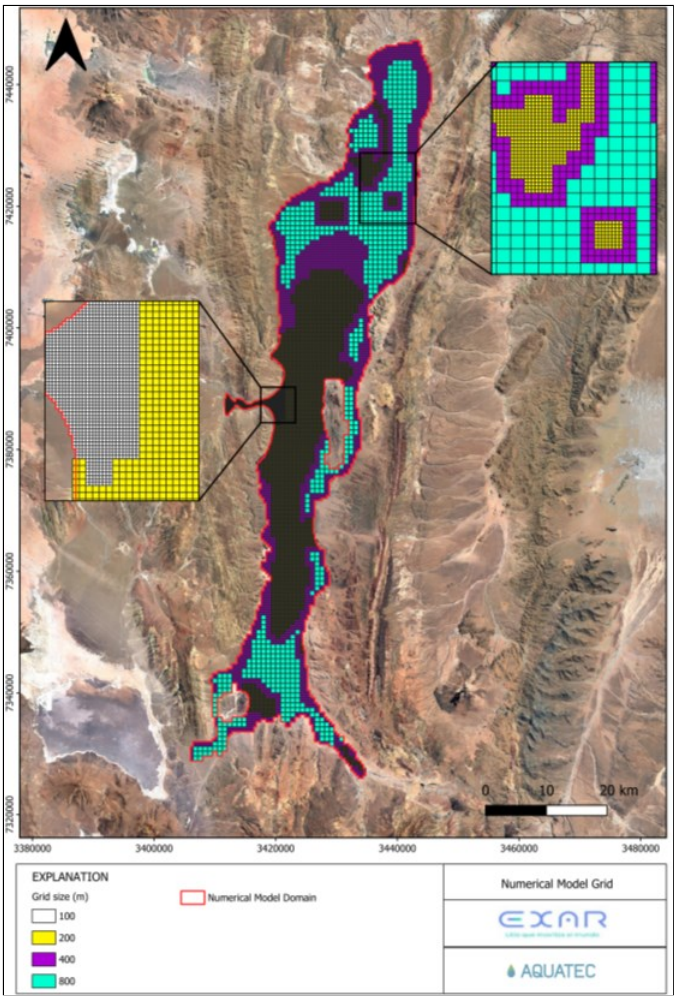
Refinement was implemented using the MODFLOW USG Quadtree Refinement scheme, which allows smaller cell sizes in zones of interest, avoiding excessive subdivision of the rest of the domain. This made it possible to maintain a reduced number of elements in the model, optimizing computational efficiency (Figure 12.2).

As a result, the domain is divided into a total of 173,124 cells, with 152 rows and 55 columns, of which 83,752 are active cells.

The vertical discretization of the model was established based on the geological interpretation developed in Leapfrog, where six Hydrostratigraphic Units (HSUs) were defined. These units were represented in the numerical model using six vertical layers (Figure 12.3). To accurately simulate lithium transport, vertical refinement was also applied, dividing each HSU into six vertical elements.

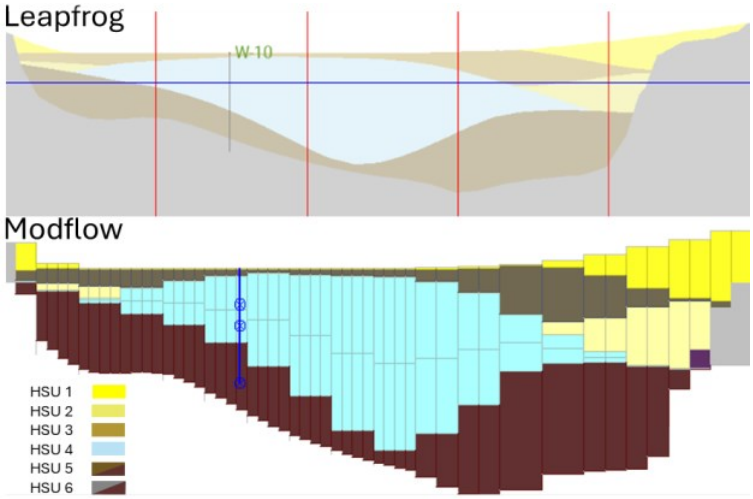
The vertical discretization of the model was established based on the geological interpretation developed in Leapfrog, where six Hydrogeological Units were defined. These units were represented in the numerical model using six vertical layers, as illustrated in (figure 15.4). To correctly simulate lithium transport, vertical refinement was applied, dividing each hydrogeological unit into six vertical elements.

Figure 12.2 Numerical Model Grid with Inactive Cells



Source: Aquatec (2025)

Figure 12.3 Vertical Discretization of the Geological Model in Leapfrog (top) Versus the Numerical Flow Model in GWV (bottom)



Source: Aquatec (2025)

12.6 NUMERICAL MODEL BOUNDARY CONDITIONS

12.6.1 Overview

Numerical boundary conditions were applied to simulate groundwater flow conditions in the Conceptual Model, namely:

- No-flow boundaries were assigned to inactive areas of the model where groundwater inflow is not expected to occur.
- Lateral recharge from upland areas through runoff and subsurface flow were simulated using a prescribed flux (Neumann) boundary condition.
- Outflows due to pumping were also represent with a prescribed flux (Neumann) boundary condition.
- Direct recharge to the top surface of the salar was represented using an areal flux boundary condition, distributed over the surface of the target area.

- Lagoons and surface channels were simulated with a mixed (Cauchy) boundary condition, allowing dynamic interaction between surface water and the underlying aquifer.
- To simulate the hydraulic behavior of lagoons and surface channels, a mixed (Cauchy) boundary condition was employed, allowing dynamic interaction between surface water and the aquifer

12.6.2 Zero flow

Zero-flow (Neumann, Q = 0) boundaries were applied to the base of the model (equivalent to base of the salar) and lateral edges where no active groundwater occurs. These locations are represented as inactive cells to confine flow within the basin. The model base corresponds to impermeable bedrock, as supported by geophysical and exploratory well data

The lateral boundaries of all model layers, except the top one, are assigned zero-flow boundary conditions, assuming that lateral hydraulic connection with the aquifer occurs primarily through the shallow detritic layer.

12.6.3 Recharge

Direct recharge from precipitation and lateral recharge from runoff and percolation were distinguished based on the eight sub-basins that feed the system (Figure 12.4).

- **Direct recharge** is assigned to the upper surface, to represent percolation of precipitation and/or surface water. The assigned values are applied in five distinct zones: two directly associated with the salar, and the remaining three associated with rivers located throughout the numerical model domain, as shown in Figure 12.4.
- **Lateral recharge** represents contributions from upland runoff and recharge that enters the salar. In the model, this recharge is located along the edges of the domain, corresponding to the interface with each representative sub-basin.

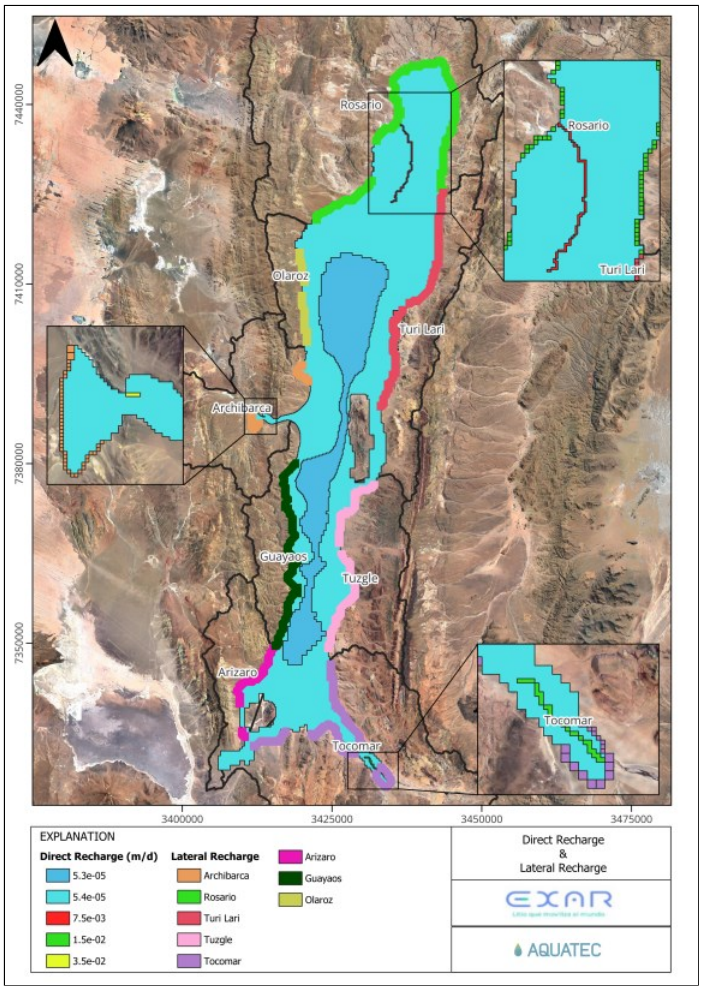
To represent lateral recharge, a prescribed flux boundary condition is applied, with a specific number of wells assigned to each zone according to the length of the boundary through which each sub-basin discharges.

Table 12.1 presents the different lateral recharge zones, the number of wells assigned, and the model layers in which the inflow is applied for each sub-basin in the numerical model. The spatial distribution of this recharge is shown in Figure 12.4.

Table 12.1
Summary of Mountain Front Recharge

Sub-basin	Recharge (L/s)
Sub-basin 0	356.46
Archibarca	248.50
Arizado	51.80
Guayaos	78.48
Olaroz	84.01
Rosario	1,182.75
Tocomar	423,19
Turi-Lari	215.78
Total	**2,640.97**

Figure 12.4 Direct and Lateral Precipitation Recharge Zone in the Numerical Model



Source: Aquatec (2025)

12.6.4 Evaporation

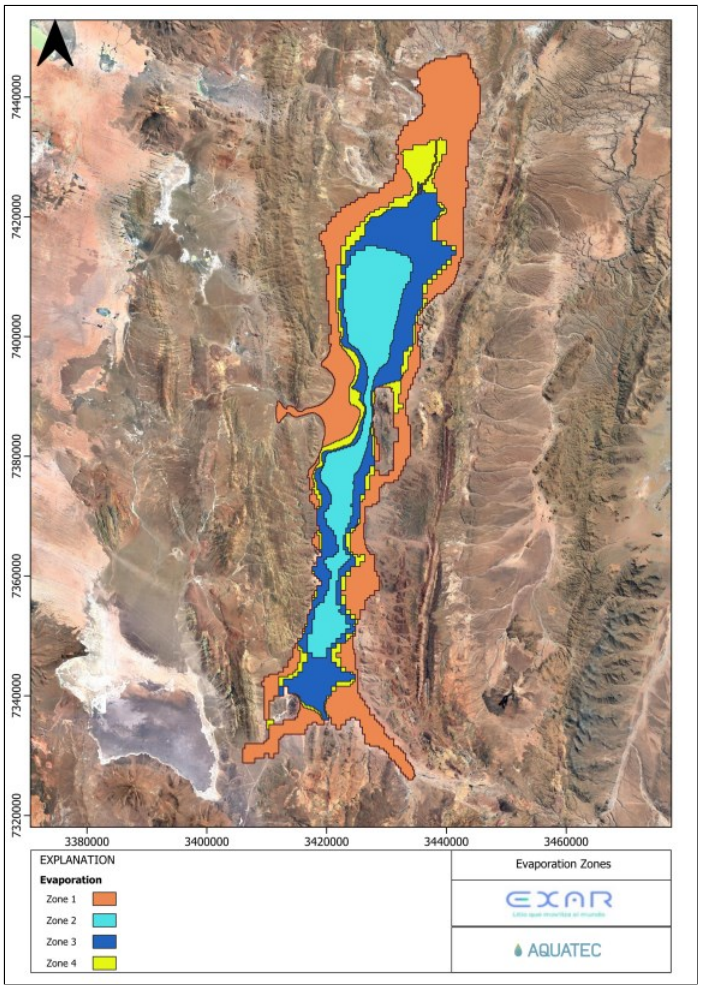
Four distinct evaporation zones were defined in the numerical model (see Figure 12.5). The model also accounts for the variation of evaporation with the depth of the water table. Evaporation curves were defined using a specified number of specific segments. The number of segments, the maximum surface evaporation rate, and the maximum depth to which evaporation acts (extinction depth) constitute the input data required by the numerical model.

Specifically, five segments were defined for each evaporation curve. Table 12.2 presents the points defining each segment, along with the normalized points based on extinction depth and evaporation rate, necessary to define the evaporation curve within the numerical model. The evaporation zones are shown in Figure 12.5.

Table 12.2
Definition Points for the Numerical Model Segments

Zone	ET Rate (m/d)	Extinction Depth (m)
1	0.0000	0.00
2	0.0022	1.50
3	0.0049	1.65
4	0.0060	1.40

Figure 12.5 Distribution of Evaporation Zones in the Numerical Model



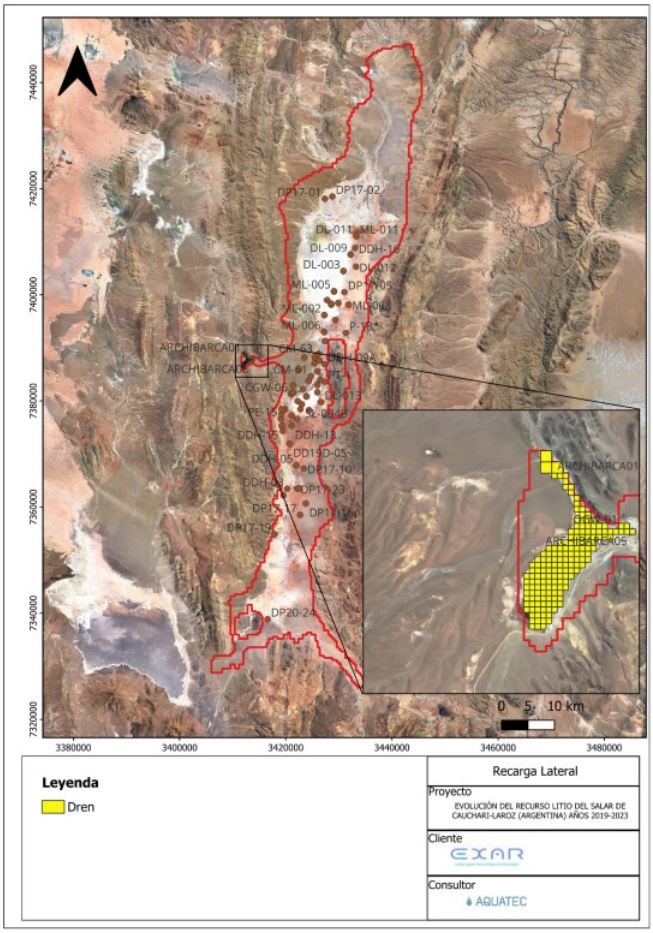
Source: Aquatec (2025)

12.6.5 Archibarca Zone

Along the salar side of the Archibarca Fan, a series of lagoons are intermittently present, corresponding to the zone of freshwater discharge from the fan to the near-surface of the salar. Accordingly, they are represented in the model as with a non-linear mixed (drain) boundary condition, which allows discharge to the lagoons. Figure 12.6 shows the location of cells where the drain boundary condition was applied.

The prescribed drain head varies spatially and was set 0.25 m below the topographic elevation. A drain conductance value of CD = 500 m²/d was assigned.

Figure 12.6 Cells Defined with a Drain Boundary Condition to Represent the Saline Interface and Lagoon Outcrop Zone



Source: Aquatec (2025)

12.7 HYDRAULIC PROPERTIES

Hydraulic properties represented in the model include hydraulic conductivity in the three cardinal directions (Kx, Ky, and Kz), specific storage (Ss), and specific yield (Sy). Initial values used in the numerical model were those obtained from field test, previous numerical models, and published literature values for similar salar materials. Values were further adjusted through the calibration process. The final assigned values are shown in Table 12.3. A brief summary of the hydraulic and transport property values is provided below.

- **Hydraulic Conductivity** - The hydraulic conductivity (K) distribution used in the model was determined by (i) analysis of available pumping test data in the screened HSUs and (ii) calibration of the model in steady-state and transient modes. Without evidence of horizontal anisotropy from testing results, Kx is assigned to be equal to Ky. For reporting purposes horizontal hydraulic conductivity is termed radial hydraulic conductivity (Kr). Vertical anisotropy was evident from analysis of certain testing results. Where anisotropy was incorporated, values are based on results from pumping tests and literature estimates for similar materials. Sections showing representative K distributions in the model are provided in Figure 12.7.

- **Specific Storage** - The range of specific storage assigned in the model are based on results from pumping tests in addition to literature estimates. The lower end of the range is near the compressibility of water, which indicates a rigid, low porosity material with small compressibility of the rock mass. The upper end of the range is indicative of higher porosity and larger compressibility.

- **Specific Yield and Effective Porosity** - Assigned values of Specific Yield correspond to the Leapfrog model (Section 11.0). These values are based on laboratory analyses of core samples. Effective Porosity is assumed to be equivalent to Specific Yield and varies spatially based on the distribution of HSUs.

- **Dispersion** - For modeling the transport of dissolved lithium in brine, assigned values of dispersivity correspond to 100 m for longitudinal dispersivity and 10 m for transverse dispersivity. These are standard values for large scale flow systems. Molecular diffusion was not included in the model because it has a negligible effect in large-scale regional models with evenly distributed solutes.

Table 12.3
Summary of Assigned Aquifer Parameter Estimates

Hydrostratigraphic Unit	Horizontal Hydraulic Conductivity (Kr) (m/d)		Ratio Vertical to Horizontal K (Kz/Kr)	Specific Storage (1/m)	Specific Yield and Effective Porosity (%)
	Minimum	Maximum			
HSU 1 - Upper Proximal Alluvial	4.12*	109	0.11 to 0.78	1.2E-4	0.1996
HSU2-Intermediate Alluvial	0.53	13.6	0.11 to 0.78	1.0E-05	0.0889
HSU 3 - Upper Distal Alluvial	1.39	17.62	0.11 to 0.78	6.9E-05	0.1535

Table 12.3
Summary of Assigned Aquifer Parameter Estimates

Hydrostratigraphic Unit	Horizontal Hydraulic Conductivity (Kr) (m/d)		Ratio Vertical to Horizontal K (Kz/Kr)	Specific Storage (1/m)	Specific Yield and Effective Porosity (%)
	Minimum	Maximum			
HSU 4 - Evaporite-Alluvial Interbedded Unit	0.24	7.41	0.11 to 0.78	1.2E-05	0.0644
HSU 5 - Lower Alluvial fan	0.24	4.5	0.11 to 0.78	1.2E-05	0.137

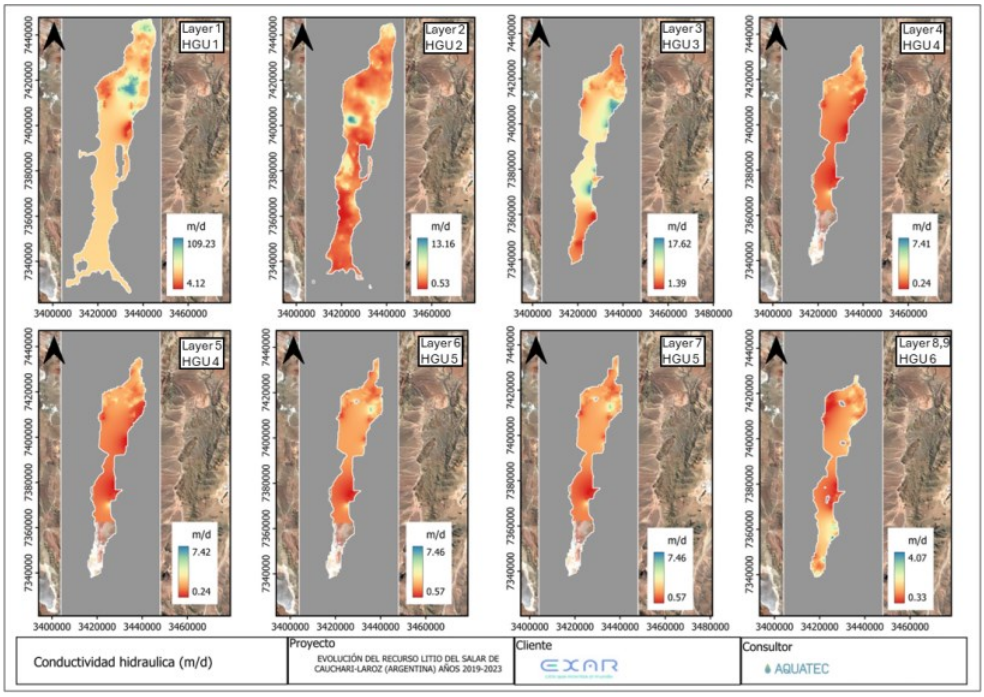
The background data for hydraulic parameters included a total of 206 pumping tests conducted in the Cauchari-Olaroz basin. A subset of the most relevant tests was selected to initially populate the model based on: the screened unit in each pumping well, well depth and location, the year the test was performed, and test duration. Through this process, 31 constant-rate pumping tests were selected, which included 31 production wells and 61 observation wells. Hydraulic parameters obtained through these tests were analyzed and validated and were then used to initially populate the model (i.e., before further adjustment through calibration).

Final hydraulic parameter values were obtained through automatic calibration using pilot points with PEST, a parameter optimization module within MODFLOW. Figure 12.7, shows the final distribution of hydraulic conductivity, and the following trends are noted:

- The upper alluvium (HSU1) has the highest hydraulic conductivity, ranging from 4 to 109 m/d, with maximum values located in the northern Olaroz area.
- HSU2 and HSU3, corresponding to the intermediate and upper distal alluvium, have hydraulic conductivity values ranging from 1 to 17 m/d.
- HSU4 exhibit values between 0.25 and 7.5 m/d, with minimum values primarily located in the central part of the basin.
- The lower alluvium (HSU5) shows hydraulic conductivity values ranging from 0.25 to 4.5 m/d, with the lowest values observed in the northeastern Olaroz area and the center of Cauchari.

For Sy and Ss (Table 12.3) the model has been calibrated assuming uniform values for each HSU. The values of Sy are the same as those used in the Mineral Resource Evaluation. In the case of Ss, the values were calibrated using PEST.

Figure 12.7 Hydraulic Conductivity (m/d) for Each Model Layer



Source: Aquatec (2025)

12.8 PRE-DEVELOPMENT MODEL CONDITIONS

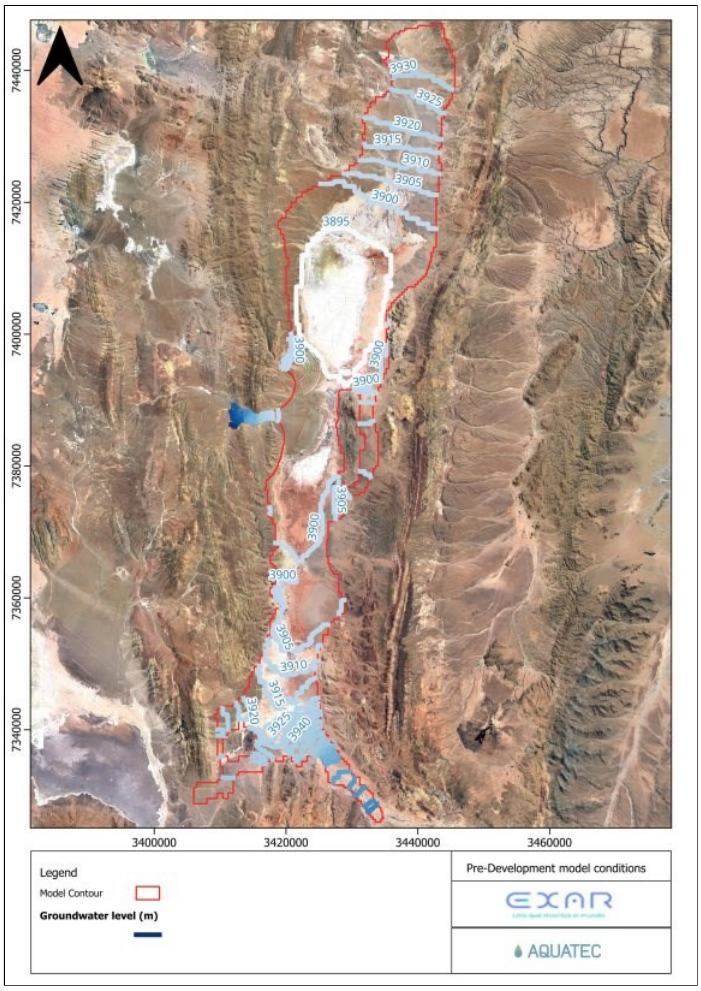
The pre-development groundwater system in the salar was considered to be in equilibrium, where long term groundwater inflows are equal to groundwater outflows, with small changes in storage from year to year. The pre-development model was calibrated to "steady state" groundwater levels measured at 89 groundwater level monitoring locations in the basin representing 2013 conditions (prior to August 2013 when SDJ began operating) . The steady-state calibration relied on composite water levels from these wells. The potentiometric surface represented by the water levels shows groundwater flow directions consistent with the basin Conceptual Model (Figure 12.8).

Aquifer parameters for pre-development model calibration were varied to achieve an acceptable calibration. The simulated groundwater levels are considered to reasonably match pre-development conditions. A mean error of 1.06 m (RMS of 2.6%) was determined for the solution. The minimum, maximum and average residual (observed minus simulated groundwater elevation) is of 0, 8.5 and 2.4 m, respectively.

Figure 12.9 shows the spatial distribution of the residuals. Residuals lower than 4 meters are distributed through all the modelled surfaces. Higher residuals (up to 9 meters) are observed in the central area of the salar. The calibration points with the highest residuals correspond to deep piezometers, indicating lower vertical connectivity in some areas than indicated by field measurements. For example, PB-03, with a residual of -6 meters, is located below piezometer PF-03A, which has a residual of 0.2 m. This is generally considered a source of conservativism in the model since drawdown will tend to be felt more strongly in the upper layers.

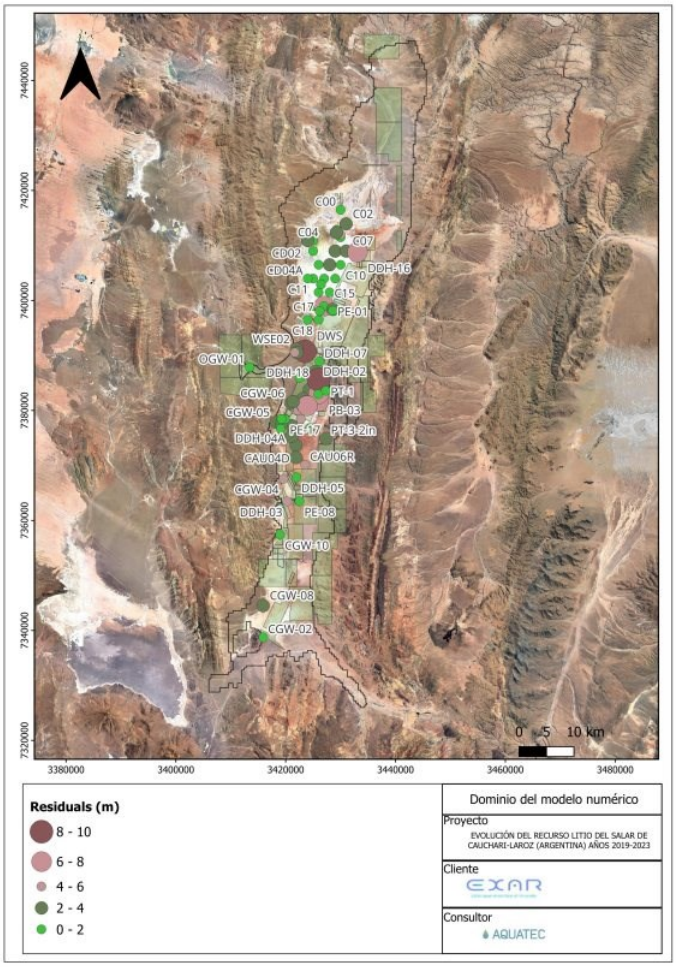
Given these statistics, it was concluded that the steady-state distribution of heads could be reasonably used as the initial condition for predictive (future) model simulations.

Figure 12.8 Piezometric Surface of the Pre-Development Model



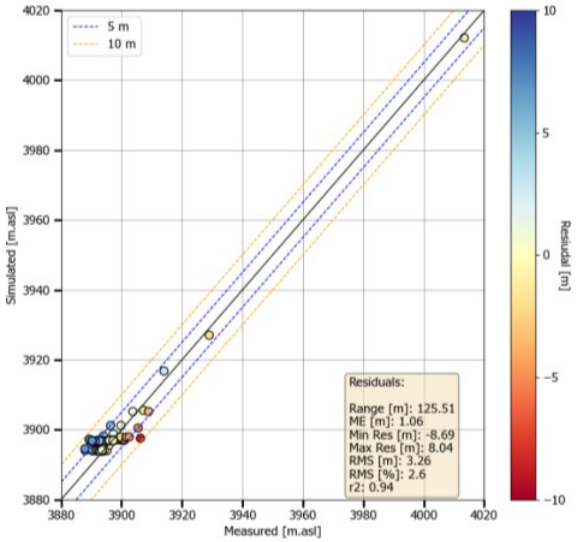
Source: Aquatec (2025)

Figure 12.9 Distribution of the Residuals



Source: Aquatec (2025)

Figure 12.10 Observed Versus Calculated Residuals with Calibration Statistics for the Pre-development Model



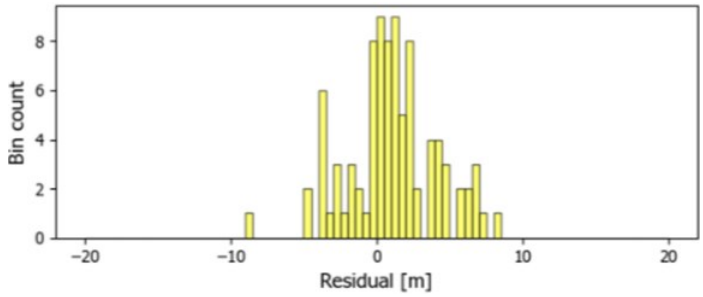
Source: Aquatec (2025)

The pre-development water budget for the model is provided in Table 12.4. The results show an acceptable error of 0.01 percent. Figure 12.11 shows the residuals histogram of the steady-state calibration, with results showing a relatively symmetric distribution centered around zero. This indicates that low residuals predominate with no systematic bias.

Table 12.4
Summary of Model Boundary Fluxes

Water Balance Component	Modeled Flux (L/s)
Mountain Front Recharge	2,180.5
Areal Recharge	907.88
Evaporation	2908.86
Error	0.3
% Error	0.01%

Figure 12.11 Head Residuals Histogram

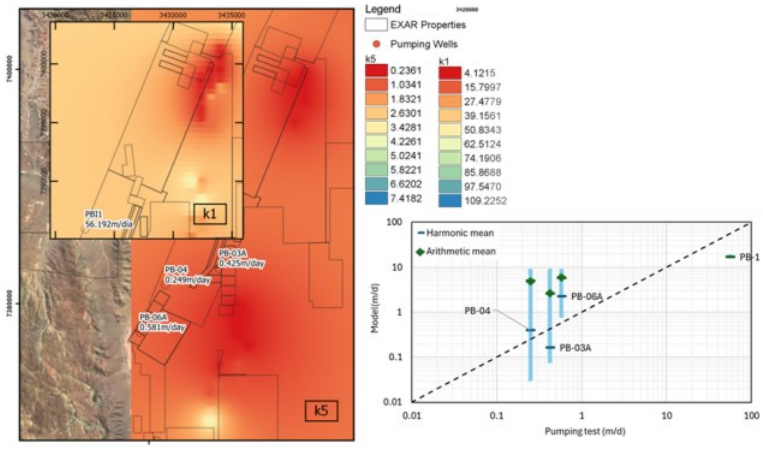


Source: Aquatec (2025)

12.9 TRANSIENT MODEL CALIBRATION

As a starting point for the transient model calibration, a comparison has been made between the results from four (4) pumping tests conducted at different wells in the Cauchari sector and results from the steady state (pre-development) model. As shown in Figure 12.12, there is a good correspondence between the two sources of permeability estimates (the pumping test and the model calibration). Figure 12.12 also shows a comparison between the hydraulic conductivity obtained from pumping tests and from the steady state model. Note that values obtained from the pumping test match the harmonic mean of the permeabilities of the layers intersected by the wells. Appendix 1 includes a summary of all the pumping test information that has been included as a basis in the model prior to the numerical calibration.

Figure 12.12 Hydraulic Conductivity Comparison Between the Pumping Test Analysis and the Model Calibrated Parameters



Source: Aquatec (2025)

Operation of the production wells since 2013 can be considered as a period of very long and highly relevant pumping tests, conducted in the most important zones of project. Consequently, the hydraulic monitoring (and brine chemistry sampling) conducted during this period was considered to take precedence over previous testing and was prioritized for transient calibration.

For the transient calibration, 215 observation wells were initially considered as calibration targets. Groundwater level trends were reviewed to ensure consistency with the assigned HSU, excluding or reassigning wells where screened intervals crossed multiple units. These criteria were mainly applied in data-dense areas; in areas with few monitoring wells, the original dataset was retained.

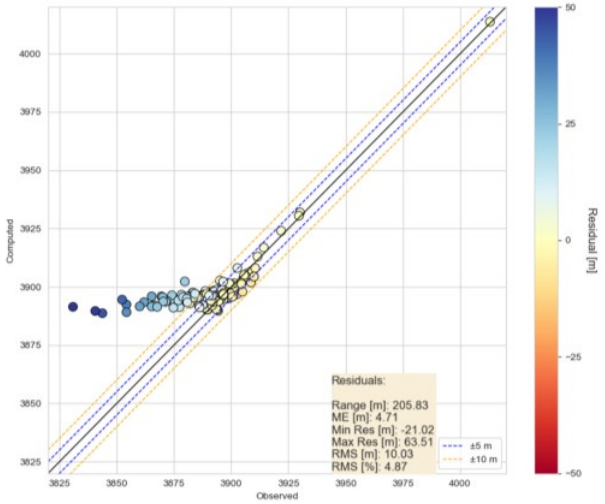
The final dataset maintains spatial and vertical coverage that was considered adequate while minimizing redundancy and noise. Calibration covers the ten-year operational period from August 2013 to December 2023.

The simulation of water levels observed in the 215 wells is shown in Figure 12.13. This figure illustrates the comparison between the observed piezometric levels and the simulated levels in a pseudo-steady state for these wells. In this graph, the 1:1 line represents a perfect fit (where both levels are equal). Results show an RMS of 4.87%, an average residual value of around 4.71 meters (Figure 12.15 and Figure 12.14). As an example, Figure 12.15 and Figure 12.14 shows the calibration and residuals for measurements taken in October 2023 (After 10 years of simulation). Most of the points show a good agreement with residuals lower than 10 meters. Higher residuals are observed in six piezometers measuring the intermediate layers of the aquifer located in the Olaroz Basin (Figure 12.15 and Figure 12.14). Piezometers with highest residuals are located in areas surrounded by production wells. The high residuals in those points can be caused by:

- The temporal discretization that doesn't allow to capture daily changes in the pumping wells.
- Presence of local zones with low or high permeability, or aquitards not included in the model, that may create hydraulic connections between the piezometers and the head changes induced by pumping.

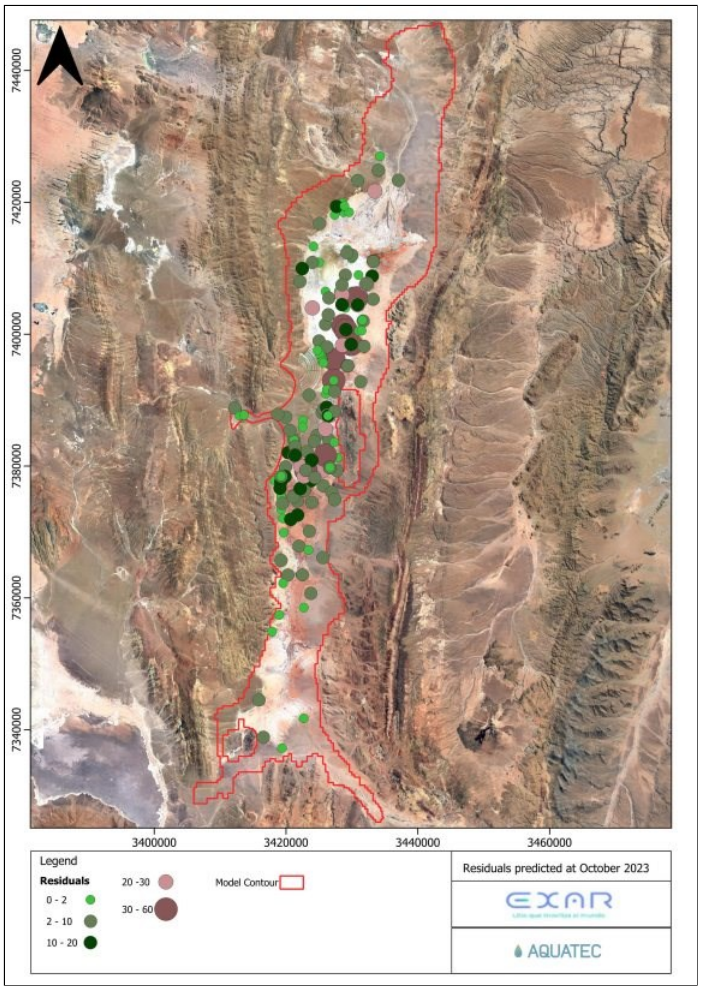
These aspects should be further evaluated in future model updates as the project proceeds.

Figure 12.13 Observed Versus Calculated Piezometric Levels for the Transient Model at October 2023



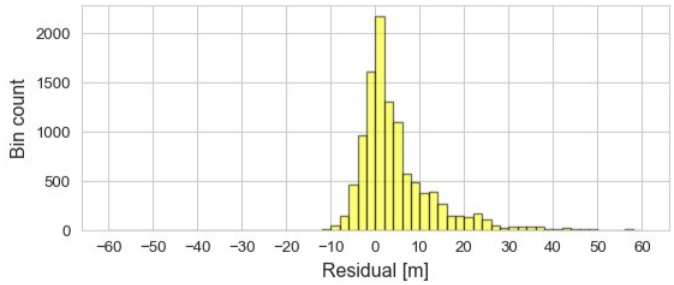
Source: Aquatec (2025)

Figure 12.14 Distribution of the Residuals for October 2023



Source: Aquatec (2025)

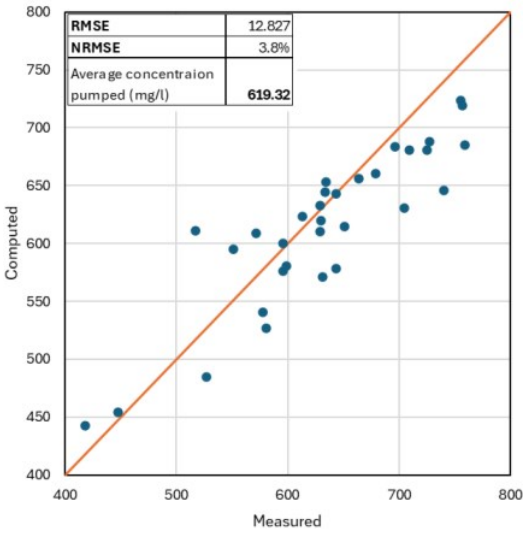
Figure 12.15 Head Residuals Histogram



Source: Aquatec (2025)

After transient model calibration to the hydraulic data, the model was further verified by comparing simulated lithium grades (from production wells) to simulated values for the same wells. Results are shown in Figure 12.16 and are considered to be in reasonable agreement, for the purposes of using the model as a predictive tool for the Mineral Reserve Estimate. As shown, the model tends to be slightly conservative in grade prediction, in that underestimate the grades from the production wells.

FIGURE 12.16 AVERAGE LITHIUM GRADES FROM PRODUCTION WELLS PRODUCTION WELLS (2018-2025)



Source: Aquatec (2025)

12.10 2026 MINERAL RESERVE ESTIMATE MODEL RESULTS

After calibration and verification, the model was used to predict production of LCE for the 40-year operational period (2018-2058). A series of simulations were conducted to determine effective pumping rates and durations for each simulated production well. The simulated wellfield consists of 39 wells, and the layout is shown on Figure 12.17. The operational constraints for this procedure were as follows:

- To achieve a target project production rate of at least 40,000 tpa LCE, after processing losses are considered;
- To maintain a minimum average lithium grade of 540 mg/L, in produced brine during the production period;
- To limit total brine production to the maximum concessioned volume;
- To distribute brine production in a relatively uniform manner among the 39 wells: and
- Not to affect the free water bodies located at north and South of the Salar.

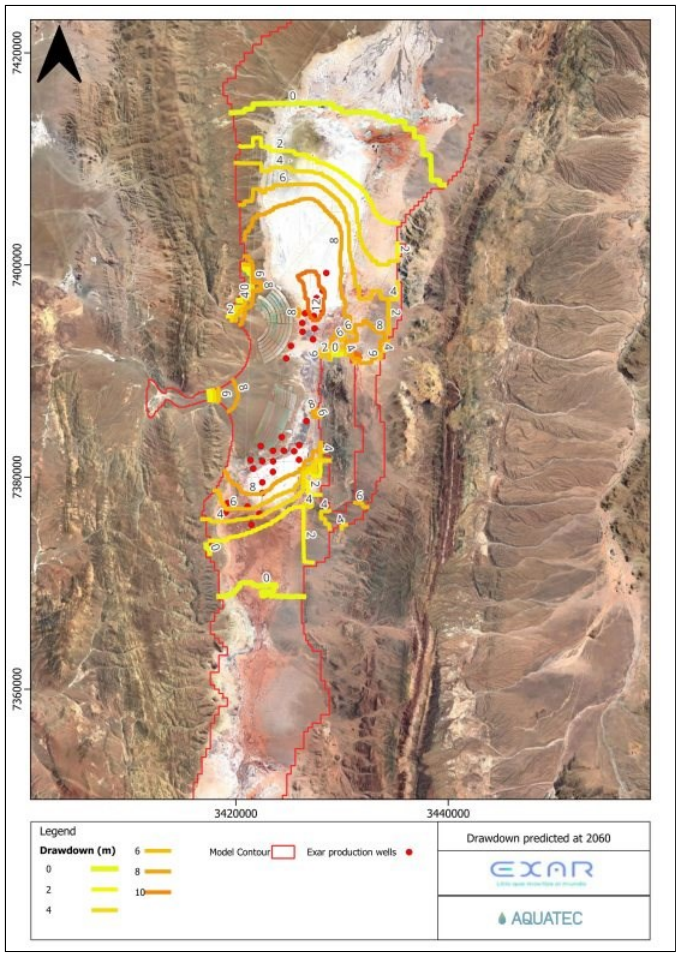
Figure 12.17 shows the surface drawdown predicted by the model for the year 2060. The figure indicates that pumping from the wells produces local drawdowns of up to 10 meters in the central area of the Olaroz salar. However, the drawdown is confined to the central zone and does not affect the alluvial areas located along the margins of the salar, particularly to the north and south.

Figure 12.14 shows the total LCE mass and brine volume pumped. The figure includes a target line representing the total LCE recovery required at the wellhead to achieve the process production target of 40,000 t LCE. This relationship is based on a processing efficiency of 63%, as provided by EXAR. The model results support the technical feasibility of this production rate over the 40-year production period.

Annual projections are shown in Figure 12.19 and listed in Table 12.5 for wellfield brine production rate, lithium grades, lithium recovered at the wellhead, and LCE produced after processing losses. The modeling results show that during the 35-year simulated pumping period, a component of brine dilution is predicted occur, resulting in grade reduction over time (Figure 12.18). To compensate for the decline, and to maintain consistent recovery of lithium mass, a corresponding increase in brine pumping rate was implemented.

Lithium grades and drawdown results represent composite values which are weighted by the amount of simulated extraction from each model layer, in accordance with the transmissivity of the screened HSUs.

Figure 12.17 Maximum Drawdown Predicted at the Upper Part of the Aquifer for Year 2060



Source: Aquatec (2025)

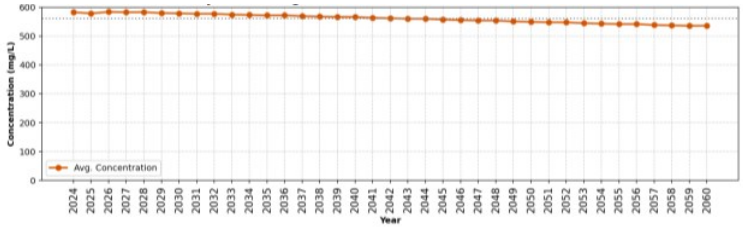
Table 12.5
Projected Annual Results from 2026 Mineral Reserve Estimate Model

Wellfield Operation Year	Total Wellfield Delivery Rate (L/s)	Lithium		LCE	
		Average Wellfield Concentration (mg/L)	Total Wellfield Delivery Mass (tonnes)	Total Unprocessed Mass (t)	Total Processed Mass (t)
2026	652.9	590.4	12,015	63,956	40,292
2027	652.9	591.7	11,990	63,824	40,209
2028	652.9	590.8	11,996	63,856	40,229
2029	652.7	589.9	11,933	63,520	40,018
2030	653.0	589.0	11,912	63,405	39,945
2031	655.0	588.0	11,921	63,455	39,977
2032	656.5	587.1	11,953	63,623	40,083
2033	657.9	586.2	11,918	63,439	39,967
2034	661.2	585.3	11,948	63,600	40,068
2035	663.2	584.4	11,957	63,648	40,098
2036	664.8	583.4	11,989	63,815	40,204
2037	666.4	582.5	11,956	63,643	40,095
2038	669.9	581.6	11,990	63,820	40,207
2039	672.3	580.7	12,001	63,879	40,244
2040	674.0	579.7	12,033	64,051	40,352
2041	675.7	578.8	11,999	63,870	40,238
2042	679.2	577.9	12,029	64,030	40,339
2043	681.5	576.8	12,037	64,071	40,365
2044	683.3	575.9	12,067	64,233	40,467
2045	685.1	575.0	12,032	64,046	40,349
2046	688.8	573.9	12,063	64,210	40,452
2047	691.3	573.0	12,073	64,263	40,485
2048	693.3	572.1	12,106	64,439	40,597
2049	695.3	571.1	12,074	64,270	40,490
2050	699.2	570.2	12,108	64,452	40,605
2051	701.8	569.3	12,120	64,516	40,645
2052	703.8	568.4	12,154	64,698	40,760
2053	705.8	567.5	12,122	64,524	40,650
2054	709.8	566.5	12,155	64,700	40,761
2055	712.5	565.6	12,166	64,758	40,798
2056	714.5	564.7	12,199	64,936	40,909
2057	716.6	563.7	12,166	64,758	40,798
2058	720.6	562.8	12,200	64,942	40,914
2059	723.4	562.0	12,215	65,023	40,964

Table 12.5
Projected Annual Results from 2026 Mineral Reserve Estimate Model

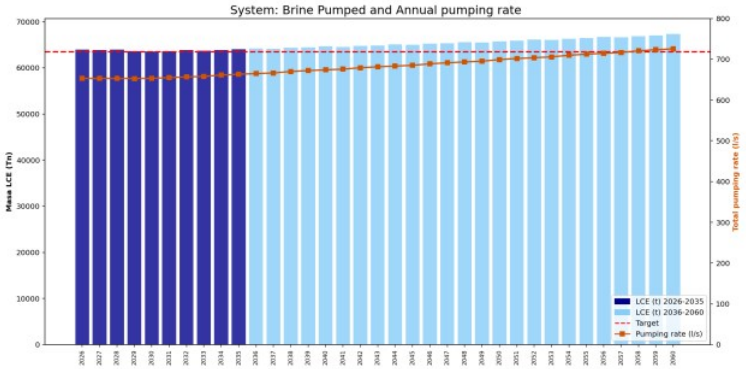
Wellfield Operation Year	Total Wellfield Delivery Rate (L/s)	Lithium		LCE	
		Average Wellfield Concentration (mg/L)	Total Wellfield Delivery Mass (tonnes)	Total Unprocessed Mass (t)	Total Processed Mass (t)
2060	725.5	561.3	12,259	65,253	41,109
Average	**680.7**	**577.7**	**12041.8**	**64098.5**	**40,419**

Figure 12.18 Temporal Evolution of the Averaged Lithium Concentration Extracted from the Wellfield



Source: Aquatec (2025)

Figure 12.19 Annual Total LCE Production from the Wellfield



Source: Aquatec (2025)

12.11 STATEMENT FOR LITHIUM MINERAL RESERVE ESTIMATE

The numerical model was used to estimate lithium production at the wellhead, for the remainder of the 40-year life-of-mine plan (35 years). The Mineral Reserve Estimate is summarized in Table 12.6. It is noted that the 40-year production period started in 2018 and that lithium produced to date is excluded from the Mineral Reserve Estimate. In other words, the Mineral Reserve Estimate only includes lithium that will be produced from the Effective Date of the Estimate (January 1, 2026) to the end of the production period (2060; a period of 25 years) The Mineral Reserve Estimate is inclusive of the reported Mineral Resource Estimate (Table 12.6).

TABLE 12.6
SUMMARY OF 2026 MINERAL RESERVE ESTIMATE (1-13)

Mineral Reserve Classification	Production Period (Years)	Brine Pumped (m^3)	Average Lithium Concentration (mg/L)	Lithium Metal (t)	LCE (t)	LCE LAR's 44.8% Portion (t)
Proven	2026 - 2035 (0 to 10 yr)	227,782,565	588.26	75,315	400,886	179,597
Probable	2036 - 2060 (11 to 35)	526,320,091	572.18	190,463	1,013,796	454,181
Total	**35 years**	**754,102,655**	**580**	**265,779**	**1,414,682**	**633,778**

Notes:
1. S-K 1300 definitions were followed for Mineral Resources and Mineral Reserves.
2. The Mineral Reserve Estimate has an effective date of December 31, 2025.
3. Reserves are estimated using 63.0 % of process efficiency.
4. Lithium carbonate equivalent ("LCE") is calculated using mass of LCE = 5.322785 multiplied by the mass of Lithium Metal.
5. The values in the columns for "Lithium Metal" and "LCE" above are expressed as total contained metals.
6. The Production Period is inclusive of the start of Year 0, 2026.
7. The average lithium concentration is weighted by per well simulated extraction rates.
8. Values may not sum exactly, due to rounding of numbers and the differences caused by use of averaging methods.
9. The commodity price of $18,000 / tonne for lithium carbonate (2025) for the life of the project was used to assess the economic viability for the mineral estimates, as described below.
10. A lithium grade cutoff of 300 mg/L is used to define the Mineral Reserve Estimate.
11. The independent Qualified Person for the 2026 Mineral Resource Estimate is Mark King, PhD. PGeo, FGC.
12. The estimate of Mineral Reserves may be materially affected by legal, political, environmental, or other risks.
13. The point of reference is brine pumped from the wellfield to the evaporation ponds.

The Measured and Indicated Mineral Resources (Section 11.3) correspond to the total amount of lithium-enriched brine estimated to be available within the aquifer while the Proven and Probable Mineral Reserves represent a portion of the Mineral Resource Estimate that can be extracted under the proposed pumping schedule and wellfield configuration. Therefore, the Mineral Reserve Estimate is not "in addition" to the Mineral Resource Estimate rather, it represents a portion of the total Mineral Resource that is extracted during the life of mine plan.

The authors consider that the Mineral Reserve Estimate has been conservatively modeled and represents the following, relative to the Effective Date of the Estimate (January 1, 2026):

- A Proven Mineral Reserve for Year 1 through 10; and
- A Probable Mineral Reserve for Years 11 to 35 (end of life of mine plan).

The division between Proven and Probable Mineral Reserves is based on:

1. sufficiently short duration of wellfield extraction to allow a higher degree of predictive confidence, yet long enough to enable significant production, and
2. a duration long enough to enable accumulation of a strong data record to allow subsequent conversion of Probable Mineral Reserves to Proven Mineral Reserves.

The following is noted, with regard to this Mineral Reserve Estimate:

- The Mineral Reserve Estimate is expressed as mineral recovered at the wellhead.
- A processing efficiency of 63 % is reported by EXAR, see Section 14.6 Plant Design basis for further details.
- The average production rate (from the Process) is 40,419 tpa LCE for the 35-year period.
- The pumping rate has been adjusted to achieve constant production during the 35-year life of the mine.
- Average lithium concentration of 580 mg/L is predicted for the 35-year pumping period.
- A maximum average concentration of 590.4 mg/L is predicted to occur at the start-up of full-build in Year 2026.
- A minimum average concentration of 561.3 mg/L is predicted to occur at the end of the pumping period, in Year 2060.
- A lithium cut-off concentration grade of 300 mg/L was conservatively applied for the 2019 Mineral Resource and Mineral Reserve Estimate. For comparison of the utilized cut-off grade to a breakeven cut-off grade calculation, the following analytical formula can be used based on the controlling inputs as quantified for LOM:

$$Cutoff\ Grade = \frac{\frac{(Total\ Capital\ Expenditure + Total\ Operating\ Expense)}{Total\ Brine\ Extracted}}{(Recovery * Conversion\ from\ Li\ to\ Li2CO3 * Projected\ LCE\ Price * (1 - Export\ Duties) * (1 - Royalties))}$$

Where:

Total Capital Expenditure= US$ 1,781 million
Total Operating Expenditure = US$ 6,020 million
Cost of Capital = US$ 178 million (10 percent of Total Capital)
Total Brine Extracted = 628 Mm^3
Conversion from Li to Li2CO3 (LCE) = 5.323
Projected LCE Price = US$ 20,000 per metric ton of LCE
Export Duties =4.5%
Royalties= 3.0%
Calculated Recovery= 65 %.

Resulting in a calculated breakeven cut-off grade of approximately 200 mg/L.

12.12 REASONS FOR DIFFERENCES FROM PREVIOUS ESTIMATE (BURGA, 2025)

The differences between 2019 and 2026 Mineral Reserves Estimations are summarized below and presented in Table 12.7. The main differences between previous and current Reserve Estimates are attributed to the following:

- Production Basis and Expansion Framework
  - The 2026 Mineral Reserves Estimate is based on a target production rate of 40,000 tpa of LCE for Stage 1 operations. The current Estimate intentionally evaluates Mineral Reserves sufficient to support this base production rate, while preserving additional extraction capacity for a potential Stage 2 expansion in the future which could include Cauchari South and a total production of approximately 80,000 tpa LCE.
  - In contrast, the 2019 Reserves Estimate, considered a maximum production of 48,800 tpa LCE over a 40-year operating period, based on a larger wellfield and production capacity beyond Stage 1.
- Mine Life and Treatment of Historical Production
  - The 2026 Mineral Reserves Estimate considers a 35-year period, from January 1, 2026 through December 31, 2060. The Estimate is forward-looking and excludes historical production from year 2018 to 2025 of 280,978 t LCE which includes the current brine inventory.
  - No material change to previous 40-year project life from 2019 Reserve Estimate after adjusting for brine production from 2018-2025 and 2026 Mineral Reserves Estimate of 35-year period from January 1, 2026 to December 31, 2060.
  - Despite the exclusion of historical production, modeled lithium at the end of the reserve life remains robust and drawdowns in both salars are not significant, leaving room for an extension of project life or future Stage 2 expansion.
- Process Recovery Assumptions
  - The 2026 Mineral Reserves Estimate uses an updated process recovery assumption of 63.0%, reflecting demonstrated operating performance, while the 2019 Mineral Reserve Estimate applied a theoretical process efficiency of 53.7 %.

- Proven Mineral Reserves
  - The 2026 Proven Mineral Reserve Estimate represents the first 10 years of production, supported by production history and updated resource modeling, increasing certainty compared to the 2019 Reserves Estimates. As a result, Proven Mineral Reserves have increased by 45% in 2026 relative to the 2019 estimations.
- Probable Mineral Reserves
  - The 2026 Probable Mineral Reserve Estimates are reduced by 40%, relative to the 2019 estimate. This decrease is caused by changes in classification methodology and production assumptions, rather than a deterioration in resource quality. Key factors include:
    - Five years of production previously classified at Probable being reclassified as Proven, supported by operational data.
    - Production from 2018 to end of 2025 is not considered in the 2019 Mineral Reserve Estimate.
- Wellfield Development Assumptions
  - In the 2019 Mineral Reserve Estimate, the wellfield output involved 56 wells to produce 48,800 tpa LCE, which was considered the wellfield limit. The 2026 Mineral Reserve estimation considers 39 production wells (currently active) drilled to prove sufficient brine for Stage 1 production rates.

TABLE 12.7
COMPARISON OF MINERAL RESERVE ESTIMATES - CURRENT AND PREVIOUS
(BURGA ET AL. 2025)

Stage 1 Reserve Classification	Mineral Reserves Estimates LCE (t)		Tonnes	Difference
	Previous Burga (et al.2025	Current		%
Proven	276,250 (5 y)	400,886 (10 y)	124,636	45%
Probable	1,675,770 (35 y)	1,013,796 (25 y)	-661,974	-40%
Total Proven & Probable	**1,952,020 (40 y)**	**1,414,682 (35 y)**	**-537,338**	**-28%**
Process efficiency	53.7%	63%	-	9.3%
Tonnes per year	48,800	40,419	-8,381	-17%
Years	40	35	5	
No. of wells	56	39	14	

12.13 RELATIVE ACCURACY IN MINERAL RESERVE ESTIMATE

The relative accuracy and confidence in the Mineral Reserve Estimate is a function of the accuracy and confidence demonstrated in sampling and analytical methods, development and understanding of the conceptual hydrogeologic system, and construction and calibration of the numerical groundwater flow model. As has been demonstrated in this report and in previous technical reporting by LAR (2012, 2017, and 2019), input data and analytical results via sample duplication, the use of multiple methods to determine brine grade, and to obtain aquifer parameters from pumping tests have been verified and used as a basis for the Mineral Reserve Estimate model. The current evaluation has benefitted significantly from the accumulated and lengthening period of proven production.

Using standard methods, a conceptual geological and hydrogeologic model consistent with the geologic, hydrogeologic, and chemistry data obtained during the field exploration phases of the Project was prepared. The conceptual model was then used to prepare the numerical groundwater flow model. In addition, the calibration of the numerical model iteratively provided support for the conceptual hydrogeologic model. After review and verification of model projections and brine production to date, the authors have a reasonably high level of confidence that the salar system, assuming certain levels of uncertainties and risk described in Section 13.0, can yield the quantities and grade of brine calculated in the current Reserve Estimate.

The Company has advised the QP that it is unaware of any other factors - such as environmental, permitting, legal, title, taxation, socio-economic, marketing, or political factors - that may materially affect this Mineral Reserve Estimate, except as disclosed in this report. For details on relevant environmental and community activities, see Section 17.0.

The current Mineral Reserve Estimate assumes that production from adjacent external property areas will not impact future brine production on the subject properties of this evaluation. However, depending on the location of production wells and the potential overlap of brine aquifer capture areas, this assumption may introduce significant uncertainty. Adjacent external brine production wells could directly affect the current Mineral Reserve Estimate by causing dilution of brine concentrations or lowering brine levels in the aquifer. It is noted that both the transient simulation and the Mineral Reserve Estimation incorporates brine extraction by neighboring operators. Incorporating these external stresses enhances model reliability, allowing more accurate reproduction of historical conditions and more robust predictions.

The dynamic reserve model should be periodically updated to enhance calibration accuracy. It should serve as a decision-support tool to simulate and implement optimal production scenarios.

13.0 MINING METHODS

13.1 PRODUCTION WELLFIELD

A total of 42 wells were used to simulate brine extraction for the Updated Mineral Reserve Estimate. The wells comprising the brine extraction wellfield are spatially distributed in the Resource Evaluation Area of the Project to optimize well performance and capture of brine enriched in lithium (Figure 12.6).

During the first years of ramp up operation, in 2023 and 2025, 39 wells were operative to support LCE production. During 2023, average wellfield extraction was 493 L/s and in 2024, 704 L/s were pumped. Table 13.2 lists the total wellfield delivery rate per year. From 2016, an average rate of 680 l/s was used in the 35 years production period.

For 2019 technical report, it was assumed that from Years 2 through 40, 33 wells are added to the pumping schedule for duration of the life of mine plan (Figure 12.8). During the Phase 2 pumping period, the average nominal pumping rate per well is 16 L/s capacity, providing approximately 903 L/s of lithium enriched brine from the aquifer to the evaporation ponds.

Due to uncertainties in the spatial distribution of aquifer hydraulic properties and ultimate well hydraulic efficiencies at constructed production wells, difference may exist between pumping rates applied in the simulation versus measured pumping after construction of wells. In addition, it is likely that wells will need to be rehabilitated or replaced during the 40-year production period and cost estimates should include provisions to cover such expenditures.

13.2 BRINE PRODUCTION UNCERTAINTIES, LIMITATIONS, AND RISK ASSESSMENT

An assessment of key potential sources of uncertainties and limitations in the numerical model predictions and the Mineral Reserve Estimate is provided below. These descriptions are based on an extensive series of model runs for calibration and sensitivity analysis provided in prior LAR reporting for the previous Mineral Reserve Estimate and additional modeling analysis used for the 2026 Mineral Reserve Estimate and subject of this report.

- Initial brine concentrations - These are based on relatively extensive sampling programs. The order of uncertainty in the average modeled brine concentration is expected to be ± 6% and is based on differences reported in prior Mineral Resource area models of brine concentration.
- Effective Porosity (φe) and Specific Yield (Sy) - Effective porosity is difficult to measure in the field. Therefore, effective porosity was assumed to be equal to specific yield for modeling purposes. A high degree of variability is noted in the Sy estimates (as based on RBRC results). Since most of extracted brine is derived from elastic rather than pore storage, uncertainties in effective porosity affect the distance that lithium mass in the brine travels to reach a production well. As a result, uncertainties in estimates of specific yield will affect the amount of mass capture produced by the wellfield at boundaries with more dilute concentrations of lithium. To avoid these potential dilution effects and reduce uncertainty, the wellfield is currently configured for maximizing mass capture within the Project property aquifer volumes with largest amounts of lithium mass, and at sufficient distances from more dilute areas near aquifer boundaries.

- Dispersivity - The value of dispersivity, which controls the spreading of dissolved lithium as it is transported with groundwater, is also difficult to determine in field settings given the scale of the model domain. Values were set in the Updated Mineral Reserve model to be generally consistent with the previous modeling effort (King, Kelley, Abbey, 2012) and professional literature estimates for controlled testing (Gelhar et al., 1992 and Hess et al., 2002), and the amount of spreading parallel to groundwater flow (horizontal dispersivity) is reasonably assumed to be greater than the transverse and vertical components. Sensitivity runs with varied dispersivity values will aid in better evaluating its effect on the simulated results.

- Stratigraphic assumptions - Stratigraphic variability is inherent in any depositional environment. The updated HSU model is based on the available data and interpretation of depositional processes. Additional refinements using model zonation of aquifer parameters were made based on well responses to the pumping tests, to refine the continuity of aquifer and aquitard units between wells. Stratigraphic uncertainty tends to affect either the number of wells required to recover the Mineral Reserve, or the rate at which the Mineral Reserve can be recovered, rather than the total Mineral Reserve. Consequently, it can be addressed by the addition of contingency wells. Similarly, it could be addressed by acceptance of lower production rates spread over a longer period of time. As the production wellfield is constructed there will be further opportunity to update the stratigraphy and hydraulic properties to better predict drawdown and refine the number of wells required to meet pumping targets.

- Hydraulic conductivity (K) - The K distribution field is directly correlated with HSU model and, given the large range in lithologic heterogeneity of the HSUs, values of K have a broad range as well as associated uncertainty. Similar to stratigraphic uncertainty, the magnitude of the uncertainty for K estimates primarily affects the number of required pumping wells, rather than the total Mineral Reserve Estimate. If K values are smaller than represented in some areas of the model, it ultimately would require closer well spacing which can be addressed by the addition of contingency wells.

- Water balance - The water balance is defined as the entry of water into the salar, either laterally or vertically (recharge), and water exiting the model primarily via evaporation (discharge). Given the conceptual model of the basin, recharge at mountain fronts and basin margins essentially controls influx and thereby dictates evaporative discharge flux. The amount of recharge into the model domain has the potential to affect the required number of pumping wells and steady-state residual mean, where for example, a lower recharge estimate to the salar could improve the apparent spatial bias of negative residuals (Table 13.2). Sensitivity analyses shows if actual recharge is significantly less than represented in the model, then the amount of drawdown and dilution associated with a given pumping rate will tend to be greater over long pumping periods. Consequently, more production wells would be required to spread out the effects of brine extraction and promote less drawdown and dilution at individual pumping wells. This is addressed by the addition of contingency wells.

- Water density - In most salar settings, variations in the density of groundwater are an important driver for flow, especially in the marginal mixing zone. Similar to the previous modeling efforts, a constant density of groundwater was assumed in this Updated Mineral Reserve model. Although the extensive numerical modeling analysis of LAR (2012) indicated that the consideration of variations in groundwater density did not significantly impact the simulated results of that model, the extended domain of this Updated Mineral Reserve model includes the marginal salar areas and freshwater zones of the basin. Therefore, in future modeling updates, and with additional measurements of groundwater density, consideration of variable-density flow and transport is recommended with modeling code and interface utilized (MODFLOW-USG with Groundwater Vistas). In addition, the steady-state calibration may be improved if the observed groundwater values were corrected for water density; in this case, the equivalent freshwater head would be higher than the respective observed field groundwater elevation (Table 13.2), resulting in an increased residual mean and possible improvement of the spatial bias of over predicted model values. This improvement would also be subject to more field measurements of water density in order to properly convert the observed groundwater elevations to equivalent freshwater heads.

13.3 WELL UTILIZATION

For the 2026 Mineral Reserve Estimate, it was assumed that 39 wells would be needed to meet or exceed the production goal targets. From 2018 to 2024, prior to initiation of full-scale operations, a total of 39 brine extraction wells were constructed. Storage ponds and the recovery plant were also assumed to be fully operational at the start of the simulation.

Variations in brine demand due to differences in brine-pond evaporation rates, either seasonal or due to long-term climatic trends, were not incorporated directly into the simulations. Incorporation of brine pumping variations can be conducted as part of model predictive scenarios for operational controls. In practice, however, pumping at selected wells could be stopped and started as necessary to meet total wellfield requirements.

13.3.1 Well Utilization 2018 to 2025

From 2018 to 2025, a total of 39 producing wells have been progressively commissioned in the current exploitation area of the Mineral Resource (Cauchari-Olaroz), which sustained the ramp-up operation during those years.

From 2018 to the present, the number of wells in production has increased, as has the volume of brine extracted and the efficiency in the concentration of lithium. In 2018, production began with the pumping of 5 wells located in the Cauchari Salar. During 2019, 8 wells were incorporated into the production, considerably increasing the volume of brine extracted compared to the previous year. By 2020, the number of wells in production doubled, with a total of 24 wells in production, distributed in the Cauchari-Olaroz Salar. During 2021, 1 well was incorporated into production, this and the improvements in the efficiency of the wells meant an increase of almost 70% in brine production compared to the previous year. From 2022 to 2024, brine pumping and production reached a total of 39 wells.

Currently, three (3) new infill producing wells are being built in the Salar de Olaroz in order to increase the versatility and productive capacity of the pumping field. Their location information is presented in Table 13.1.

Table 13.2 summarizes the volume of brine pumped per well, as well as the average flows per year. Figure 13.1 shows graphically the volume of exploitation per well. Figure 13.2 shows the location of the production wells and Figure 13.3 shows the location of the production wells against the area of the 2019 Mineral Resource Estimate.

Table 13.1
Borehole Drilling Summary for Infill Producing Wells Program
Conducted in 2024

Borehole ID	Type	Platform	Contractor	Stage	Location	Coordinates	
						X	Y
Pozo 44	Rotary	W-30	Wichi Toledo	Under construction	Olaroz	3425552	7393300
Pozo 45 (Note 1)	Rotary	W-28	Wichi Toledo	Under construction	Olaroz	3425189	7392374
Pozo 46	Rotary	W-29	Wichi Toledo	Under construction	Olaroz	3424736	7391203

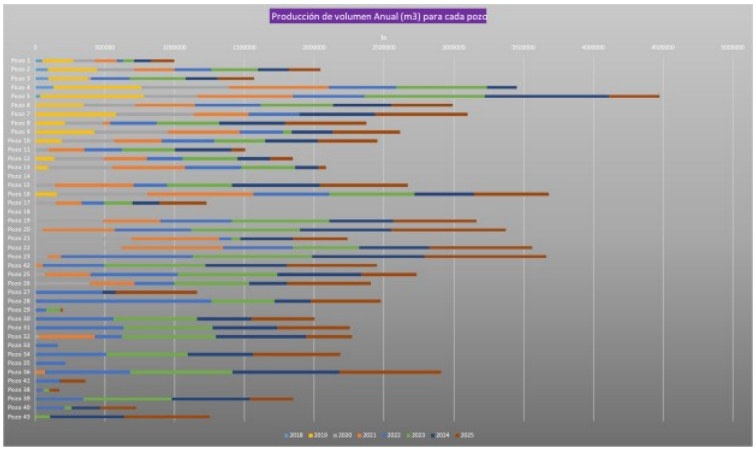
Note 1: W-28 construction not finished.

TABLE 13.2
VOLUME PUMPED PER PRODUCTION WELL PER YEAR AND AVERAGE FLOW PER YEAR - CAUCHARI-OLAROZ

Legal Name	Pozo ID	Li_(mg/L) 2024	Li_(mg/L) 2025	Densidad	Li%	Caudal Promedio Anual (l/s)								Volumen Anual (m3)								Total
						2018	2019	2020	2021	2022	2023	2024	2025	2018	2019	2020	2021	2022	2023	2024	2025	
PB-3A	Pozo 1	774	745	1 208	0.0641	6.1	7.0	5.0	5.0	1.4	2.4	4.0	5.2	47597	222156	158142	156526	45296	76127	128399	165092	997335
PB-4	Pozo 2	590	570	1 198	0.0492	11.4	11.2	8.4	9.2	8.4	10.5	7.0	7.2	88896	352754	264978	291302	265895	332673	220693	225933	2043124
PB-6A	Pozo 3	543	520	1 194	0.0455	11.9	9.0	0.6	0.0	8.6	12.7	7.3	8.3	92580	284656	19648	-	279021	399132	231387	260706	1567130
W18-05	Pozo 4	766	-	1 198	0.0639	16.6	20.0	20.0	22.6	15.4	20.6	6.8	-	129133	629566	631670	711456	484495	649463	214470	-	3450253
W17-06	Pozo 5	585	576	1 206	0.0483	4.3	23.7	12.0	21.8	16.2	27.4	28.2	11.6	33668	746640	378627	687587	512188	864838	887830	365043	4476421
W18-06	Pozo 6	549	548	1 198	0.0458	0.0	11.0	11.7	13.6	14.9	16.4	13.2	14.0	-	347733	369403	427857	470984	518759	415379	441636	2991751
W11-06	Pozo 7	708	704	1 197	0.0592	0.0	18.3	17.7	12.4	11.6	0.0	17.2	21.0	-	577119	559285	390721	367363	-	541667	663615	3099770
W-04A	Pozo 8	638	627	1 210	0.0527	0.0	6.8	8.7	1.6	10.6	14.2	15.0	18.4	-	213643	273300	49225	333685	448648	473465	580619	2372583
W18-23	Pozo 9	711	707	1 211	0.0587	0.0	13.4	16.7	16.4	9.8	2.0	9.4	15.3	-	421038	528060	516157	309265	62127	295962	481343	2613950
WR-10	Pozo 10	604	582	1 212	0.0499	0.0	6.0	11.9	10.8	11.9	11.6	11.9	13.6	-	188724	375564	340613	376113	366191	376009	430459	2453673
WR-28	Pozo 11	440	405	1 207	0.0365	0.0	0.0	3.0	8.1	8.6	12.1	12.9	3.0	-	-	93066	255905	269815	383049	405611	96045	1503491
WR-23	Pozo 12	459	444	1 194	0.0384	0.0	4.4	11.2	9.7	8.2	12.4	7.4	5.1	-	138547	353510	305422	258708	392241	233837	161770	1844035
WR-24	Pozo 13	602	576	1 208	0.0498	0.0	3.0	14.4	16.6	12.8	12.3	5.3	1.7	-	93454	455450	522575	404463	387484	165855	53409	2082690
W17-12	Pozo 14					0.0	0.0	0.0	0.0	0.0	0.0	0.0			-	-	-	-	-	-		0
W02B	Pozo 15	643	611	1 210	0.0551	0.0	0.0	4.4	17.9	7.7	14.7	20.0	20.0	-	-	140046	564201	242230	469051	631095	631595	2672198
WR-21	Pozo 16	605	593	1 207	0.0501	0.0	5.0	20.5	24.1	17.2	19.3	13.5	17.0	-	156783	647375	759569	543740	608977	426605	537309	3680358
W09-06	Pozo 17	887	863	1 209	0.0734	0.0	0.0	4.7	5.8	5.1	6.5	6.1	10.7	-	-	148536	182973	160432	204757	192685	337174	1226557
W09-01	Pozo 18					0.0	0.0	0.0	0.0	0.0	0.0	0.0					-	-	-	-		0
W-2	Pozo 19	738	684	1 210	0.0610	0.0	0.0	15.4	12.9	16.3	22.1	14.6	18.9	-	-	486566	407454	514402	697440	459733	595285	3160880
W-14	Pozo 20	654	638	1 210	0.0540	0.0	0.0	1.7	16.4	17.3	24.8	20.8	26.0	-	-	52932	517294	546503	781201	655019	818885	3371834
W-6	Pozo 21	845	828	1 211	0.0532	0.0	0.0	21.8	20.0	2.7	2.0	12.0	12.4	-	-	688025	629940	86003	64401	379101	392352	2239822
W-11	Pozo 22	671	665	1 211	0.0554	0.0	0.0	19.5	23.1	15.9	15.1	15.9	23.4	-	-	615072	729886	500899	476744	502747	738831	3564179
W-17	Pozo 23	681	664	1 207	0.0564	0.0	0.0	2.8	3.0	29.9	27.2	25.5	27.7	-	-	88906	95906	942163	857206	805548	872917	3662646
W-42	Pozo 42	699	689	1 210	0.0578	0.0	0.0	0.0	1.7	13.9	23.0	18.5	20.4	-	-	-	55088	439347	725457	583452	644040	2447384
W-15	Pozo 25	819	458	1 208	0.0512	0.0	0.0	2.2	10.4	19.9	22.5	19.1	12.6	-	-	69873	326546	626354	710858	603673	396985	2734289
W-1	Pozo 26	625	611	1 210	0.0517	0.0	0.0	12.4	10.1	9.0	17.0	8.7	19.0	-	-	392328	319889	285381	536622	272917	597987	2404924
WR-07	Pozo 27	634	606	1 206	0.0526	0.0	0.0	0.0	0.0	15.3	0.0	3.1	18.4	-	-	-	-	481089	-	97478	579226	1157793
W-9	Pozo 28	646	629	1 209	0.0534	0.0	0.0	0.0	0.0	40.0	14.4	8.2	16.0	-	-	-	-	1260919	453458	257149	505852	2477378
W-18	Pozo 29	850	728	1 211	0.0537	0.0	0.0	0.0	0.0	2.4	3.3	0.0	0.4	-	-	-	-	76562	104293	535	13197	194587
W10-04	Pozo 30	596	608	1 203	0.0495	0.0	0.0	0.0	0.0	17.8	19.0	12.3	14.4	-	-	-	-	561636	597923	389469	452569	2001597
W-8	Pozo 31	543	526	1 201	0.0452	0.0	0.0	0.0	0.0	20.1	20.2	14.7	18.5	-	-	-	-	633335	638211	463694	518803	2254043
W-16	Pozo 32	559	549	1 210	0.0462	0.0	0.0	0.8	12.7	6.1	21.4	20.5	10.3	-	-	24573	401217	193380	675923	647315	326289	2268697
WR-3	Pozo 33	820	-	1 202	0.0516	0.0	0.0	0.0	0.0	5.1	0.0	0.0	0.0	-	-	-	-	162028	-	-	-	162028
W-7	Pozo 34	749	745	1 221	0.0613	0.0	0.0	0.0	0.0	16.1	18.5	14.8	19.9	-	-	-	-	508077	584543	465645	628096	2186361
W-12	Pozo 35	675	-	1 210	0.0558	0.0	0.0	0.0	0.0	6.8	0.0	0.0	0.0	-	-	-	-	214032	-	-	-	214032
W-5	Pozo 36	708	691	1 206	0.0585	0.0	0.0	0.0	2.2	19.3	23.3	24.3	23.2	-	-	-	70152	609750	734147	764995	730830	2909874
W-4	Pozo 41	757	756	1 210	0.0626	0.0	0.0	0.0	0.0	5.7	0.0	0.03	5.75	-	-	-	-	178230	-	1004	181227	360461
W-19	Pozo 38	747	743	1 213	0.0616	0.0	0.0	0.0	0.0	1.9	1.3	0.0	2.27	-	-	-	-	58570	41158	-	71599	171327
W-13	Pozo 39	526	518	1 211	0.0434	0.0	0.0	0.0	0.0	10.9	20.1	17.7	10.0	-	-	-	-	342626	633030	559562	315984	1851202
W-10	Pozo 40	639	652	1 212	0.0527	0.0	0.0	0.0	0.0	6.5	1.7	6.6	8.2	-	-	-	-	206475	52215	208067	258716	725473
W-31	Pozo 43	752	738	1 212	0.0621	0.0	0.0	0.0	0.0	0.0	3.3	16.9	19.5	-	-	-	-	-	103806	532905	613551	1250262
														391874	4372813	7814935	9715261	14751452	15626133	14488955	15684969	82846392

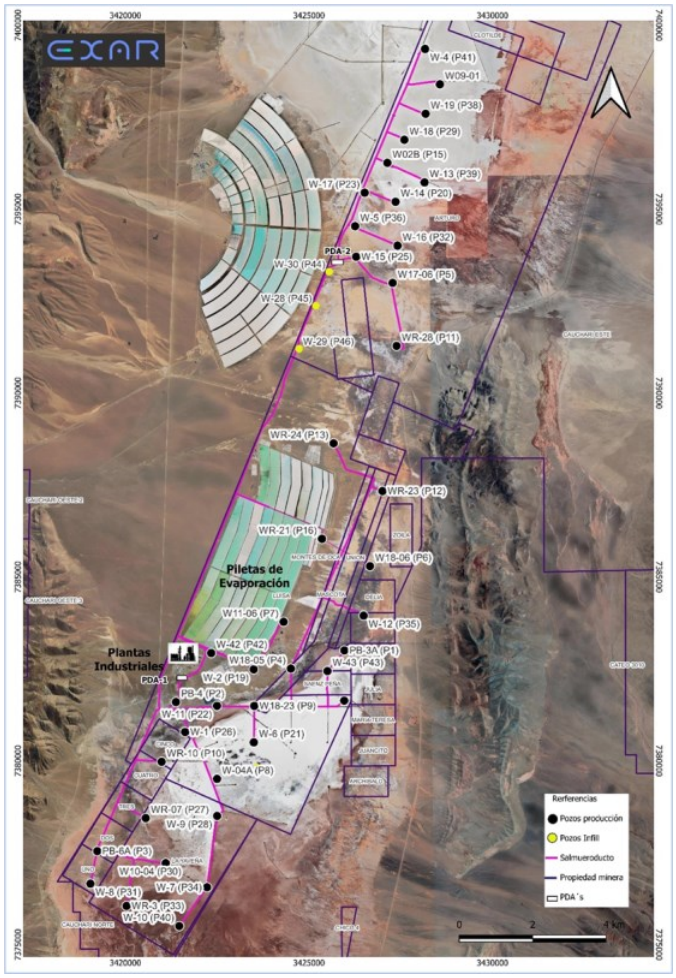
Note: The volumes shown here include all feed to the system as well as the volumes used for pond leak detection and pumping tests.
Source: Exar (2025)

Figure 13.1 Production Wells - Pumped Volumes per Well per Year



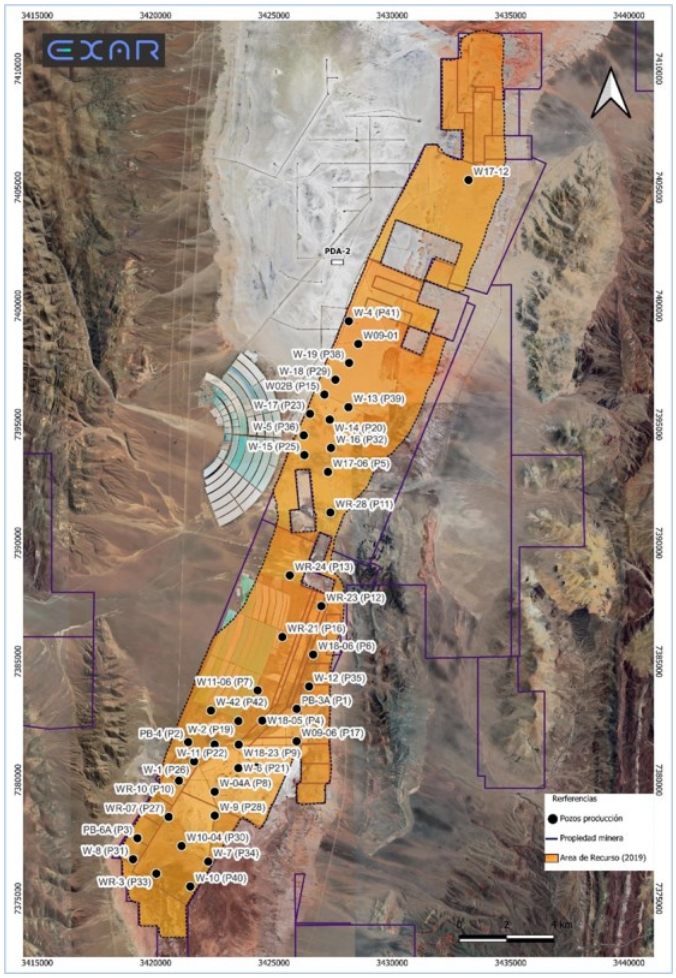
Source: (Exar 2025)

Figure 13.2 Location of Production Wells



Source: (Exar, 2024)

Figure 13.3 Location of Production Wells Showing 2019 Mineral Resource Area



Source: (Exar, 2024)

14.0 PROCESSING AND RECOVERY METHODS (BRINE)

14.1 GENERAL

The lithium recovery process consists of the following main processing stages:

- Brine production from wells.
- Sequential solar evaporation.
- Liming for Impurity Reduction.
- Lithium plant including:
  - Boron removal;
  - Purification process;
  - Forced Evaporation process;
  - Polishing;
  - Carbonation/Lithium carbonate precipitation;
  - Lithium carbonate drying and transportation; and
  - Lithium carbonate packaging.

The current process design, based on testing and simulation, has been enhanced with:

- Sulphate and boron reduction.
- Plant-Based potassium chloride reduction.

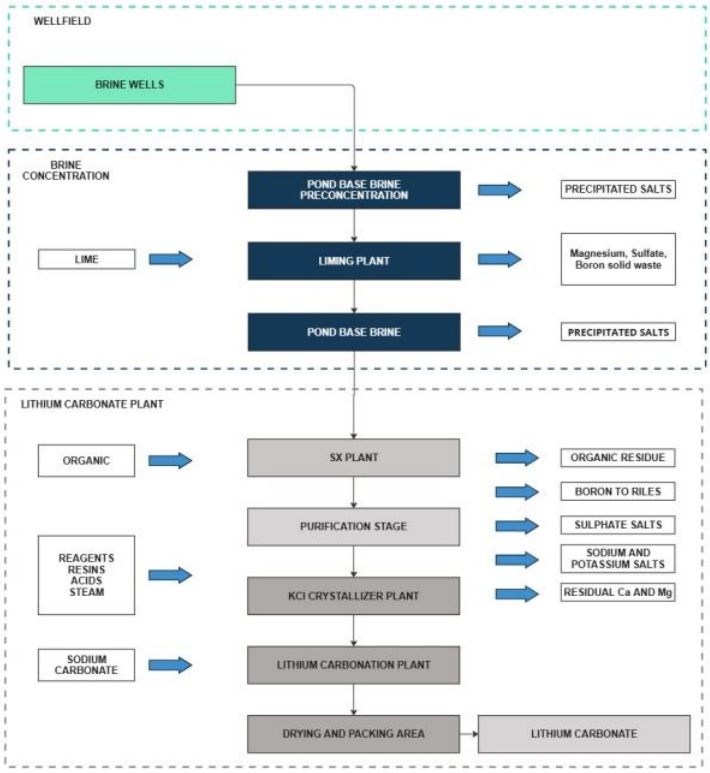
Mass and energy balance simulations were developed for estimation of operating and equipment costs. A conservative approach was used to design the ponds and plant infrastructure to ensure product purity and delivery commitments.

14.2 PROCESS DESCRIPTION

14.2.1 Process Block Diagram

Figure 14.1 shows the process diagram that outlines the general process. The brine is pumped from the salar into the pond system on the left side. As it progresses through the ponds, different salts precipitate, and chemical treatments are applied. The concentrated brine leaves the pond system on the right side then enters on the top left of the Lithium Carbonate Plant Simplified Block flow diagram.

Figure 14.1 Process Block Diagram



Source: Exar, (January 2026)

14.3 BRINE CONCENTRATION PROCESS DESCRIPTION

14.3.1 Pond Surface Area

Exar has designed, configured and planned the operation of the pond system based on test work at the site and multiple laboratory tests.

A water evaporation rate of 6.26 mm/day (average rate between summer and winter) was used as the design criteria for the pond system, which was obtained using Class A evaporation pans and the test results discussed in Section 10.2.2. In addition, 5% of the available evaporation time the pond will be available for harvesting as an optimization of the process (process design considered 10% of the available evaporation time). A seasonal model of the ponds has been used to obtain the net annual productivity including variation in rain fall, evaporation rates, and brine chemistry changes due to temperature. All these variables are estimated based on site-specific statistics.

Using the above-mentioned rate, a total pond surface area of 1,200 Ha is required to produce 40,000 tpa of lithium carbonate. The operation strategy considers daily evaporation control adjustments by adjusting surface area requirements as necessary during operations through monitoring weekly pond mass balances and long-term prediction based on historic evaporation and meteorological data.

The pond system consists of 28 evaporation ponds. The ponds configuration includes two parallel trains as presented in Figure 14.5. Associated piping allows for flexible operation and bypassing of individual ponds for maintenance activities.

The evaporation ponds produce salt composed of Na, Ca, K, sulphate and borate salts. The brine concentrate from the terminal evaporation pond is further processed, through a series of polishing and impurity removal steps.

14.3.2 Pond Design

The pond design consists of engineered fill material and a thick impermeable pond liner (geomembrane) with geotextile only on berms. The use of both engineered fill material and a liner reduces the potential of rocks penetrating the liner and compromising pond impermeability. The engineered fill material consists of screened sands and fines which are installed on the native material in the pond area below the liner then leveled and compacted.

Testing of this design using pond liners from several different suppliers and installation details was completed to reach the final decisions on the liner and construction approaches. A total of 10 pond cells (approx. 40 m x 40 m) were constructed on site and installed with the proposed design. Production and salt harvesting were then simulated, and the liners were then tested for damage/leakage using inspection and mass balances on the test ponds.

Figure 14.2 illustrates the evaporation ponds constructed upon the engineered bedding that was overlain with a geotextile and liner.

Figure 14.2 Evaporation Ponds at Cauchari Salar



Source: Burga et al. (2020)

The pond berms were constructed using compacted, impermeable clay-rich soils and overlain with the engineered materials described above. Testing of the berm construction material, sourced locally in the Olaroz salar, has confirmed the design specifications (Figure 14.3). Evaporation ponds are shown in Figure 14.4.

Figure 14.3 Testing of Berm Material



Source: Burga et al. (2020)

Figure 14.4 Evaporation Ponds - Close Up

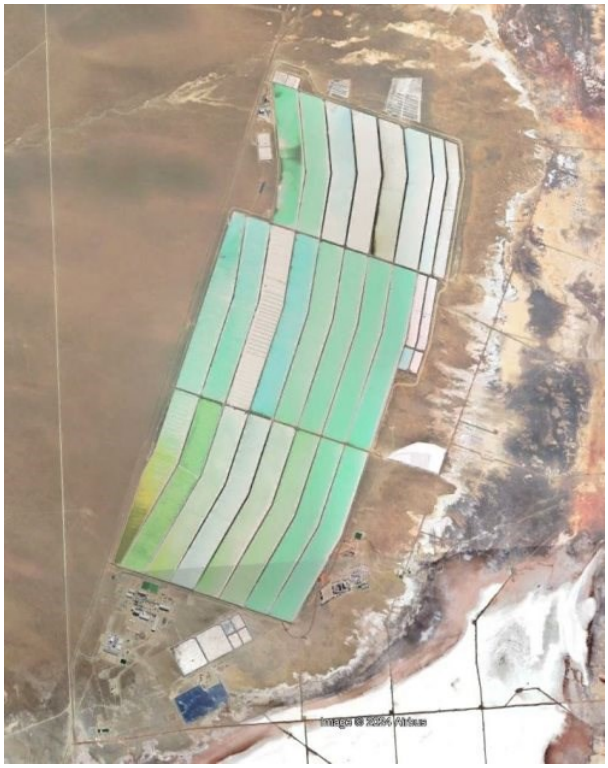


Source: Burga et al. (2020)

14.3.3 Pond Layout

Figure 14.5 presents the outline of the ponds and the salt disposal area.

Figure 14.5 Evaporation Ponds



Source: Google Earth, (2024)

14.3.4 Pond Transfer System

Each pond is equipped with a pump station and pipeline system for transferring brine between ponds (Figure 14.6). The ponds are arranged geometrically to efficiently move brine during the anticipated normal operation and maintenance of the ponds and pump systems. An analysis of the prevailing wind direction was considered in pond orientation, pump station locations, and brine inlets.

Brine progresses along the long axis of the pond. Internal, temporary walls constructed of salt ensure the brine does not bypass the pond section and has a consistent residence time.

Figure 14.6 Evaporation Ponds - Transfer Pump Station



Source: Burga et al. (2020)

14.3.5 Salt Harvesting

As brine concentrates, the salt precipitates in the pond thus purifying the brine. Salt that precipitates in the bottom of ponds is porous and entraps brine. In order to recover pond volume taken up by precipitated salt and recover lithium values entrapped with the brine; salt will be harvested. Harvesting began after the third year of ponds operation.

The harvesting operation consists of draining the free brine from the pond, scraping the salt to a minimum depth, and making drainage trenches before removing salt. Draining the entrapped brine from the salt will recover roughly 90% of the lithium that was entrapped in the salt. Harvesting is being conducted 24/7 to satisfy overall production plans.

14.3.6 Impurity Reduction-Liming

A liming stage is necessary to avoid the precipitation of lithium compounds by removing some of the sulphate. In the liming system almost all of the Mg is precipitated with a portion of the sulphates and boron compounds.

The only reagent used in this area is quick lime (CaO) which is stored in two silos of 1,000-tonne capacity each. A milk of lime preparation system includes the vertimill lime slaker to prepare the reagent for the process.

Milk of lime and brine from the pre-concentration ponds are contacted in two separate trains of reactors. These reactors produce a slurry of sulphates, magnesium hydroxides and borates that can be easily separated from the brine and washed to recover the lithium.

The reactions that take place precipitate magnesium hydroxide, gypsum and calcium borates. The reactions give the following products:

$$(Mg)^{+2} + Ca(OH)_{2,(s)} \rightarrow Mg(OH)_{2,(s)} + Ca^{+2}$$

$$Ca^{+2} + SO_4^{-2} \rightarrow CaSO_{4,(s)}$$

$$2Ca^{+2} + 3B_2O_4 \rightarrow Ca_2B_6O_{11} \cdot 5H_2O_{(s)}$$

The brine with precipitated solids is discharged from the reaction tank to a solid liquid separation system. The treated brine stream goes to the post-concentration ponds for further concentration, whereas the solids are transferred to a disposal area.

14.4 LITHIUM PLANT PROCESS DESCRIPTION

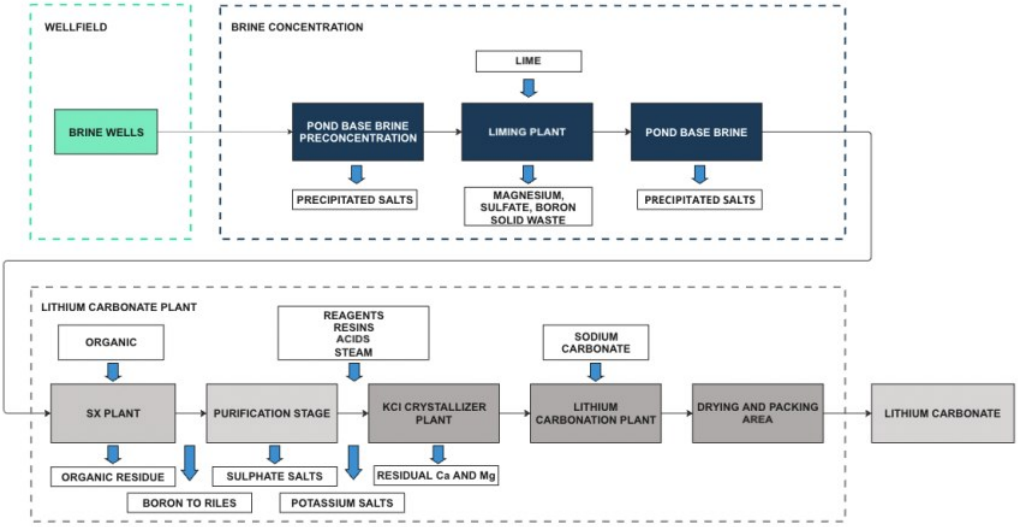
Pre-treated and concentrated brine from the evaporation ponds is fed into the lithium plant.

The plant is composed of the following processing sections:

- SX circuit for boron removal.
- Purification circuit: In this circuit, impurities such as magnesium, calcium, and sulphates are removed from the brine using specific reagents.
- Forced Evaporation and KCl Crystallizer circuit.
- Carbonation circuit to precipitate high-grade Lithium carbonate.
- Drying and packing area.

The block diagram for the plant is shown in Figure 14.7 Lithium Carbonate Plant Block Diagram.

Figure 14.7 Lithium Plant Block Diagram



Source: Exar, (2026)

14.4.1 Solvent Extraction for Boron Removal

Boron removal is necessary to achieve high-quality lithium product. The solvent extraction stage allows an effective removal of this element. This step reduces boron concentration to specification values

In the 2012 Feasibility Study, a boron solvent extraction stage was considered to treat the brine and produce an essentially boron-free brine for further processing. Test work provided the basis of design for the solvent extraction plant including six solvent extraction stages and three stripping stages.

The design of the extraction unit is based on pilot testing at the pilot plant located at the Project site, and Tenova have provided a process guarantee.

The main reagents of this process are:

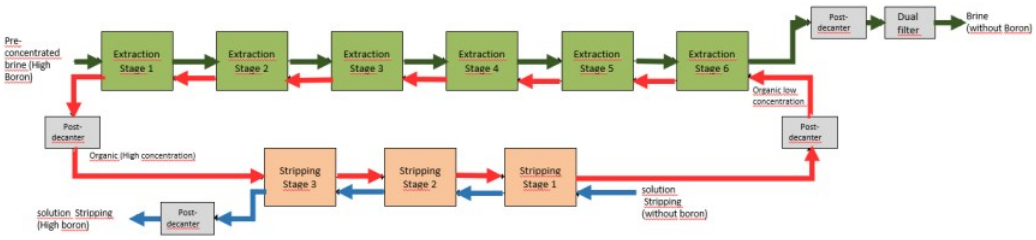
- The organic mix used in the extraction is a mix of Escaid 110 and 2-Ethyl-hexanol.
- 32% HCl to control the acidic pH in the extraction stage, acidifying to a pH of 2.5.
- 5% NaOH solution to prepare the aqueous stripping solution and reach a pH of 10 in the stripping stages.

The boron from the feed is transferred to the organic phase as the liquids mix during the extraction process. The extraction circuit consists of six stages.

Boron removal from the organic phase is carried out using an alkaline caustic solution. The stripping circuit has three stages. The extracted solution containing boron is sent to a disposal tank for the process. The regenerated organic phase is recycled back into the extraction stage.

The solvent extraction plant configuration is shown in Figure 14.8 Boron Solvent Extraction.

FIGURE 14.8 BORON SOLVENT EXTRACTION



Source: Exar, (2026)

14.4.2 Purification Process

The rest of the impurities, magnesium, calcium, and sulphates are removed from the brine in the purification process.

The purification process consists of the following steps:

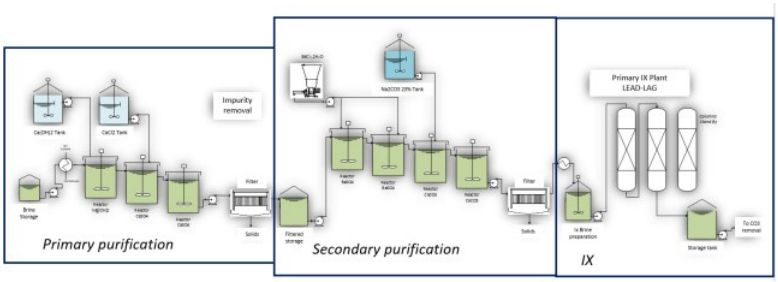
- Primary purification: main objective is magnesium and sulphates removal.
- Secondary purification: main objective is calcium and sulphates removal.
- Primary IX: main objective is the removal of any residual calcium, magnesium and other divalent ions.

Purification is done in two stages using $Ca(OH)_2$, Na_2CO_3, $CaCl_2$ and $BaCl_2$ as reagents that are effective for the precipitation of calcium, magnesium, sulphate.

The circuit includes the solid/liquid separation stages, and the ion exchange sequences for the overall removal of traces of divalent ions (calcium and magnesium mainly but also strontium and barium).

The process stages included in the purification circuit area outlined in the Figure 14.9 Brine Purification Circuit Diagram.

FIGURE 14.9 BRINE PURIFICATION PROCESSING CIRCUIT DIAGRAM



Source: Exar, (2026)

14.4.2.1 Primary Purification - Magnesium and Sulphate Reduction

Magnesium must be removed before the carbonation step. This is accomplished by adding lime in a set of reactors. The lime reacts with the magnesium in the brine to form insoluble magnesium hydroxide.

$$Mg^{2+}_{(aq)} + Ca(OH)_{2(lime)} \rightarrow Mg(OH)_{2(solid)} + Ca^{2+}_{(aq)}$$

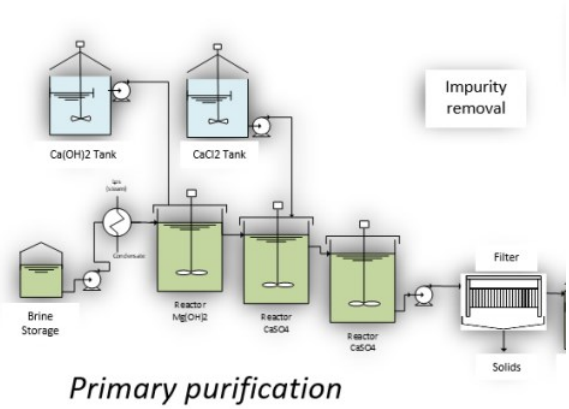
Residual sulphate ions are precipitated by addition of calcium chloride in a stirred reactor. The precipitated solids are removed by a solid-liquid separation system.

$$CaCl_{2(sn)} + SO_4^{2-} + 2H_2O \rightarrow CaSO_{4(solid)}.2H_2O + 2Cl^-$$

The primary purification filter cakes report to final disposal.

Figure 14.10 Primary Purification Processing Circuit Diagram presents the configuration of this section of the plant.

Figure 14.10 Primary Purification Processing Circuit Diagram



Source: Exar, (2026)

14.4.2.2 Secondary Purification - Calcium and Sulphates Removal

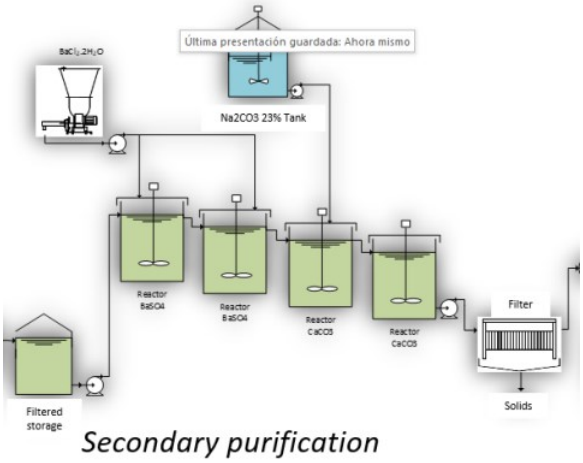
Residual calcium and sulphates in the brine will be precipitated with soda ash and barium chloride.

$$BaCl_2.2H_2O + SO_4^{2-} \rightarrow BaSO_{4(solid)} + 2Cl^-$$

$$Ca^{2+}_{(aq)} + Na_2CO_{3(sn)} \rightarrow CaCO_{3(solid)} + 2Na^+_{(aq)}$$

The precipitated solids will be removed by a solid-liquid separation system. The secondary purification filter cakes report to final disposal. Figure 14.11 Secondary Purification Processing Circuit Diagram presents the configuration of this section of the plant.

Figure 14.11 Secondary Purification Processing Circuit Diagram



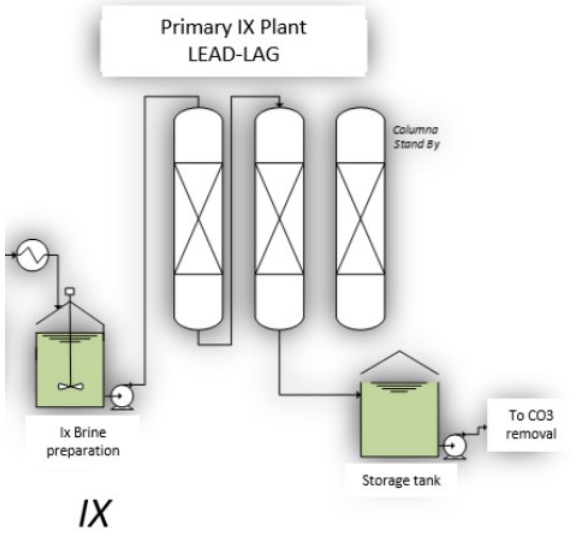
Source: Exar, (2026)

14.4.2.3 Primary IX

An ion exchange system acts as a guard to remove any residual calcium, magnesium and other divalent ions. The main objective is to obtain Ca, Mg, Ba and Sr <1 ppm. Its utilization depends on the product the plant is producing.

Figure 14.12 Primary IX Circuit Diagram presents the configuration of this section of the plant.

Figure 14.12 Primary IX Circuit Diagram



Source: Exar, (2026)

For IX resin regeneration, the following stages are required with the following streams:

- Displacement and backwashing uses demineralized water.
- Regeneration: uses HCl 8%.
- Conversion uses NaOH 5%.
- Washing: uses demineralized water.

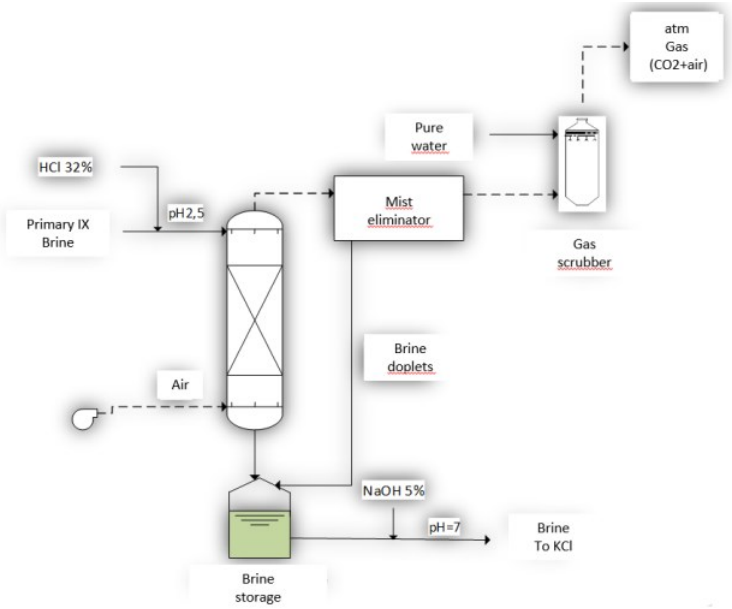
14.4.2.4 Carbonate Removal

The objective is to reduce the carbonate concentration in the brine by adding HCl in desorption equipment for conditioning the brine for effective carbonate removal:

$$CO_3^{2-} + HCl \dashrightarrow CO_2 + 2Cl^-$$

Figure 14.13 Carbonate Removal Circuit Diagram presents the configuration of this section of the plant.

Figure 14.13 Carbonate Removal Circuit Diagram



Source: Exar, (2026)

14.4.3 Evaporation and KCl Crystallization Stage

Potassium and sodium concentrations are reduced by evaporative crystallization. Centrifuges are used to separate the sylvinite crystals. There are two trains, A and B, with the same capacity. This stage also increases the lithium concentration

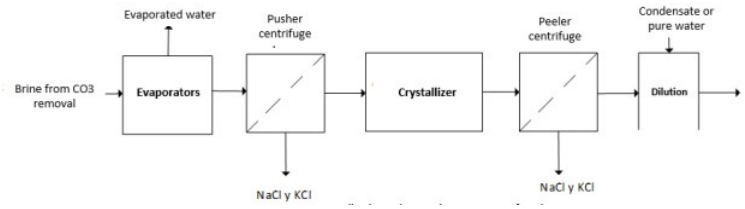
The evaporator has the following steps:

1. Vacuum evaporation. Triple-effect evaporator (4 bodies). Crystallization by water loss.
2. First Solid/Liquid separation in Pusher type centrifuges. Continuous operation.
3. Crystallization by cooling; crystals grow due to differential KCl saturation. There is crystal seeding in this operation.

4. Second Solid/Liquid separation in Peeler type centrifuges. Batch operation.
5. Concentration adjustment to 3% by mass lithium by dilution.

Figure 14.14 Evaporation and KCl Crystallization Diagram presents the configuration of this section of the plant.

Figure 14.14 Evaporation and KCl Crystallization Diagram



Source: Exar, (2026)

14.4.3.1 Secondary IX Polishing

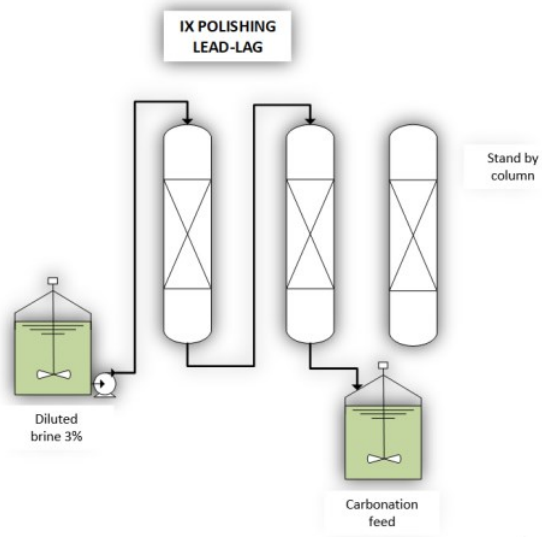
The objective is to remove divalent ions (Ca, Mg, Ba, and Sr) from the brine to allow the final lithium carbonate product to meet the required product specifications.

This operates in the same way as primary IX, but its operation will depend on previous stages performance.

The configuration of this stage is presented in Figure 14.15 Secondary IX Polishing Diagram.

IX regeneration is the same as in Primary IX.

Figure 14.15 Secondary IX Polishing Diagram



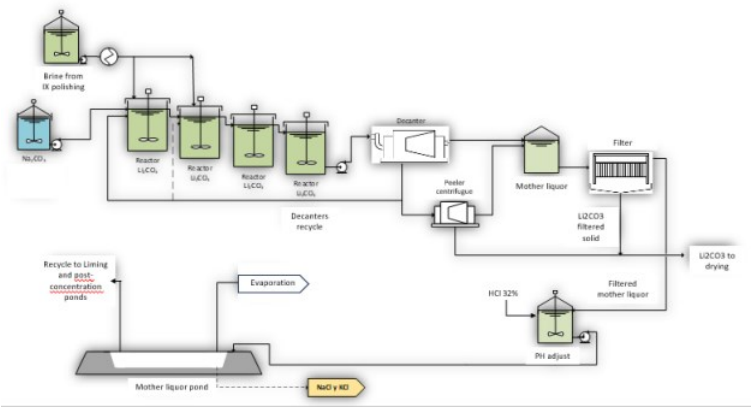
Source: Exar, (2026)

14.4.4 Lithium Carbonate Crystallization and Recovery

The main objective is to generate the lithium carbonate (solid). The feed is divided between the first two reactors to reduce supersaturation and improve the size and purity of the crystals. Then the feed is mixed in the reactors with soda ash. The centrifuges dewater the crystals and then the crystals are washed with condensate to maintain a high yield of lithium, and the wash water will be sent to the evaporator feed.

Figure 14.16 Lithium Carbonate Crystallization Diagram presents the configuration of this section of the plant.

Figure 14.16 Lithium Carbonate Crystallization Diagram



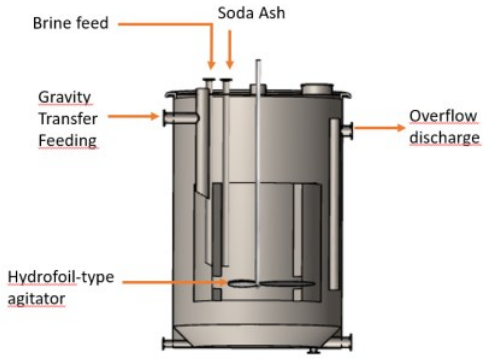
Source: Exar, (2026)

In addition to the reactors, the process consists of:

- Decanter centrifuges: 3 decanter centrifuges operating in parallel receive the slurry from Reactor Trains A and B. (119.34 t/h). Objective: to obtain a dense lithium carbonate slurry with 30% solids by mass.
- Peeler centrifuges: 6 peeler centrifuges in parallel, divided into two trains, each of a diameter of1.8 m. Objective: to obtain a lithium carbonate cake with retained moisture between 8% and 13% by mass.
- Filter presses: 2 vertical plate-type filter presses with a filtration area of 100 m², receiving the mother liquor from the decanters and peelers. Objective: to recover the fine lithium carbonate solids suspended in the mother liquor.

The carbonation reactors have a special configuration as shown on Figure 14.17 Carbonation Reactor Diagram. The reactor configuration includes a draft tube configuration to promote internal recirculation and the reaction between the soda ash and the feed brine.

Figure 14.17 Lithium Carbonation Reactor Diagram

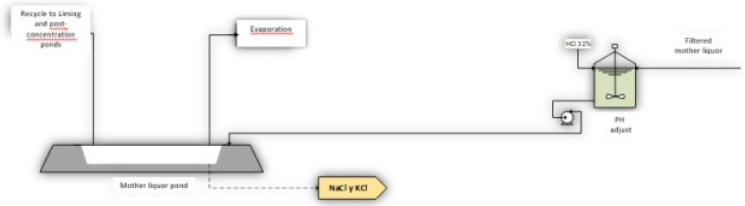


Source: Exar, (2026)

14.4.4.1 Mother Liquor Handling

Mother liquor is sent to a dedicated pond for accumulation. Then it is fed to liming plant and post-concentration ponds system, as shown in Figure 14.18. Exar continues to analyze optimization alternatives to improve the performance of this recycle.

Figure 14.18 Mother Liquor Diagram



Source: Exar, (2026)

14.4.5 Lithium Carbonate Drying, Micronization and Packaging

The wet cake from the centrifuges is fed to a rotary dryer with indirect steam heating. The product reaches the commercial moisture level in the dryer.

The dry product is conditioned for packaging including the following process sequence:

The dry solid is transported to a distribution hopper that allows the flow to be split considering half of the flow rate to be fed into the micronization process and the other half going to the bulk packaging. An inline magnet bank is installed to remove all ferromagnetic particles.

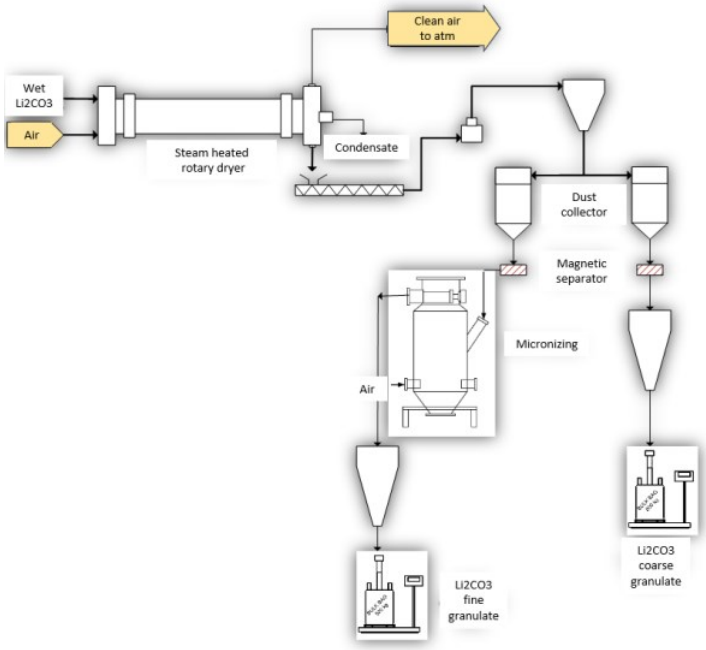
The micronization system is employed to produce fine lithium carbonate for customers who require a fine, narrowly distributed particle size.

The final product can be packaged in two types of containers:

- 20 kg bags of micronized product, 50 bags per pallet.
- 600 kg big bags of either micronized or non-micronized product, with pallets holding 2 big bags each.

The overall configuration of the system is presented in Figure 14.19 Lithium Carbonate Drying, Micronization and Packaging Diagram.

Figure 14.19 Lithium Carbonate Drying, Micronization and Packaging Diagram



Source: Exar, (2026)

14.5 REAGENTS

Quick lime (CaO) is trucked to site and stored in silos. Hydrated lime ($Ca(OH)_2$) is made on site and distributed to the various users. Two different lime qualities have been sourced. A lower-grade lime is used to supply the liming plant while a higher quality grade CaO with less magnesium is used within the lithium carbonate plant for magnesium removal.

Soda ash (Na_2CO_3) is trucked to the Project site. Sodium carbonate solution will be prepared with purified water. It is used for calcium removal and to produce lithium carbonate in the processing facility.

Barium chloride is trucked and stored at site. A solution of barium chloride is prepared with purified soft water and used to remove sulphate in solution.

Calcium chloride is trucked and stored at site. A solution of calcium chloride will be prepared with purified water and used to remove sulphate in solution.

Hydrochloric acid is trucked and stored at site as 32 wt.% solution. Hydrochloric acid as 32 wt.% solution is used as a pH modifier. The acid is diluted and used as awash solution in ion exchange columns.

Sodium hydroxide is trucked and stored at site. A solution of sodium hydroxide is prepared with purified water and used as a stripping agent in the boron solvent extraction circuit and as a pH modifier.

14.6 PLANT DESIGN BASIS

The following describes the criteria for the operation of the Lithium Carbonate Plant:

- Plant operating capacity is 40,000 tpa lithium carbonate product;
- The plant operates 292 days per year (80% runtime);
- Design factor of 1.2;
- Lithium carbonate plant yield is 85%;
- Lithium carbonate has a purity of at least 99.5%;
- 50 % of the production could be micronized;
- Final product particle size distribution will be set based on customer demand; and
- Product can be packed into 600 kg maxi bags for shipping and dispatching to customers or 20 kg bags of micronized product.
- Process efficiency design was 53.7%. Overall lithium recovery increased from 53.7% in 2024 to 63% in 2025 based on:

Area	Recovery
Ponds	>90%
Liming Plant	90%
Lithium Chemical Plant	77,4%
Total	**63%**

The reasons are:

- Recoveries in Pre-Concentration ponds stabilized in >90% from 2024 as those ponds are fully ramped up and under full harvesting cycle.
- Recoveries in Liming plant stabilized in 90% from mid 2024 as this plant completed ramp up.
- Recoveries in Post-Liming ponds increased in 2025 as more ponds enter into harvesting process, with related entrained lithium brine recovery.

- Recoveries in Chemical Plants improved from 70.1% in 2024 to 77.4% in 2025 as those plants completed ramp-up.

14.7 PROCESS CONFIGURATION UPDATE

Due to changes observed in product dynamics and market conditions, and with the objective of optimizing the project's techno-economic framework, a comprehensive review of the originally contemplated process scheme has been conducted. As a result of this analysis, a series of measures aimed at improving operational flexibility, overall process efficiency, and the ability to supply the target market were defined. Within this context, the reconfiguration of certain aspects of the production process is proposed, as described below:

- Alternatives for improved recycle of mother liquor and other Li rich waste streams, to allow improved recoveries and lower re-processing costs
- Installation of two new filters at the lime plant to increase process capacity and upstream operational flexibility.
- Improvements to the brine distribution and accumulation system from wells, and reconfiguration and addition of marginal pond area, based on brine dynamics, evaporation rates, and upstream demand.
- Preparation of soda ash using weak mother liquor (mainly wash waters) to recirculate internal streams, recover lithium, and optimize water usage.
- Reconfiguration of carbonation reactors to increase processing volume (changing from two lines with four reactors each to four lines with two reactors each) and to enhance operational flexibility.
- Increased operational flexibility at the KCl plant to improve response to unforeseen events.
- Reconfiguration of KCl RILES to improve process efficiency by routing them to the purification area.
- Modification of sulfate concentration to minimize lithium co-precipitation.
- Potential elimination of barium chloride dosing in the purification stage, depending on the specifications of certain products and customers.

15.0 INFRASTRUCTURE

15.1 MAIN FACILITIES LOCATION

Figure 15.1 and Figure 15.2 present aerial views of the location of the main facilities that are part of Cauchari-Olaroz, including:

- Wellfield;
- Evaporation ponds;
- Lithium carbonate plant;
- Salt and process residues disposal; and
- Camp.

15.2 BRINE EXTRACTION

15.2.1 Brine Extraction Wells

The Mineral Reserve model output states the required brine production rate is achieved with 39 brine wells. Additional 5 wells are planned for back up purposes (Table 15.1). It is estimated that an additional one well per year of operation will be drilled throughout the 40-year operation to maintain brine productivity.

Currently, 39 wells are considered for production. The wells will be screened across the most productive lithium bearing unit and sealed against freshwater aquifers.

TABLE 15.1
PRODUCTION WELLS ESTIMATE
(Re: Section 12.0)

Description	Unit	Value
Total brine from wells (average)	L/s	680.7
Estimated average well brine output	L/s	17.45
Number of wells planned	no.	39
Reserve wells	no.	5
Total production wells required	**no.**	**44**

15.2.2 Well Pumps

Submersible well pumps are equipped with variable speed drives. Flow from each well is monitored before discharging into a common pipeline. Brine from 7 wells is combined in two main pipelines that discharge into a collecting brine pool called 'PDA2'. A pumping station allows brine transfer into another collecting brine pool called 'PDA1'. Brine from the remaining wells is received in this collecting pool and the mixed brine is transferred to two main pipelines discharging directly into 'PDA1'.

The collecting brine pools ('PDA1' and 'PDA2') enhance brine homogenization as well as act as intermediate pumping stations before transferring the full brine flow into the pre-concentration ponds. Transfer pumps from PDA2 to PDA1 have sufficient flow to meet the demands of the pond system.

15.2.3 Additional Equipment in the Wellfield

In addition, the wellfield equipment required include:

- 10,000 L to 20,000 L capacity water trucks.
- Temporary portable diesel generators for well pump operation in early stages.
- Cable reel truck for electrical network.
- Electrical lines for proper power distribution; and
- Portable brine transfer pumps.

15.2.4 Wellfield Electric Power Distribution

A 60 km 13.2 kV transmission line from the main plant substation feeds the two substations in the wellfield located at brine collection ponds PDA2 and PDA1. The substations downgrade the voltage for distribution to the pond pumps. Low voltage aerial distribution lines feed power to well pumps, where local transformers provide 400 V power to well pumps.

15.3 EVAPORATION PONDS

There are 28 evaporation ponds located in the southeast area of the Property. The ponds configuration includes two parallel trains. Associated piping allows for flexible operation and bypassing of individual ponds for maintenance activities.

Figure 15.1 shows infrastructure plan with the location of the evaporation ponds, while Figure 15.2 shows the individual evaporation pond locations.

Figure 15.1 Aerial View - Main Facilities



Source: Exar (2026)

Figure 15.2 Aerial View of Evaporation Ponds



Source: Exar (2026)

15.4 SALT HARVEST EQUIPMENT

Pond design and operation require the removal of the salt deposits formed at the bottom of the ponds. Typical earthmoving machinery is used for salt removal, such as front-end loaders and dump trucks. There is a minimum salt depth in the pond to protect the liner from harvesting activities. Harvested salts, some of which are rich in potassium, will be stockpiled locally and available for future recovery pending market value.

15.5 LIMING STAGE

15.5.1 Quick Lime Reception

The quicklime is received from a truck that feeds storage silos by pneumatic conveying. Quicklime is converted to hydrated lime or "slaked Lime" where lime is reacted with water in the plant's engineered system. Lime slurry is discharged from the reaction system and is screened to remove larger agglomerated material and contaminants. The lime slurry is stored in a tank and distributed through a recirculating loop into two liming systems. One for higher quality lime, one for cost-effective and adequate lower quality lime.

The lower quality lime is used to treat the brine at the ponds. The reaction between the lime and the brine results in a precipitated solid containing almost all of the magnesium and most of the sulphate. The solids are filtered from the brine and washed to recover the lithium. The solids are then disposed of in an on-site salt pile, while the brine is sent for further concentration.

15.5.2 Liming System

In the liming system, a set of processes allow for the removal of magnesium and sulphate present in the lithium-rich brine obtained from the pre-concentration ponds. The process is carried out in three steps: 1) preparation of the milk of lime, 2) its addition to the brine and the resulting reaction, and 3) separation of the undesired precipitated solid byproducts of the reaction.

1. **Preparation of Milk of Lime:** Quicklime is delivered by truck and transferred to storage silos using a pneumatic conveying system. From the silos, the quicklime is mixed with water in a specially designed system, undergoing a typical slaking reaction.
2. **Lime addition reaction:** Milk of lime is introduced into lithium brine, triggering a reaction that forms magnesium and sulphate precipitates. This is done in 3 continuous stirred tank reactors in series. More than half of the unwanted initial sulphate and nearly all the magnesium originally present in the brine form precipitates.
3. **Separation of undesired solid byproducts:** These precipitates are subsequently removed using press filters, yielding a clarified brine. As a result, the filtered brine is left at a reduced sulphate content and nearly free of magnesium. The filter cakes are then transported to a landfill for final disposal.

The clarified brine is then transferred to the post-Liming evaporation ponds for further concentration. This additional concentration is necessary before the brine can be fed into the lithium carbonate plant.

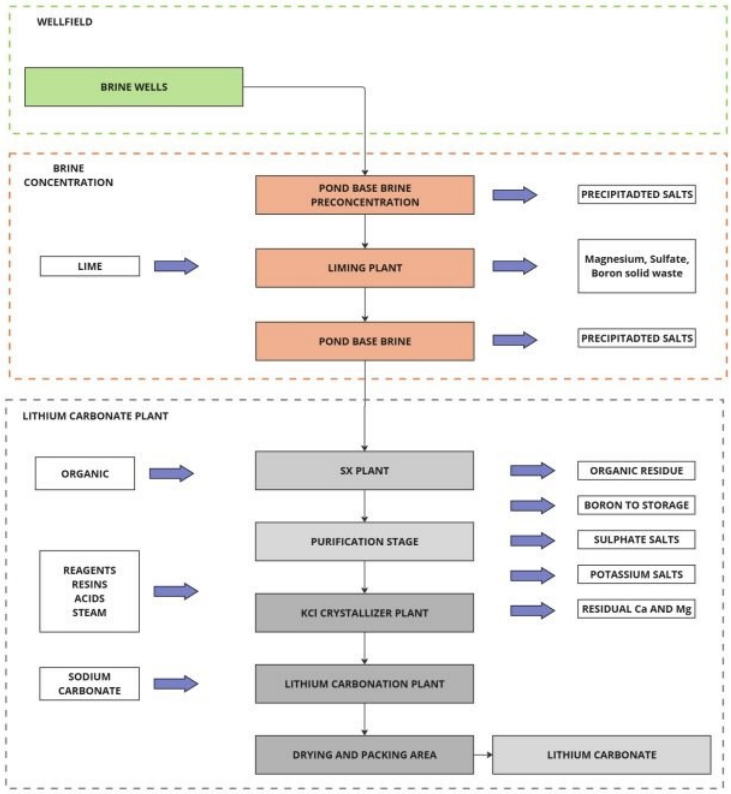
15.6 LITHIUM CARBONATE PLANT

The plant is located approximately 8000 m south of National Highway 52. Plant equipment is designed for an 80% On Stream Factor (7,006 hours per year).

15.6.1 Process Facilities

The process facility flow chart is shown in Figure 15.3 and is referred to in the sections below.

Figure 15.3 Process Facility Flow Diagram



Source: Exar (2026)

15.6.1.1 Boron Removal - Solvent Extraction

The boron concentration from the last evaporation pond is too high to make good quality lithium carbonate and most of it needs to be removed. A solvent extraction process has been engineered to reduce the boron concentration to <10 ppm. The feed needs to be conditioned prior to feeding the solvent extraction process. The organic material being used is highly selective for boric acid species, so the feed must be acidified prior to loading the organic material.

The extraction circuit is made up of a set of conventional mixing-decanters that contact an organic mixture to selectively remove the boron without dissolving in the brine. This phase loads the brine with boron compounds. The organic phase is then regenerated by removing the boron from the organic phase, while the purified brine is further purified.

The regeneration of the organic phase is done by a caustic solution in a set of mixing-decanters. The boron species are removed as sodium borate solution. The sodium borate solution is accumulated in intermediate ponds and later used for minor dilutions in pond pumping operations. The solids associated with this stream precipitate in the concentration pond system. The regenerated organic phase is recycled back to the extraction pipeline.

15.6.1.2 Brine Purification

The brine purification section targets the removal of Mg, Ca, B, and SO_4 to allow the evaporation system to operate at a low scaling rate and achieve the uptime target for the process plant.

15.6.1.3 Primary Treatment

The primary treatment uses slaked lime to precipitate magnesium and calcium borates. Additional reagents are added to remove sulphates. The primary treatment uses a higher quality of quick lime to purify the brine. These reagents precipitate the target ions as solids and are engineered to allow for efficient filtration and washing of the solids to maintain the yield of lithium. The wash water is returned to the process while the solids are sent to the final disposal pile. The purified brine is then sent to secondary treatment.

15.6.1.4 Secondary Treatment

The secondary treatment polishes the brine from the primary treatment to finish removing sulphates and divalent ions from the brine. The brine is treated with calcium chloride and barium chloride to eliminate the sulphate. A small dose of soda ash is used to remove the divalent ions as precipitated carbonates.

The slurry produced in the chemical treatment is sent to a solid/liquid separation system. This system filters off the solids and washes the solids with water to recover the lithium. The moist cake is then discharged into a storage pile. The brine from this treatment then goes to ion exchange for final purification of the divalent ions.

15.6.1.5 Primary IX

The purified brine from secondary purification filter is subject to an ion exchange treatment to remove impurities to minimum levels.

The IX system includes a set of columns that allow for continuous operation and resin regeneration process. Conventional steps are used for elution to restore the ion exchange capacity of the resin including elution, regeneration and washing. Multiple columns are cycled through the loading, regeneration, elution, and lag processes.

15.6.1.6 Brine Concentration and Na/K Reduction

After the filtration of the slurry from the brine purification plant, the brine is concentrated to increase the lithium concentration for final polishing prior to lithium carbonate production. This process removes NaCl and KCl salts from the brine to meet the target quality specifications. The resulting NaCl and KCl salts are separated from the brine with a centrifuge and washed with process condensate. The resulting wash liquid is recycled back to the feed for the evaporation/ crystallization. The solid NaCl and KCl salts are sent to stockpile disposal, and the purified brine is sent to the lithium carbonate precipitation reaction system.

15.6.1.7 Feed Preheat

The feed is preheated via a series of preheaters using condensate and steam to condition the brine prior to processing in the multiple effect evaporator. The steam heaters are used to raise the temperature.

15.6.1.8 Multiple-Effect Evaporation and Crystallization

A forced-circulation evaporator/crystallizer is utilized for the three-effect multiple effect design. The design of this system incorporates the third effect using two crystallizers. An additional centrifuge separates the NaCl from the second effect crystallizer. The discharge from the third effect crystallizer is sent to a flash-cooled crystallization stage.

15.6.1.9 Flash-Cooled Crystallization

The flash-cooled crystallizer provides further removal of salts by the controlled crystallization of KCl and NaCl. The mixed salts are removed from the crystallizer by a centrifuge.

15.6.1.10 Process Condensate Collection

Additional facilities include a process condensate handling, reverse osmosis feed water, and material handling equipment for solids handling.

15.6.1.11 Mg/Ca Polishing IX

In case to produce battery grade product, the conditioned stream from the evaporation is fed to ion exchange resin (IX) for further removal of Mg and Ca to less than 1 ppm. This is a conventional commercial circuit that allows for continuous operation and resin regeneration in a batchwise operation with continuous processing and purification of brine.

15.6.2 Lithium Carbonate Production

15.6.2.1 Carbonation

The lithium carbonate production system consists of reactive crystallizer that produces single-crystal product to obtain a high yield and consistent quality.

There are facilities to control temperature and pH and to dose the Na_2CO_3 to optimize precipitation conditions. A heat recovery system is also included in this stage. The crystallization train includes four reactors working in series.

15.6.2.2 Final Product

The resulting slurry is filtered to remove the lithium carbonate product. The filter operates as a counter current wash system using the wash water from the filtered stream. The final wash solution is used for dilution and the brine from the reaction is recycled to recover the lithium. A portion of solids are recycled from the separation system to the first one reactor to promote the crystals growing and improve the number of solids in the reactors.

The moist cake from the filter is centrifuged on a basket centrifuge and then fed to a rotary dryer. The wash water is sent to the counter current wash on the lithium carbonate filter.

The dryer is an indirect steam tube rotary dryer type. A baghouse is used to collect fine particles of lithium carbonate to control loss of final product.

The product is air-cooled while transported by a pneumatic system to storage. Then it is fed to the micronizer equipment to provide a defined particle size.

The lithium carbonate product is loaded in silos based on a packaging size system. It can be packaged into polyethylene big bags or sealed plastic bags.

15.6.3 Plant Wide Instrumentation

Well, pond, and plant control signals are be provided to a centralized control system. The control system utilizes redundant controllers. Communication with remote devices such as those associated with wells and ponds will utilize fiber optic communications. Distributed control system information, operation, and alarms are accessible from a centralized control room.

15.7 SUPPORTING SERVICES

15.7.1 Fresh Water

The freshwater requirements are provided by local wells within the watershed. The infrastructure for water handling includes wells, low-voltage transmission lines to power the wells, pipelines, storage tanks and reverse osmosis plants. Water is required by the process and both camps.

First, a pumping system fills a water storage tank located in the plant. This in turn feeds the fire water system and the raw water system. Raw water feed the ultra-filtration and reverse osmosis (RO) and water treatment plant to produce pure water for the process. At the time of this report the Company has applied to increase the freshwater use to 150 L/s which meet the water demands of an operation of more than 40,000 tpa LCE. The actual water consumption is 70-80 L/s.

Then, the well currently supplying freshwater to both camps are called PBI and is located 3.5 km north of the Operations Camp.

The infrastructure installed at Campamento de Construcción includes a 20 m^3 raw water storage tank, two reverse osmosis plants that together have a production capacity of 7.74 m^3/hour, 110 m^3 of treated water storage distributed in 4 tanks and a pressurization system.

The Operations Camp has a 25 m^3 raw water storage tank, two reverse osmosis plants that together have a production capacity of 13 m^3/hour, 160 m^3 of treated water storage distributed in 6 tanks, and two pressurization systems. In addition, the reverse osmosis plant supplies water to 4 tanks of 25 m^3 each for the firefighting system.

15.7.2 Sanitary Services

Each camp has an effluent treatment plant that receives and treats sanitary effluents.

These plants work under the activated sludge system and generate a treated effluent whose physical parameters make it suitable for use in road irrigation or disposal in infiltration beds.

15.7.3 Diesel Fuel

The plant includes a diesel storage and dispensing station for mobile equipment and transport vehicles. The total storage capacity is 210,000 liters of diesel.

Diesel fuel is used in electric generators, cargo vehicles, vans, road equipment and special equipment used in operations (cranes, telescopic handlers, forklifts). Spill kits and fire fighting equipment are located on equipment and in each building and designated area.

15.8 PERMANENT CAMP

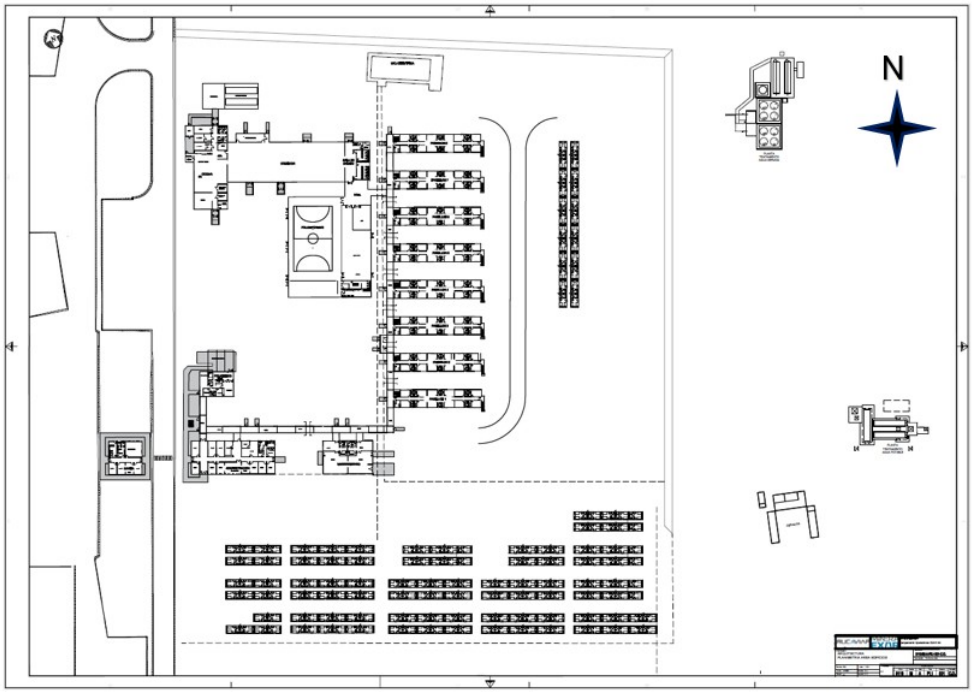
The permanent camp (called Operations Camp), and the Construction Camp are located 8,000 m south of National Highway 52. The Operations Camp is a complete housing and administrative complex to support all activities of the operation with a capacity of 762 people.

The Operations Camp includes office buildings, living area, dining facilities, medical room, and recreation areas, consisting of a gym, an indoor sports centre, a recreation room and an outdoor soccer field.

In the Construction Camp there are eight housing modules with a total capacity of 392 people, which are only used occasionally. In addition, this camp includes the pilot plant facilities, water treatment plants and contractor workshops.

Figure 15.4 shows the camp layout and its components.

Figure 15.4 Project Infrastructure Camp General Layout



Source: Exar (2026)

15.8.1 Other Buildings

Additional buildings in Operations Camp include:

- Lithium carbonate plant.
- Spare parts and consumables warehouse building.
- Soda ash storage building.
- Final product - lithium carbonate - storage building.
- Chemical laboratory.
- Maintenance Shop.
- Water treatment plants.

All buildings are equipped with appropriate lighting, heating, ventilation, and security provisions. Buildings and specially equipped vehicles are equipped/furnished with safety showers, spill kits, first aid kits, etc.

15.8.2 Security

At the main entrance of the plant, there is a barrier and a security booth to grant access to the facilities. Then, there is a second access control point upon reaching the main module of the camp. There, individuals' entry is registered again using facial and fingerprint recognition.

Given the remote location of the facilities, it is not necessary to enclose the plant with a metallic perimeter fence. The plant is illuminated to allow night work and improve security.

15.9 OFF-SITE INFRASTRUCTURE AND SUPPORT SYSTEMS

15.9.1 Natural Gas Pipeline

The natural gas pipeline transport fuel to the Project from the Rosario gas compression station located 52 km south of the plant. The main pipeline belongs to Gas Atacama. This natural gas pipeline has sufficient capacity to supply its current users and the needs for the Project site.

The Exar Gas Pipeline began operations on April 28, 2022, with a pressure of 25.5 bar. It has a length of 53,044 metres, a diameter of 6 inches, and a pipe wall thickness of 4.8 mm in regular terrain and 7.11 mm in special crossings (Schedule 40, API 5L GrB). The pipeline draws gas from the mainline owned by the ENEL-Gas Atacama Group, which is a 20-inch export pipeline that is supplied by REFINOR and TGN (Vaca Muerta).

The Exar gas pipeline operates according to the following specifications:

- Maximum Operating Pressure (MAPO): 27 barg.
- Design Pressure: 82.5 bar (NAG-100/Section 105 / Design Factor: 0.60).

It is a welded pipeline with 100% of its welds radiographed, following API 1104 standards, and it has a 1600-micron anticorrosive coating (NAG-108 (2009), Subgroup G4.2). It includes a Cathodic Protection System using Sacrificial Anode Batteries (High-Potential Magnesium Alloy, AZ-63).

Minimum burial depth is 1.00 m, with 2.50 m for road crossings and 3.50 m for water crossings. Along its route, there are two automatic line valves, as well as a Primary Regulation and Measurement Station, where it connects to Gas Atacama and measures the flow mainly consumed by two boilers that generate steam for Exar's processes.

The maximum flow rate (Qmax) is 6600 Sm^3/h of natural gas, and the Company is currently in a ramp-up phase, consuming an average of 3300 Sm^3/h.

15.9.2 Electrical Power Supply

Electricity is provided by a new 33 kV transmission line that interconnect with an existing 345 kV transmission line located approximately 60 km south of the Project. The interconnection consists of a sub-station with a voltage transformer (345/33 kV) and associated switchgear.

A stepdown 33/13.2 kV substation at the Project site, consist of two voltage transformers (33/13,2 kV, 15-20 MVA), one (1) 33 kV electrical room and one (1) 13.2 kV electrical room with suitable switchgears and auxiliary equipment for the 13.2 kV local distribution system.

The 13.2 kV local electrical distribution system provides power to the plant, camp, intermediate brine accumulation and homogenizing pools/lime pumps, wells, and evaporation ponds. In general, all the distribution is based on overhead lines, unless there are major restrictions then the underground distribution is adopted.

The estimated average load for the Project is around 8.4 MW or 72.240 MWh/y, assuming a plant and periphery utilization factor of 0.86. The power line has sufficient capacity for this load plus the existing users. The installed power energy is 16 MW.

The whole electrical system is designed for the maximum load condition plus a safety factor of 1.2.

A stand-by diesel generating station, located close to main substation, will power selected equipment during outages. Also, the project has 2 UPS to sustain energy for a perior and to stabilize.

15.9.3 Water Pipeline

A 53 km long water pipeline parallel to the gas pipeline was constructed to transport 105 L/s to the lithium plant. The actual water consumption is 70-80 L/s.

15.9.4 Control Systems and Instrumentation

15.9.4.1 Control and Data Building

The Project considers the design of a single Control and Data Building, dedicated to the control and monitoring of Plant and Peripherals, located near the electrical substation, which contains the following rooms:

- 1 control room.
- 1 communication room.
- 2 server room.

- 1 HVAC room.
- 1 UPS room.
- 3 offices
- 1 meeting room.

15.9.4.2 Telecommunications System

Necessary infrastructure for the proper functioning and integration of the systems and services that are being used in the Project, specifically, the Control Networks, Auxiliary Services, CCTV and SCADA, including:

- 125 km of Optical Fiber 48 Core Single-Mode ADSS Cable; and
- 50 Communications and Fiber Optic Cabinets.

This infrastructure interconnects all the Electric Rooms, Control Room, Communications Room, SSEE, Powerhouse, Laboratory, TAS Plant, Truck Weighing, and Control Checkpoint.

This year, the following improvements will be implemented:

- A real-time monitoring system to provide just-in-time visibility into what is happening at the core communication devices level.
- Implementation of redundant network infrastructure (optical fiber, "O.F.") to ensure high availability of the SCADA system.
- Implementation of a network management and logical security service to enable proactive operations.

15.9.4.3 Control System

The Control System is responsible for the control and supervision of the process in the Plant and Peripheral areas of the Exar Lithium Project. The Control System is based on a conventional Control System with integral architecture.

The Control System is made up of the following main components:

- Control Panels - Local and redundant controllers.
- Remote Inputs and Outputs Panels.
- Operation and Engineering Stations.
- Video-Wall.
- Servers and printers.
- Instrumentation:
  - Analog Signal, 4-20 mA with Hart protocol.
  - Digital Signal, with control voltage in 24Vdc.
- Process Control Network: Considered in the scope of the Telecommunications System, ETHERNET network over optical fiber, with ring topology, which allows the Control Panels to interact (higher level), and star topology to communicate with operated equipment (lower level).

- Control Subnetworks: Considered in the scope of the Telecommunications System, ETHERNET network over fiber optic, which allows to communicate the Panels of Remote Inputs and Outputs with their Controllers, and the motor controls, either smart relay or frequency drivers, with the associated Controller, both with an independent ring topology. A new Control Room, the "Control Room Intelligence Center," will be created, where the entire operation can be monitored in real time.

15.9.4.4 Other Systems

The following systems are outside the scope of Engineering, so the following infrastructure is defined by others:

- CCTV System.
- Fire Detection System.
- IP Telephony System; and
- Access Control System.

However, in the developed infrastructure (fiber optic networks), communication networks have been enabled for them to be implemented on them, without the need to make new fiber optic tracings.

Other systems to be implemented:

- Real Time - Operational Intelligence Center): An "Operational Intelligence Center" will be implemented for Hydrogeology Area and another for Brine Production, enabling both areas to fully monitor operations in real time and make just-in-time decisions. In addition, predictive systems will be implemented to rapidly improve production efficiency. This will also allow data from both areas to be correlated with other systems such as SAP and satellite systems.

- IA Athena Platform: Approximately 70% of an AI platform has been developed and implemented, which correlates data across the entire plant and enables real-time identification of production deviations, while also providing information to implement real-time improvements to enhance production efficiency.

- The objective is to complete 100% coverage and, based on this platform, develop a simulation system and digital twins. The goal is to simulate scenarios without incurring additional costs associated with physical testing, which has been the approach used to date.

16.0 MARKET STUDIES

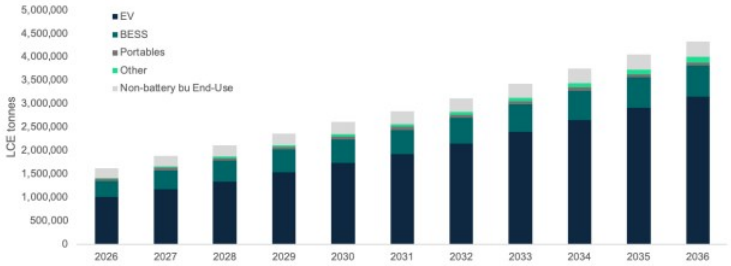
This section provides a summary of the supply and demand of lithium and price forecasts. Material presented in this chapter is primarily from the, Benchmark Minerals Lithium-Supply-Demand-Price-Forecast Q4 2025 Report, and U.S. Geological Survey, Mineral Commodity Summaries (USGS), January 2025.

16.1 LITHIUM DEMAND

Lithium has unique properties that enables its use in many applications. As the lightest metal with a high electrochemical potential, lithium is particularly well suited for energy storage. Lithium-ion batteries represent the most electrochemically mature and commercially proven technology for electric vehicles, battery energy storage systems ("BESS"), owing to their high energy density, efficiency, and scalability., lithium is also used in a variety of industrial applications, including glass and ceramics, lubricating greases, metallurgy, pharmaceuticals, and polymers.

According to Benchmark Minerals Intelligence, global lithium demand is expected to grow at a sustained double-digit pace through the end of the decade, driven primarily by battery applications. Benchmark projects global lithium demand to increase by approximately 20% year-on-year in 2026, with incremental annual demand growth of roughly 250-300 kt LCE per year through 2030 under its base-case scenario. Battery applications remain the dominant source of demand, with electric vehicles accounting for approximately three-quarters of total battery-related lithium consumption, while BESS represent the fastest-growing segment. Benchmark estimates that BESS demand will expand by approximately 48% in 2026, reaching ~427 kt LCE, supported by accelerating global grid-scale and behind-the-meter deployments. Industrial and other non-battery uses are forecast to contribute a ~210 kt LCE of demand in 2026, with around half of this demand concentrated in China. Over the longer term, Benchmark forecasts lithium demand to grow at a ~9.7% compound annual growth rate from 2025 to 2040, with battery demand increasingly dominated by lithium-ion chemistries, reinforcing lithium's strategic importance in electric mobility, stationary energy storage, and high-energy-density applications. (Figure 16.1).

FIGURE 16.1 LITHIUM DEMAND IN BATTERIES (2024)

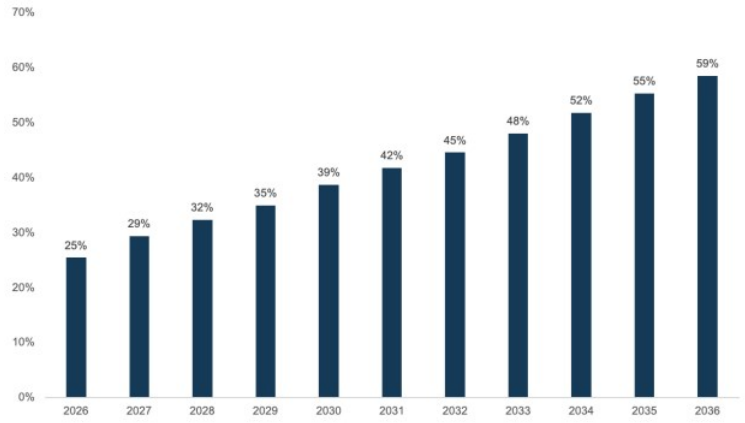


Source: Benchmark Minerals Lithium-Supply-Demand-Price-Forecast Q4 2025.

Lithium has been listed as one of the critical elements by the U.S. Department of Energy based largely on its importance in rechargeable batteries. Lithium-ion battery is the preferred form for high-density applications like EVs and portable electronics. A full-electric EV can require over 50 kg of LCE in the battery.

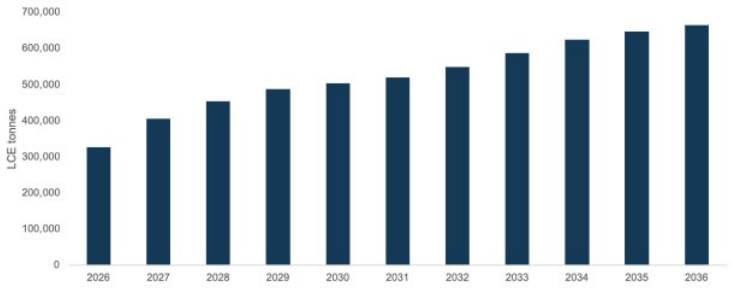
Lithium consumption is expected to increase significantly in the coming years driven by a rapid increase in demand for EVs and BESS. According to Benchmark Minerals, EV sales have grown by 3.5 -4.0 million EVs per year over the last three years, which represents between 200-250 kMt-LCE incremental demand year on year. The EV penetration rate forecast is presented in Figure 16.2 and the BESS penetration rate forecast is presented in Figure 16.3.

Figure 16.2 EV Penetration Rate Forecast



Source: Benchmark Minerals Lithium-Supply-Demand-Price-Forecast Q4 2025.

FIGURE 16.3 BESS GLOBAL DEMAND GROWTH



Source: Benchmark Minerals Lithium-Supply-Demand-Price-Forecast Q4 2025.

While Benchmark Minerals Intelligence has identified notable rapid shifts within the industry such as the structural shift of EVs and BESS markets towards Lithium Iron Phosphate chemistry, competing chemistries to Lithium based batteries such as Sodium Ion chemistries have been categorized as hedges to lithium demand rather than as replacement or displacement options. Benchmark does not view the potential adoption of these technological developments as representing significant impact to the demand outlook, rather they should be viewed as strategic supplements with a generally low impact to overall demand. Benchmark has noted that the market share of competing technologies such as Sodium Ion represents less than 1% of the market in 2025. Furthermore, Benchmark also notes that the estimated production increases of both solid state and lithium metal batteries will likely support demand growth.

16.2 LITHIUM SUPPLY

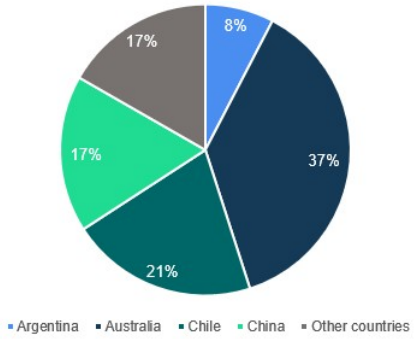
Lithium occurs in the structure of pegmatitic minerals, the most important of which is spodumene (hard rock) and due to its solubility as an ion, is also commonly found in brines and clays. Pure lithium does not occur freely in nature, only in compounds. Starting in the 1980s, brine-based lithium chemicals provided most of the supply; however, in recent years, hard rock forms have surpassed brine as the largest feedstock for lithium chemical production.

As a result of continued exploration, Measured and Indicated lithium Mineral Resources have increased substantially worldwide and total about 115 million tonnes. (USGS, January 2025).

The world's largest known lithium reserves are in Chile, which accounts for 31% of lithium reserves, followed by Australia with 23%, and Argentina in third place, accounting for 13% of global reserves (USGS, January 2025). Lithium production is summarized in Figure 16.4.

China is a global leader in lithium refining and battery production, with a highly advanced and integrated supply chain. It imports raw lithium minerals, mainly from Australia, South America and increasingly Africa and then processes them into lithium compounds, such as lithium hydroxide and lithium carbonate.

Figure 16.4 Lithium Production (2024) by Country

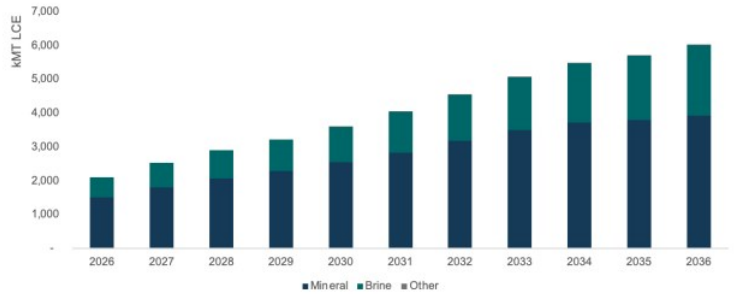


Source: U.S. Geological Survey, Mineral Commodity Summaries, (January 2025). It excludes US production.

Minerals are expected to play a key role in meeting the growing demand for critical resources in the coming years, contributing the majority of the incremental supply. The global lithium production is largely driven spodumene operations in Australia, brine operations in Chile and Argentina. Over the last 12 months, Australia's spodumene lithium exports were approximately 530,000 metric tonnes of LCE, Chile's lithium exports were about 270,000 metric tonnes of LCE, and Argentina's lithium mineral exports reached approximately 90,000 metric tonnes of LCE (Benchmark Minerals Lithium-Supply-Demand-Price-Forecast Q4 2025). The lithium supply forecast per resource type is presented in Figure 16.5 and per country in Figure 16.6.

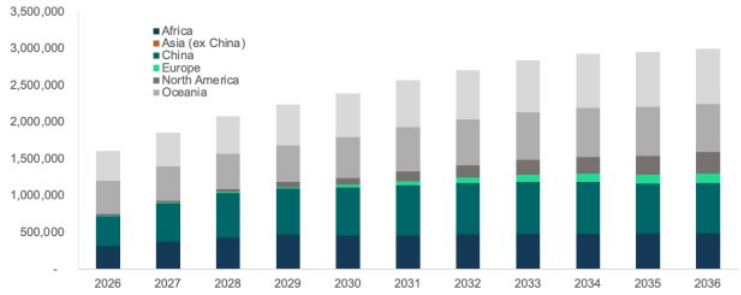
Currently, Argentina has nine active lithium projects, collectively producing approximately 90,000 metric tonnes of LCE. This growth highlights Argentina's increasing role in the global lithium market as demand for critical resources continues to rise.

Figure 16.5 Lithium Supply Forecast per Resource Type



Source: Benchmark Minerals Lithium-Supply-Demand-Price-Forecast Q4 2025.

Figure 16.6 Lithium Supply Forecast per Country



Source: Benchmark Minerals Lithium-Supply-Demand-Price-Forecast Q4 2025.

Benchmark Minerals has noted that the expected market balance of lithium carbonate equivalent is expected to flip from a short-term oversupply in 2025 of ~10 kt to a medium-term relative balance between 2026 to 2029 and to a potential long term structural deficit of ~300 to 570 kt from 2030 through 2035.

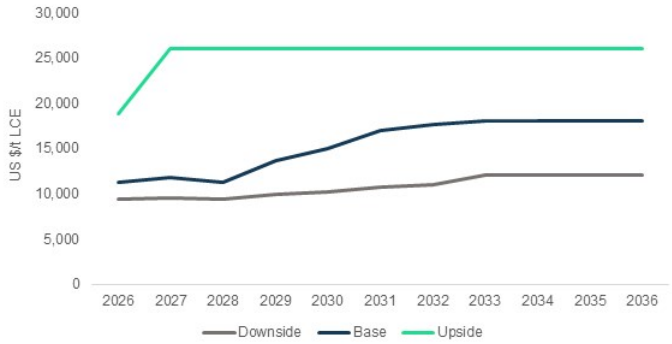
16.3 PRICE FORECAST

As the global transition toward sustainable energy accelerates, lithium has become a critical raw material. Over the past decade, alternating periods of supply constraint and oversupply have contributed to pronounced price volatility. Lithium prices increased sharply between 2021 and 2023, briefly peaking at approximately US$80/kg, before correcting significantly and continuing to trend lower through 2024 and into 2025 as new supply entered the market and demand growth moderated outside of China. In recent months, prices have rebounded into 2026, more than doubling from cyclical lows.

More recently, market conditions have begun to reflect increased capital discipline across the industry, with high-cost projects deferred, operating curtailments implemented, and investment increasingly focused on lower-cost, scalable production. At the same time, continued investment in lithium extraction technologies, including direct lithium extraction ("DLE"), and selective capacity expansions are expected to influence the future supply-demand balance. As a result, market analysts generally anticipate a period of greater price stability over the medium term as supply rationalization and structurally growing battery demand move toward improved market balance.

A range of projected prices to 2040 is presented in Figure 16.7.

FIGURE 16.7 PROJECTED PRICING FOR BATTERY-QUALITY LITHIUM CARBONATE USED IN ECONOMIC MODEL



Source: Benchmark Minerals Lithium-Supply-Demand-Price-Forecast Q4 2025.

The average prices for the life of project are displayed in Table 16.1.

Table 16.1 Average Pricing Scenarios Adopted for the Economic Analysis of the Project		
Pricing Scenarios Average price Per Tonne - Battery-Quality Lithium Carbonate		
Low	**Medium**	**High**
US$16,000	US$18,000	US$20,000

Realized pricing for Exar is based on these price scenarios adjusted for deductions related to the removal of trace levels of impurities to achieve battery quality lithium carbonate.

16.4 OFFTAKE CONTRACTS

LAR's offtake entitlement is governed by an upstream sales agreement between Minera Exar S.A. (seller) and Lithium Argentina AG (buyer), under which LAR is obligated to purchase its 49% proportion of production. LAR has in turn entered into separate downstream sales agreements with Ganfeng and Bangchak for portions of that entitlement, as described below.

Production from the Project is divided between the partners of Exar according to their ownership, excluding JEMSE's 8.5% interest (Ganfeng 51% and LAR 49%). Accordingly, LAR is entitled to 19,600 tpa of LCE based on a full production rate of 40,000 tpa. LAR has entered into lithium carbonate offtake agreements with two counterparties, Ganfeng and BCP Innovation Pte Ltd. ("Bangchak"). These offtake agreements are related to strategic investment agreements by the counterparties, which include both debt facilities for Project construction and equity investments. Assuming a 40,000 tpa production rate and LAR maintaining its 49% interest in the Project, the Ganfeng offtake agreement entitles Ganfeng to acquire 9,800 tpa of LCE (80% of 49% of the first 25,000 tpa of production), while the Bangchak offtake agreement entitles Bangchak to acquire 6,000 tpa of LCE (20% of 49% of the first 25,000 tpa plus 46.67% of production above that rate), at prices referenced to the simple average of Shanghai Metals Market (SMM) and Fastmarkets reported prices for battery-grade lithium carbonate (99.5% min., CIF China, Japan and Korea) over a defined window prior to each export shipment, subject to adjustments for delivery location and product quality. The remaining 3,800 tpa is unallocated, subject to certain rights of Bangchak to top-up its offtake entitlement to 6,000 tpa from this unallocated amount in certain circumstances.

For clarity at a production rate of 40,000 tpa, Ganfeng is entitled to its 51% share of production (20,400 tpa) and 80% of LAR's share of production up to 25,000 tpa (9,800 tpa) or, in aggregate, 75.5% of 40,000 tpa (30,200 tpa).

The current upstream sales agreement between Minera Exar and LAR is effective January 1 to December 31, 2026, consistent with prior annual agreements between the parties. No long-term upstream offtake agreement is currently in place.

17.0 ENVIRONMENTAL STUDIES, PERMITTING AND PLANS, NEGOTIATIONS OR AGREEMENTS WITH LOCAL INDIVIDUALS OR GROUPS

17.1 EXECUTIVE SUMMARY

This section provides an overview of the environmental management, permitting, and social aspects of Cauchari-Olaroz. The Project, operated by Exar, is currently in the exploitation phase with a planned lithium carbonate production capacity of 40,000 tonnes per year. The Project has transitioned from commissioning into sustained operations during 2023-2024. It is governed by Argentina's national and provincial regulations and aligns with international frameworks such as the Equator Principles. The chapter outlines baseline environmental studies, key permitting milestones, social impact assessments, and strategies for stakeholder engagement. Critical findings highlight stable environmental conditions, validated through operational monitoring (2024-2025), effective mitigation measures, and robust community relations.

17.2 INTRODUCTION

This chapter focuses on the environmental, permitting, and social aspects of the Cauchari-Olaroz Mining Deposit and Industrial Plant, located in the Susques Department, Jujuy Province, Argentina. Operated by Exar. The Project is currently in the exploitation stage, and has transitioned from commissioning into sustained operations, with lithium carbonate (Li_2CO_3) produced at a nameplate capacity of 40,000 tonnes per year (tpa). The Project's environmental management is currently governed by the Declaration of Environmental Impact (Declaración de Impacto Ambiental, DIA), issued under Resolution DMyRE No. 080/2020, which approved the biennial update of the Environmental Impact Report (Informe de Impacto Ambiental, IIA).

A new biannual update to the IIA for the period 2023-2025 has been submitted under Decree 7751-DEyP-2023 and is currently being assessed by the Authorities. Project operations continue under the approvals granted by the existing DIA and previously approved exploitation IIAs.

This chapter also aligns its assessment with the requirements of Decree No. 7751-DEyP-2023, under General Environmental Law No. 5,063. The decree, which includes Annexes I through VI as its regulatory framework, ensures the Project operates within the latest environmental guidelines, and replaces Decree No. 5772-P-2010.

Exar adhered firmly to the Equator Principles1 (EP) even before exploration operations began. These principles are a voluntary commitment, which arose from an initiative of the International Finance Corporation (IFC), member of the World Bank Group, to stimulate sustainable private sector investment in developing countries. Financial institutions that adopt these principles are bound to evaluate and consider environmental and social risks of the projects they finance in developing countries and, therefore, to lend only to those who show the proper administration of its social and environmental impacts such as biodiversity protection, use of renewable resources and waste management, protection of human health, and population movements.

In this context, Exar established from the outset that the Equator Principles would constitute the minimum standards for development of the Project. Implementation of these principles includes an explicit commitment to understanding and respecting local customs, traditions, lifestyles, and needs; compliance with applicable national standards; and the establishment of safety procedures for employees, consultants, and contractors.

1 EP: Credit risk management framework for determining, assessing and managing environmental and social risk in Project Finance transactions.

Free and Prior Informed Consent (FPIC) is respected through the provision of timely, accessible information to nearby communities and the maintenance of ongoing, two-way communication prior to the initiation of each Project stage.

Where relationships with communities are formalized through agreements defining roles and responsibilities, these instruments are used to reduce the risk of misunderstandings regarding the presence, activities, and intentions of Exar in the Project area. Records of agreements, meetings, and negotiations are maintained as part of the Project's stakeholder engagement framework.

Indigenous and Tribal Peoples' Rights: As defined in the ILO (International Labour Organization[2]), will be ratified and will respect the Indigenous and Tribal Peoples' Convention, 1989 (No. 169).

Exar commits to maintain a contract registration, records of all the meetings with communities and reports relating to negotiations with property owners.

The team responsible of keeping the proper community relationships will manage this process through specific programs and the CEO of Exar will be informed regularly and directly about them.

17.3 ENVIRONMENTAL STUDIES

17.3.1 Executive Summary

Environmental studies for Cauchari-Olaroz include detailed baseline data collection on climate, air quality, noise, water quality, soil conditions, flora, fauna, limnology and cultural heritage. These baseline studies have been complemented by systematic environmental monitoring during the operational phase, including participatory monitoring campaigns conducted quarterly during 2024 and 2025, following the Project's transition from commissioning into sustained operations during 2024-2025.

The physical and biological monitoring programmes conducted during March, June, September and December 2024, and March, June, and September 2025, demonstrate environmental conditions that are consistent with pre-operational baselines, regional climatic variability, and expected seasonal patterns characteristic of the Puna environment.

No systemic adverse trends attributable to Project operations have been identified in the monitored physical environment parameters during the reviewed period.

17.3.2 Objective

This section presents the environmental baseline studies, impact evaluation framework, and operational monitoring outcomes for Cauchari-Olaroz. The framework adheres to Argentinean provincial and national environmental standards and aligns with international best practices, including the Equator Principles, for operational stage mining projects.

2 ILO: International organization responsible for drawing up and overseeing international labour standards.

Geology and geomorphology, hydrogeology, and hydrology are covered in Sections 6.3 to 6.5, Section 6.6 and Section 6.5 respectively.

17.3.3 Baseline Studies

17.3.3.1 Sources of Baseline Data

Environmental and social baseline data were compiled through extensive studies commissioned by Exar. Initial studies were conducted between 2010 and 2011, with regular updates and quarterly participatory monitoring from 2017 to 2025. Environmental Impact Reports (EIRs) have been periodically updated and approved to reflect evolving Project layouts and operational conditions.

Following the commencement of sustained operations during 2023-2024, the environmental dataset has evolved from a purely baseline characterization to a combined baseline and operational monitoring framework. This approach allows for temporal comparison of pre-operational, commissioning, and operational phase conditions while maintaining methodological continuity.

17.3.3.2 Methods Used for Data Collection

Monitoring during 2024 and 2025 applied the same field methodologies, analytical techniques, and QA/QC procedures established during earlier baseline campaigns, ensuring comparability across time. Monitoring campaigns were conducted across wet season, dry season, and transition periods, allowing observed variability to be interpreted within the context of natural climatic cycles typical of the high-altitude Puna environment.

17.3.3.2.1 Air Quality

Air quality monitoring confirms that particulate matter and gaseous pollutant concentrations remain within applicable guideline values. Observed variability is seasonally influenced, with higher short-term particulate levels generally associated with dry season conditions and elevated wind speeds.

Noise measurements align with the World Health Organization (WHO) guideline limits for Equivalent Continuous Sound Level (Leq) of 70 dB(A) for industrial areas. Comparisons over multiple campaigns indicate gradual reductions in ambient noise levels at some monitoring points.

17.3.3.2.2 Water Quality

Surface and groundwater quality during 2024-2025 remains consistent with historical baseline conditions. Naturally elevated concentrations of certain parameters, including boron and aluminium, persist and reflect regional geological and geochemical controls. Seasonal variability is evident, particularly during wet season campaigns, but no progressive operationally driven trends have been identified.

17.3.3.2.3 Soil Quality

Soil monitoring confirms that soil characteristics are consistent with historical baseline conditions and expected natural variability. No evidence of soil contamination or degradation attributable to Project operations has been identified.

17.3.3.2.4 Flora

In addition to baseline vegetation monitoring, targeted diagnostic monitoring has been implemented in localized areas subject to temporary disturbance, to evaluate post-intervention regeneration dynamics. Assessments conducted during late 2024 identified variable regeneration responses across restoration zones, reflecting differences in disturbance history, substrate conditions, and species colonisation patterns. Regeneration is dominated by native pioneer and shrub species characteristic of the Puna environment.

Flora monitoring during 2024-2025 confirms the continued dominance of Puna steppe and halophytic communities. Temporal variability in species richness and reflects seasonal moisture availability rather than operational influence. Recent comparative studies highlight increased vegetation stability in disturbed areas due to restoration efforts.

17.3.3.2.5 Fauna

Baseline studies identified 57 species through direct observation and monitoring. Faunal monitoring results for mammals, reptiles, and amphibians are consistent with historical baseline conditions and expected seasonal patterns. Subsequent operational monitoring indicates no evidence of displacement, habitat loss, or operationally driven decline.

Specific attention was given to vicuñas, flamingos, and other species of conservation concern. Long-term monitoring reveals stable vicuña populations and improved Andean flamingo numbers, particularly around Vega Olaroz Chico.

17.3.3.2.6 Limnology

Limnological monitoring of high-altitude aquatic systems indicates stable ecological conditions. Biological indices derived from macroinvertebrate and planktonic communities reflect natural hydrological and physicochemical variability, with no evidence of Project related degradation.

17.3.3.2.7 Cultural and Archaeological Studies

Surveys identified 52 archaeological sites across five Project sectors, with sensitivity categorized based on potential impacts. These studies comply with Provincial Law No. 4,133/84 and National Law No. 25,743/03, which regulate the protection of archaeological and paleontological heritage.

Sites located in the West and Centre West sectors exhibit medium-to-high sensitivity, with archaeological sites CV02, CV08, CV09, CV10, and CV26 classified as high sensitivity in the 2012 Environmental Impact Assessment.

No significant paleontological findings, though precautionary measures are implemented for future activities.

Medium-to-high sensitivity archaeological sites in the West and Centre West sectors require specific mitigation measures during construction and operational phases. The protection of identified cultural heritage resources aligns with national and provincial regulations.

17.3.3.2.8 Ecosystem Characterization

The Project area has a low diversity although there are some zones within it that are more diverse than others, such as shrub steppes and meadows, the Archibarca cone being the zone with the greatest biodiversity within the Project area.

Follow up fauna and flora monitoring campaigns were carried out around the pilot plant in March 2015 and in October 2016 and quarterly participatory monitoring from 2017 to 2025. Diversity results indicate that there is no significant change in the diversity parameters.

17.3.3.2.9 Landscape

In general, the fragility and visual quality of the landscape around the Project have values ranging from medium-high to medium-low, with the Cauchari-Olaroz Salt Flats landscape unit having the highest visual quality and fragility value.

Protection, correction, or mitigation of environmental impacts on the landscape, which will decrease the impact of future extractive activities, is required to preserve the current morphology of the landscape, chromatic variation, landscape perspectives as well as the preservation of the natural ecosystem. This has been covered within the context of the Environmental Impacts Report for Exploitation and is especially pertinent with respect to the height of the salt heaps and visibility of the ponds from the national and provincial roads.

17.3.4 Environmental Impacts

17.3.4.1 Potential Sources of Impacts

Potential environmental impacts arise from activities related to brine extraction, evaporation pond operations, processing plant activities, vehicle traffic, materials handling, and supporting infrastructure. The sources were identified during earlier Project phases and remain applicable under the current operational configuration of the Project.

The Project generates salts and liquid wastes during the process, mainly brines, which do not represent a contamination risk. These liquid wastes are sent to evaporation ponds, but the Project does not require a tailings dam.

17.3.4.2 Impact Evaluation Framework

Impacts are evaluated using a structured framework considering the magnitude, spatial extent, duration, frequency, reversibility, and receptor sensitivity. This framework is applied consistently across Project phases and integrates regulatory thresholds, baseline conditions, and professional judgement.

17.3.4.3 Overview of Observed Impacts

Operational phase monitoring during 2024-2025 indicates that observed variations in physical and biological parameters are consistent with natural seasonal and inter-annual variability. No significant adverse operational impacts have been identified.

17.3.4.4 Air Quality Impacts

Air quality impacts remain low and localized, with monitored concentrations of particulate matter and gaseous pollutants remaining within guideline values and no evidence of cumulative effects.

17.3.4.5 Noise Impacts

Noise levels remain consistent with baseline and commissioning period conditions, with variations driven by short-term activities and meteorological factors.

17.3.4.6 Surface Water Quality Impacts

Surface water quality remains stable relative to baseline conditions, with seasonal variability observed during wet season periods and no operationally driven deterioration identified.

17.3.4.7 Groundwater Quality Impacts

Groundwater hydrochemistry remains consistent with baseline composition. Observed elevated concentrations of certain constituents reflect natural background conditions associated with natural salar geochemistry.

17.3.4.8 Soil Quality Impacts

Soil quality impacts remain limited a localized, with monitoring confirming baseline consistency.

17.3.4.9 Biological Environment - Impact Overview

The results of localized restoration diagnostics support the conclusion that biological impacts associated with surface disturbance are spatially limited and, in most cases, reversible. Variability in regeneration rates reflects site-specific conditions rather than systemic constraints on ecological recovery, and no evidence of broader landscape-scale biological degradation has been identified.

Biological monitoring confirms that flora, fauna, and limnological indicators remain stable, with no operationally driven adverse impacts identified.

17.3.4.10 Conclusions

Environmental impacts at Cauchari-Olaroz have been identified and are being successfully mitigated through established management and monitoring measures.

17.3.5 Monitoring Programs

As part of its adaptive environmental management framework, the Project has undertaken pilot-scale diagnostics in selected disturbed areas to inform restoration and closure planning. These activities complement the broader biological monitoring program and provide site-specific information on natural regeneration potential, species responses, and the effectiveness of passive and assisted restoration approaches.

Findings from these diagnostics are used to refine management practices over time and do not alter the scope or objectives of the approved environmental monitoring programs.

Environmental Monitoring programmes are implemented quarterly and integrate physical and biological components. Programmes are designed to verify regulatory compliance, confirm mitigation effectiveness, and support early identification of potential operational impacts. Participatory monitoring involving nearby communities forms an integral component of the monitoring framework.

Results from the 2024-2025 monitoring campaigns confirm temporal stability of key indicators, reinforcing conclusions regarding the absence of operationally driven impacts.

17.3.6 Environmental Management Plan

17.3.6.1 Purpose of the EMP

The Environmental Management Plan (EMP) sets out in detail the measures to be implemented both in the medium and long term to prevent the negative effects or impacts generated by the Project on physical, biotic and social factors.

The actions implemented by Exar through the EMP are designed to ensure that activities are carried out in an environmentally responsible and sustainable manner during the construction, operation, closure, and post-closure phases. The EMP aims to prevent, control, and reduce the negative impacts of the Project's activities.

Preventing impacts involves the introduction of protective, corrective, or compensatory measures. These measures may include modifications to location, technology, size, design, or materials, based on project forecasts or the incorporation of new elements.

The Environmental Management Plan is a dynamic document that is updated with each biannual renewal of the IIA for Exploitation, including updates required under Decree No. 7751-DEyP-2023. This approach allows for the inclusion of previously unaccounted aspects or adjustments to address relevant changes throughout the life of the Project. These plans provide a structured approach to achieving sustainable operations.

17.3.6.2 Key Components of the EMP

17.3.6.2.1 Air Quality Management

Reduction of emissions through improved vehicle maintenance.
Dust suppression measures, such as wetting roads and stockpiles.

17.3.6.2.2 Water Management

Protection of surface and groundwater quality through advanced treatment systems.

Strategies for water reuse and controlled discharge to minimize impact on aquatic ecosystems.

17.3.6.2.3 Waste Management

Handling, storage, and disposal of mine waste in compliance with provincial guidelines.

17.3.6.2.4 Biodiversity and Habitat Management

Conservation strategies include habitat restoration in disturbed areas and monitoring programs for sensitive species. Biodiversity management during operations incorporates adaptive responses triggered by repeated deviations from seasonally adjusted biological indicators, rather than single-event observations.

17.3.6.2.5 Noise and Vibration Control

Noise barriers and adjusted operational schedules mitigate impacts on nearby communities and wildlife.

17.3.6.2.6 Emergency Response Plans

Comprehensive procedures for managing environmental incidents, including infrastructure failures and chemical spills have been implemented.

17.3.6.3 Compliance with Regulations and Standards

Table 17.1 identifies the Project's compliance framework.

Table 17.1
Compliance with Regulations and Standards

Framework/Standard	Description	Implementation Status
Equator Principles	International framework for assessing and managing environmental and social risks in project finance.	Fully aligned.
United Nations SDG 2030	Reference framework used to align and report sustainability performance and priorities.	Integrated into sustainability reporting.
Argentine Global Compact Network	National platform for implementation and reporting against UN Global Compact principles.	Member since 2022; progress reporting ongoing.
Global Reporting Initiative (GRI)	International standard for sustainability performance disclosure and transparency.	Fully compliant.
ISO 14001 (Environmental Management)	Environmental management system standard for identifying, managing, and mitigating environmental risks.	Implemented in 2020; fully certified.
ISO 9001 (Quality Management System)	Quality management system standard supporting consistent processes and continuous improvement.	Implemented in 2020; fully certified.

Table 17.1
Compliance with Regulations and Standards

Framework/Standard	Description	Implementation Status
ISO 45001 (Environmental Management)	Occupational health and safety system standard for risks prevention and worker protection.	Implemented in 2020; fully certified.
ISO 26000 (Social Responsibility)	Guidance standard addressing social responsibility principles and practices.	Embedded in corporate practices and reporting.
Towards Sustainable Mining (HMS)	Industry-led performance standard for responsible mining and transparent reporting.	Seven of eight protocols externally verified (2023).

Source: Exar Sustainability Report, (2022).

Exar ensures that the Environmental Management Plan (EMP) aligns with these frameworks and standards to uphold local, national, and international compliance. Regular audits and sustainability reviews further validate the company's adherence to these principles.

17.3.6.4 Monitoring and Reporting

Ongoing environmental monitoring programs, frequently with community participation, track key parameters such as air and water quality, biodiversity, and waste management. These activities align with the Global Reporting Initiative (GRI) standards, ensuring transparency and consistency in reporting. Data collected from quarterly and biannual campaigns are not only submitted to authorities and stakeholders but also integrated into the company's annual sustainability reports. Exar's adherence to the Argentine Global Compact Network includes submitting regular progress updates on sustainability principles, further embedding accountability within its monitoring framework.

17.3.6.5 Adaptive Management and Continuous Improvement

The EMP is regularly updated to incorporate new data, monitoring results, and regulatory changes. Exar employs dynamic management tools such as the "Towards Sustainable Mining (HMS)" program and ISO 26000 guidelines to refine strategies and address emerging challenges. This approach ensures the Plan remains effective while reflecting evolving Project requirements, stakeholder expectations, and environmental conditions. Continuous alignment with global frameworks like the SDG 2030 Goals and ISO certifications underscores the company's commitment to improvement and sustainable operations.

17.3.6.6 Conclusions

The monitoring programs and EMP collectively align Cauchari-Olaroz with the Argentine and Jujuy regulatory framework and international best-practice environmental stewardship.

Environmental baseline studies and operational monitoring provide a consistent and adequate basis for environmental interpretation. Results indicate that environmental conditions during the operational phase remain broadly consistent with baseline conditions and predicted behaviour, taking into account natural variability.

Groundwater, surface water and brine systems are well characterized and continue to behave within expected ranges. Monitoring data do not indicate material off-site impacts attributable to Project operations.

Environmental impacts identified for the Project are being managed through established monitoring and management programmes. Environmental grievances raised during operations, including a specific concern related to plant lighting, are being addressed through established management and response procedures, with no evidence of broader environmental effect.

17.3.6.7 Recommendations

Existing environmental monitoring programmes should be maintained during the operational phase to ensure continuity with historical data sets and to support ongoing interpretation of environmental trends.

Integrated oversight of brine extraction, groundwater levels and water quality data should be maintained to confirm continued consistency with predicted system behaviour and baseline conditions.

Current environmental management and grievance response processes, including those addressing nuisance-type effects, should be maintained to ensure timely, documented and proportionate responses to operational phase issues.

17.4 PERMITTING

17.4.1 Executive Summary

Permitting processes for the Project are governed by Argentina's national and provincial laws, with oversight from the Jujuy provincial government. Recent updates under Decree No. 7751-DEyP-2023 have modernized permitting standards, including enhanced consultation protocols, new closure planning, and staged financial assurance requirements for closure, which are addressed in Section 17.6. The Project's permits for exploration and exploitation activities are in full compliance, with biannual updates submitted as required. Table 17.2 identifies the key permitting milestones.

Table 17.2
Summary of Key Permitting Milestones

Permit Type	Date Approved	Key Updates
Exploration	August 2009 (initial)	Regular biannual updates reflecting new activities.
Exploration	December 2021	Update to Environmental Impacts Report for Exploration
Exploitation	November 2012 (initial)	Expanded production capacity and operational adjustments.
Exploitation	May 2025	Biannual Environmental Impacts Report for Exploitation
Water Use	December 2020 (160 L/s) North	160 L/s from 6 to 8 wells near Rosario River

An additional water concession permit for a further 160 L/s from the south of the basin, for the exploitation phase for a 40-year term, was submitted in March 2024 and is currently under evaluation. The provincial water resources department (DPRH) granted authorization to drill exploration wells in the south of the basin. After drilling the wells, and with the results obtained from the tests, DPRH will have to be notified again to complete the permit requirements and obtain the permit to use this industrial water. This water permit is not required for current operations.

17.4.2 Legal Framework

The legislative context for exploration and exploitation environmental permits for Cauchari-Olaroz is defined by Argentina's national and provincial mining and environmental laws. At the national level, Law No. 24,585, known as the Environmental Protection for Mining Activities Act, provides the framework for assessing and managing environmental impacts associated with mining. This law mandates that mining projects must submit an Environmental Impact Assessment (EIA) before commencing activities, and it ensures the application of stringent environmental protection measures throughout the lifecycle of a project.

Natural resources are under the jurisdiction of the provinces as per the Argentinean National Constitution. While the Mining Code is enacted by the National Congress, permitting and jurisdictional authority resides with the provincial governments. Consequently, the Province of Jujuy holds the authority for significant permits concerning the construction and operation of the Project.

17.4.2.1 Permits for Exploration

Exploration permits require the submission of an Environmental Impacts Report ("IIA"), which details the scope of proposed exploration activities and their potential environmental impacts. The Provincial Government of Jujuy, through the Mining and Energy Resource Directorate, reviews and approves these reports. The Directorate coordinates with other provincial offices, such as the Provincial Directorate of Water Resources and the Environmental Ministry, to ensure compliance with applicable regulations. These permits require biannual updates.

17.4.2.2 Permits for Exploitation

Exploitation permits build upon the exploration phase by requiring a more detailed Environmental Impacts Report ("DIA"), which must address long-term operational and environmental management plans. The approval process involves multiple provincial entities, including the Environmental Ministry and the Secretariat of Tourism and Culture, which oversees permits for activities in areas of archaeological or paleontological interest. These permits require biannual updates to reflect changes in project design, such as expansions in production capacity or relocation of key facilities.

17.4.2.3 Recent Legislation Updates

On February 11, 2023, the Provincial Executive Government of Jujuy issued Decree No. 7751-DEyP-2023 (the "Decree"), which regulates the General Environmental Law No. 5063 and comprehensively updates provincial environmental protection norms for mining activities. This Decree replaces Decree No. 5772/2010, previously governing this domain.

The Decree aims to optimize and modernize the Environmental Impact Assessment (EIA) process for mining projects to foster investment opportunities, environmental protection, and social development, particularly for lithium extraction projects.

Key aspects of the Decree are detailed in Table 17.3.

Table 17.3
Key Aspects of Decree No. 7751-DEyP-2023

Key Aspect	Details
Exclusions	Activities related to hydrocarbon extraction, ancillary works outside concession areas, and industrial plants over 100 km from deposits are excluded.
Responsible Authorities	The Ministry of Economic Development and Production of Jujuy, in coordination with the Ministry of Environment and Climate Change, enforces the Decree.
UGAMP's Role	The Provincial Mining Environmental Management Unit (UGAMP) advises the Provincial Directorate of Mining on Environmental Impact Reports.
Categorization	Mining projects are classified into five categories: (i) social mining, (ii) initial prospecting/exploration, (iii) advanced exploration, (iv) small-scale exploitation, (v) medium- and large-scale exploitation.
Review Deadlines	EIAs evaluation timeframes: 40 days for initial exploration, four months for advanced exploration and small-scale exploitation, six months for medium- and large-scale exploitation.
Validity of DIAs	Declarations of Environmental Impact (DIAs) are valid for two years and require updates thereafter.
Consultation Processes	EIAs must include consultations with indigenous communities and surface owners within the area of direct influence, alongside a public consultation process via the Provincial Directorate of Mining's website.
Mine Closure Standards	Mandatory minimum guidelines for mine closure processes are established.
Sanctions	Incremental penalties for non-compliance include warnings, fines, temporary closures, and operator disqualification.
Environmental Violations Registry	A Provincial Registry of Environmental Mining Violators is created to track infractions and recurrences, issue certifications, and share information with other provincial departments.

17.4.3 Framework Legal Study

The permitting process for Cauchari-Olaroz has been supported by a comprehensive legal framework study carried out early in the exploration phase. This study encompassed international, national, and provincial norms and standards relevant to the environmental and operational aspects of the Project. At the national level, the Environmental Protection Act for Mining Activity No. 24,585 provides the foundational guidelines for environmental management. At the provincial level, Jujuy's General Environmental Law, recently updated by Decree No. 7751-DEyP-2023, details the specific procedures and standards for compliance. This decree, which came into effect on February 17, 2023, replaces Decree No. 5772/2010. It introduces revised requirements for Environmental Impact Assessments (EIAs) and refines the stages, requirements, and content of applications for exploration and exploitation permits. The decree also formalizes the interaction with surface rights holders, ensuring a more structured framework for prospection, exploration, and mining activities in the province.

The framework legal study is operationalized through a digital legal compliance matrix implemented via the TERV platform, updated on a monthly basis, which supports the alignment of Project permitting activities with the responsibilities and oversight requirements of the relevant state institutions, including the Provincial Department of Mines and Energy and the Directorate of Mining.

17.4.4 Exploration Phase Permits for Project

The Environmental Impacts Report ("IIA") for the exploration phase of Cauchari-Olaroz was first approved by the Provincial Government of Jujuy (Dirección Provincial de Minería y Recursos Energéticos) under Resolution No. 25/09 on August 26, 2009. Key updates and approvals include:

- **2011 Update**: Resolution No. 29/2012 approved on November 8, 2012, covering activities for the 2012-2013 period.
- **2014 Addendum**: Resolution No. 011/2014 approved on July 15, 2014, for the installation and operation of a pilot lithium phosphate plant.
- **2017 Update**: Resolution No. 008/2017 approved on September 19, 2017, replacing prior updates and encompassing planned exploration activities, including seismic reflection, hydrogeological studies, pond construction, and geochemical sampling.
- **2020 Update**: Approved by Resolution No. 017/2021 on December 17, 2021, reflecting exploration activities conducted from 2019-2021.
- **2024 Update**: Submitted in March 2024 and approved by February 2026, focusing on drilling new brine wells and conducting vertical electrical surveys in the southern Project area.

The next biannual update to the IIA for Exploration permit is programmed for 2026.

A complete listing of the IAA for Exploitation permits is given in Table 17.4.

Table 17.4
Exploration Permits

Report Submitted	Date Approved	Approvals	Observations
Environmental Impacts Report for Exploration (IIA Exploration)	August 2009	Resolution No. 25/09	Original exploration permit for the Project.
Environmental Impacts Report for Exploration (AIIA Exploration 2011)	November 2012	Resolution No. 29/2012	Activities for the 2012-2013 period approved.

Table 17.4
Exploration Permits

Report Submitted	Date Approved	Approvals	Observations
Addendum to Environmental Impacts Report for Exploration, Posco Pilot Plant	July 2014	Resolution No. 011/2014	Pilot lithium phosphate plant installation approved.
Update to Environmental Impacts Report for Exploration	September 2017	Resolution No. 008/2017	Comprehensive update for exploration activities.
Update to Environmental Impacts Report for Exploration 2019 -2021	December 2021	Resolution No. 017/2021	Reflecting ongoing exploration activities, 2019-2021.
Update to Environmental Impacts Report for Exploration 2021 - 2023	December 2021	Resolution No. 017/2021	The authorities established that the same approving resolution be maintained in the current bi-annual renewal because the activities in this report correspond to the same ones from the previous renewal.
Update to Environmental Impacts Report for Exploration 2023 - 2025	February 2026	Resolution No. 028/2026	Includes drilling new brine wells and vertical electrical surveys focused on the southern area of the salt flat.

17.4.5 Exploitation Phase Permits for Project

The IIA for exploitation was initially approved under Resolution No. 29/2012 on November 8, 2012, for an annual production of 20,000 tonnes of lithium carbonate. Key updates include:

- **2017 Biannual Update**: Incorporated new environmental studies and increased production in phases, first to 25,000 tpa and then to 40,000 tonnes per year; approved in October 2017.
- **2023 Biannual Update**: A biannual update submitted in March 2023 is under review, with activities detailed for ongoing operations.

The next biannual update to the IIA for Exploitation permit is programmed for 2027.

A complete listing of the IAA for Exploitation permits is given in Table 17.5.

Table 17.5
Exploitation Permits

Report Submitted	Date Approved	Resolution	Key Updates
Environmental Impacts Report for Exploitation (IIA Exploitation 2011)	November 2012	Resolution No. 29/2012	20,000 tpa production capacity.
Biannual Environmental Impacts Report for Exploitation (AIIA Exploitation March 2015)	March 2015	Update cancelled and filed: DMyRE Note No. 101/2019	Biannual update of the Environmental Impacts Report (AIIA) approved in 2012, based on the same project approved in 2012.
Biannual Environmental Impacts Report for Exploitation (AIIA Exploitation February 2017)	October 2017	Resolution No. 010/17	Increased production to 25,000 tpa lithium carbonate, with a second expansion to 40,000 tpa, and layout adjustments.
Biannual Environmental Impacts Report for Exploitation (AIIA Exploitation 2019)	December 2020	Resolution No. 080/2020	Detailed ongoing exploitation activities.
Biannual Environmental Impacts Report for Exploitation (AIIA Exploitation 2021)	May 2025	Resolution No. 103/2025	Initially included modifications for an expansion of production. This expansion request was subsequently retracted by the company, leaving the AIIA Exploitation 2021 activities as per AIIA Exploitation 2019.
Biannual Environmental Impacts Report for Exploitation (AIIA Exploitation 2023)	December 2023 (submitted)	Pending	The AIIA 2023 was presented to respect the bi-annual submission requirement, although the authority has not issued a permit for the previous (AIIA Exploitation 2021) report. Changes were added that are intended to be made with respect to ponds and the harvesting of salts. Update submitted under Decree No. 7751-DEyP-2023
Biannual Environmental Impacts Report for Exploitation (AIIA Exploitation 2025)	18 December 2025 (submitted)	Pending	
Environmental impact report for expansion to 85.000 tonnes/year.	December, 2025	Pending	Environmental impact report for new expansion plant with DLE technology presented

17.4.6 Water Permits

- A Water Use Permit was issued for 45 L/s for exploration purposes and is active.
- A Permanent Water Concession was granted for 160 L/s from the Rosario River area for the exploitation phase was granted and is active.
- A Permanent Water Concession for a further 160 L/s from the south of the basin, for the exploitation phase, is currently under evaluation. Current operations are not dependent on approval of this additional concession.
- Fees for water extraction from brackish sources have been paid through 2023, with annual renewals ongoing.

A complete listing of the water permits and concessions is given in Table 17.6.

Table 17.6
Industrial Water Permits and Concessions for Cauchari-Olaroz

Report Submitted	Date Submitted	Date Approved	Validity Term	Observations
Water Use Permit (45 L/s)	December 2017	06 June 2020	Exploration	Authorized abstraction of up to 45 L/s, comprising 25 L/s from the PBI well and 20 L/s from three wells near the Rosario River.
Permanent Water Concession (160 L/s) NORTH	December 2020	28 December 2020	40 years	Permanent industrial water concession authorizing abstraction of up to 160 L/s from six to eight wells near the Rosario River
Permanent Water Concession (160 L/s) SOUTH	March 2024	Pending	40 Years	The provincial water resources department (DPRH) has authorized the drilling of exploration wells in the southern sector of the basin. Exploration well drilling has not yet commenced. Upon completion of drilling and hydraulic testing, results must be submitted to DPRH to support completion of the permitting process and potential granting of the industrial water use concession.

17.4.7 Provincial Regulations

Jujuy's environmental permitting processes are governed by the recently updated General Environmental Law No. 5063, as regulated by Decree No. 7751/2023. This decree replaces the earlier Decree No. 5,772/2010 and modernizes the Environmental Impact Assessment (EIA) requirements for mining activities. Key updates include:

- **Expanded Authority:** The Ministry of Economic Development and Production of Jujuy, in coordination with the Ministry of Environment and Climate Change, now oversees the permitting process.
- **Categorization of Projects:** Mining projects are classified into five categories, ranging from social mining to large-scale exploitation, with differentiated EIA requirements and review timelines.
- **Consultation Requirements:** EIA procedures now mandate consultations with indigenous communities and surface rights holders in the direct area of influence, alongside public consultations via the Provincial Directorate of Mining's online platform.
- **Mine Closure Standards:** The decree establishes minimum mandatory guidelines for mine closure and reclamation processes.

Additionally, mining projects within the Cauchari-Olaroz Salar must adhere to its designation as a Protected Area for Multiple Use, requiring permits for activities that may affect archaeological or paleontological resources.

17.4.8 Compliance Documentation

All permits align with local, regional, and national regulations:

- Regular environmental monitoring ensures compliance with provincial standards for air, water, and soil quality, as established under relevant laws.
- Quarterly participatory monitoring programs validate adherence to environmental baselines, with documented updates presented to regulatory authorities.

17.4.9 Permit Risks

Potential risks to operations include:

- **Approval Delays:** Pending updates for the 2024 Exploration and 2023 Exploitation IIAs could impact the initiation of planned activities.
- **Regulatory Changes:** Changes in provincial or national mining laws necessitate adjustments to compliance strategies. The recent introduction of Decree No. 7751/2023 highlights a significant shift in regulatory requirements. The Project should assess potential impacts of the updated Environmental Impact Assessment process, including enhanced consultation protocols, and the mandatory mine closure guidelines, and the regulatory response to the latest 2023-2025 AII update, which is aligned with the new decree.

17.5 SOCIAL OR COMMUNITY IMPACT

17.5.1 Executive Summary

Cauchari-Olaroz has moved from a construction-led social context into a sustained operational phase during 2023-2024. This transition has altered both the scale and the character of social interaction, shifting emphasis away from transient construction impacts towards longer-term employment, procurement, institutional engagement, and community participation.

This section draws on three principal sources: (i) the social baseline re-characterization presented in the AIIA 2025-2027; (ii) documented outcomes in the 2025 Community and Institutional Relations programme; and (iii) an analytical interpretation of how current engagement practices align with internationally recognized co-creation and life-of-mine social management principles.

On this basis, social impacts are considered manageable and, in some areas, demonstrably positive, subject to the continued implementation and adaptive management of existing employment, procurement, participation, and grievance mechanisms.

17.5.2 Social Baseline Context and Re-characterization - Operations Phase

The social baseline for the Project was first established during the exploration phase in 2011, when systematic baseline studies were undertaken to characterize demographic, socio-economic, institutional, and cultural conditions within the Project's area of influence prior to large-scale development.

Subsequent baseline updates, including those incorporated into the AIIA 2025-2027, do not redefine the baseline in methodological terms. Rather, they provide an updated description of the prevailing social conditions using data appropriate to the operational phase, while maintaining a clear distinction between baseline characterization and impact assessment.

Within this framework the AIIA 2025-2027 provides an updated description of socio-economic and institutional conditions prevailing during the early operational phase within the Project's areas of direct and indirect influence, comprising the communities of Susques, Huáncar, Pastos Chicos, Puesto Sey, Catua, Olaroz Chico, and El Toro, all located within the Susques Department, Jujuy Province.

This approach recognizes that social conditions evolve over time due to a combination of regional, institutional, and economic factors, and avoids attributing observed changes a priori to Project activities.

17.5.3 Evaluation of Social Impacts - Operations Phase

Social impacts at the operational stage differ in both character and persistence from those associated with exploration and construction. Short-term, transient effects have largely been replaced by longer-term interactions linked to employment stability, local economic participation, institutional engagement, and service demand. The principal impact pathways are outlined in the subsections listed below.

17.5.3.1 Employment and Workforce Integration

The construction phase (2018-2021) generated a peak workforce of approximately 3,300 personnel, resulting in short-term demographic and service pressures that are no longer present under operational conditions.

Under steady-state operations, the Project employs approximately 644 direct workers and is estimated to support a further 1,300 indirect jobs through service provision, logistics, and associated supply chains.

Of the direct workforce, 198 employees (approximately 31%) are drawn from surrounding communities, indicating a material level of workforce localization for a remote, technically specialized operation.

Recruitment policy gives preference to candidates from within the Project's area of influence. Given the relative novelty of lithium brine operations in Jujuy Province, this approach has been supported by targeted training and capacity building initiatives designed to address identifiable skills requirements associated with specialized lithium brine operations.

A central element of this approach is the Ckuri School, established to build local technical capacity. Initial enrollment of 132 participants in 2022 increasing to approximately 198 participants by early 2026, reflecting progressive uptake rather than short-term training demand.

Where operational requirements cannot be met locally, personnel are recruited from outside the province, consistent with industry practice for specialized functions in emerging technical sectors.

Residual social risks relate primarily to the alignment of long-term employment expectations management, career progression, and intergenerational demand for employment within neighbouring communities. These risks are typical of long-life operations, and are addressed through communication, workforce planning, and continued investment in training pathways.

17.5.3.2 Local Procurement and Economic Inclusion

Operational procurement represents a sustained source of local economic participation. In 2025, 38 community-based suppliers were active, with local procurement expenditure increasing by approximately 46% relative to 2024.

The progressive transfer of defined service categories (including transport, vehicle hire, and logistics) to community providers has contributed to enterprise consolidation and reduced reliance on direct company provision.

17.5.3.3 Community Relations and Participation

Operatiional-phase engagement is characterized by regular dialogue mechanisms, participatory environmental monitoring, and structured assemblies, which together support transparency and early issue identification.

During 2025, four participatory monitoring campaigns were conducted, involving a total of 45 community monitors.

17.5.3.4 Grievances and Social Risk Management

The Community Attention System recorded 13 grievances during 2025, representing a reduction of approximately 48% relative to 2024.

Reported issues relate primarily to payment timing, plant lighting, and information gaps. These matters fall within the scope of existing management procedures and do not indicate systemic social risk.

17.5.3.5 Cultural and Social Cohesion

Support for cultural events and ceremonies, including Pachamama-related activities, has continued during operations and contributes positively to the maintenance of social cohesion and cultural continuity.

No material adverse impacts on cultural practices or community cohesion have been identified during the operational phase beyond those addressed through existing management mechanisms.

17.5.4 Social Impact Management and Transition to Operations

Social impact management during operations is implemented through a set of structured programmes aligned with provincial regulatory requirements and relevant international standards, including IFC Performance Standards, ILO Convention 169, and the Equator Principles.

- Community Relations and Institutional Engagement Programmes: Community relations activities are planned and reviewed on an annual basis, with increasing emphasis on predictability, transparency, and coordination with provincial and local institutions.
- Grievance Mechanism: A formal grievance mechanism is maintained, with documented procedures and evidence of declining complaint volumes over recent reporting periods.
- Local Employment and Training: Employment and training programmes focus on progressive skills development, leadership capacity, and completion of formal education pathways where required.
- Local Procurement Strategy: Procurement engagement with community suppliers is supported through structured contracting and payment mechanisms intended to support enterprise stability.

Taken together, these measures support the transition from construction-phase social management towards a more stable operational framework, with increasing emphasis on predictability, institutional articulation, and long-term social risk management.

17.5.5 Integration of Community Co-Creation Principles and Social Closure

Current community relations practices reflect a gradual shift away from assistance-based engagement towards greater shared responsibility and participation. This shift is consistent with the requirements of a long-life operation and with emerging good practice in life-of-mine social management.

Key features of this approach, as evidenced in current programmes and outcomes, include:

- Participatory governance through regular inter-community dialogue mechanisms;
- Community-led and co-financed development initiatives;
- Leadership development and targeted capacity-building programmes; and
- Increasing emphasis on institutional articulation beyond the Project.

Perception surveys conducted since 2023 indicate measurable improvements in community perceptions of both mining activity and engagement processes, suggesting increasing legitimacy of participatory mechanisms.

From a technical standpoint, the progressive application of these principles contributes to closure readiness by strengthening local institutional capacity and reducing long-term dependency on company-led interventions.

17.5.6 Conclusions

The updated assessment confirms that the Project has successfully transitioned into an operations-phase social management model characterised by stability, predictability, and increasing community co-ownership of development processes. Social risks are considered moderate and manageable, with positive impacts dominating, particularly in employment, local economic participation, and institutional strengthening.

The integration of co-creation and shared-responsibility principles represents a material improvement over prior engagement models and is considered consistent with international good practice for lithium brine operations operating in Indigenous and high-sensitivity contexts. Continued implementation and adaptive management of these programs are critical to maintaining social licence to operate and supporting eventual social closure objectives.

17.6 CLOSURE AND RECLAMATION PLANS

Closure and reclamation for the Project have followed legislative requirements and best practice guidance. The legislative requirements for the closure of the Project were outlined in Decree No. 5772-P-2010 until 17 February 2023, when it was replaced by Decree No. 7751-DEyP-2023. This transition introduced more comprehensive and structured guidelines, particularly emphasizing financial assurance and progressive closure measures.

A Conceptual Closure Plan for the Project was updated in December 2025 to align with the requirements of Decree No. 7751-DEyP-2023 and to reflect the current Project configuration and operational status.

As part of progressive closure planning, the Project has undertaken site-specific diagnostic evaluations of vegetation regeneration in selected areas subject to temporary disturbance. These evaluations provide empirical information on natural recovery mechanisms, species responses, and the relative effectiveness of passive and assisted restoration approaches under site conditions.

Findings from these diagnostics are used to inform the refinement of rehabilitation and closure strategies over time and support adaptive management under the Conceptual Closure Plan. Detailed results are documented in the internal restoration diagnostic report (Informe de Áreas de Restauración, 2025), which supports closure planning but does not constitute a final closure performance assessment.

All future IIA submissions for the Project are required to comply with the new legislation.

17.6.1 Key Closure Requirements and Commitments (Pre-2023)

Before 2023, the Project developed its strategy for closure based on the aspects listed in the subsections below.

17.6.1.1 Closure Objectives

1. The Project's closure objectives focused on meeting all regulatory requirements outlined in agreements signed by Exar to achieve the Final Closure of the Project.
2. Emphasis was placed on preventing, minimizing, or mitigating negative environmental impacts throughout the closure process.
3. The site's abandonment condition aimed to protect the environment and ensure public safety.
4. The closure process aimed to uphold the social license by fostering trust and transparency with affected communities and stakeholders. This included aligning closure activities with social expectations and addressing concerns through proactive engagement with local and indigenous groups.
5. Strategies for mine site reclamation and rehabilitation included the removal of roads, the evaporation to dryness of ponds, and the leveling and contouring of pond sites. The physical stability of pond slopes was also established.
6. Closure activities were primarily planned for the end of the 40-year Life of Mine (LoM) operation phase, with some activities potentially conducted during operations (progressive closure). This included aligning closure activities with social expectations and addressing concerns through proactive engagement with local and indigenous groups.

17.6.1.2 Financial Assurance

Estimated closure and remediation costs were included in the Project's cash flow model to meet environmental and closure obligations outlined in the Informe de Impacto Ambiental (IIA). This ensured compliance, despite the lack of closure bonding or guarantees required under Argentine federal or Jujuy provincial legislation prior to 2023.

17.6.1.3 Post-Closure Monitoring

Post-closure monitoring was planned to continue for about five years following the end of operations, including a two-year period for executing closure activities and an additional three years for environmental monitoring. This approach ensured the Project achieved definitive closure.

17.6.2 New Requirements (Decree No. 7751-DEyP-2023)

The legislative changes introduced by Decree No. 7751-DEyP-2023 require the Project to align with a more structured and detailed closure framework as listed in the subsections below.:

17.6.2.1 Closure Objectives

12. Closure must include the rehabilitation or repurposing of all areas and infrastructure affected by mining activities, except for those identified as suitable for public or social use by indigenous communities, local municipalities, or the provincial government. Transfers of such areas must comply with environmental criteria evaluated by the Dirección Provincial de Minería or the Ministry of Environment and Climate Change.
13. Social objectives must include collaborating with indigenous and local communities to ensure areas and assets can be utilized for social and public benefit where applicable, fostering transparency and trust throughout the closure process.
14. Provisions for progressive closure measures must be integrated into the conceptual closure plan to enable rehabilitation during operational phases without disrupting ongoing activities.
15. Plans for temporary or premature mine closures must include maintenance and monitoring protocols, with a maximum suspension period of three years unless extended by a formal resolution.

17.6.2.2 Financial Assurance

1. A financial guarantee is mandatory to secure compliance with closure plans, covering direct and indirect closure costs, including contingencies, with phased implementation as specified by the Decree.
2. The guarantee's phased implementation includes:
    - 10% of the closure cost during the first year of construction.
    - 20% during the first year of operation.
    - Full guarantee coverage by the final third of the mine's life or five years before closure, whichever comes sooner.

In accordance with these requirements, Minera Exar S.A. has prepared and submitted a financial guarantee proposal based on the updated Conceptual Closure Plan.

The proposed financial assurance mechanism and its phasing are subject to review and approval by the provincial authority.

3. Adjustments to financial assurances are required with each update to the closure plan, and partial reductions may be granted for completed closure milestones.
4. The Conceptual Closure Plan updated in December 2025 includes an updated estimate of total closure and post-closure costs of approximately US$86 million on an undiscounted basis.

   This estimate reflects the scope of dismantling, site restoration, revegetation, contingencies, and post-closure monitoring defined in the Conceptual Closure Plan and submitted to the provincial authority in accordance with Decree No. 7751-DEyP-2023.

17.6.2.3 Post-Closure Monitoring

1. A mandatory post-closure phase begins after the issuance of a "Certificate of Final Compliance" and extends for a minimum of five years for medium- and large-scale projects. This period may be extended based on environmental needs.
2. Annual post-closure reports must document monitoring results, environmental and social trends, and maintenance activities, guiding evaluations of closure objectives and certification issuance.
3. Following successful post-closure activities, the financial guarantee is released, and a "Certificate of Final Closure" is issued.

18.0 CAPITAL AND OPERATING COSTS

Capital costs for the Project are based on the total engineering and construction work.

All values are expressed in current US dollars; the exchange rate between the Argentine peso were adjusted at the time of the incurred cost. Argentine peso denominated costs followed the exchange rate because of inflation, and the impact of the exchange rate fluctuation on CAPEX and OPEX has been incorporated in the definition of the cost presented in this section; no provision for currency escalation has been included. At the completion of the Project, the CAPEX was consolidated at US$979 million.

18.1 CAPITAL COSTS (CAPEX) ESTIMATE

The main objectives for determining the capital costs for the full plant are:

- Present the total project CAPEX for investment consolidation purposes.
- Confirm cost of the processes and facilities that are operating during the ramp up period to obtain the best comparison between initial and actual capital costs and operating costs.
- Providing the necessary data for the economic evaluation of the project; and
- Providing guidance for the following production phase.

18.1.1 Capital Expenditures CAPEX Definition

Capital costs for the Project are based on the total engineering and construction work, having a design capacity of 40,000 tonnes per year of lithium carbonate equivalent. The expenditures are expressed in current US dollars.

Capital costs include direct and indirect costs for:

- Brine production wells;
- Evaporation and concentration ponds;
- Lithium carbonate plant;
- General areas, such as electric, gas and water distribution;
- Stand-by power plant, roads, offices, laboratory and camp, and other items;
- Off-site Infrastructure, including gas pipeline and high voltage power line; and
- Contingencies, salaries, construction equipment mobilization, and other expenses.

The capital investment for the 40,000 tpa Lithium Carbonate Cauchari-Olaroz, including equipment, materials, indirect costs and others during the construction period was US$979 million. This excludes debt interest expense capitalized during the same period. Disbursements of these expenditures are summarized in Table 18.1 and the costs for the production wells are presented on Table 18.2.

Table 18.1 Lithium Carbonate Plant Capital Costs Summary	
Item	**Cost (US$ M)**
Direct Cost	
Salar Development	51.0
Evaporation Ponds	175.5
Lithium Carbonate Plant and Aux.	361.7
Reagents	26.2
On-site Infrastructure	108.7
Off-site Services	13.6
Total Direct Cost	**736.7**
Indirect Cost	
Total Indirect Cost	**224.5**
Total Direct and Indirect Cost	
Total Direct and Indirect	961.2
Other (1.85%)	17.8
Total Capital	**979**
Expended to date	**979**
Estimate to complete	**0**

Table 18.2 Production Wells Capital Cost	
Description	**Total Project Budget (US$ M)**
Well pumps and auxiliaries	46.2
Power Distribution	4.8
Total	**51.0**

18.1.2 Evaporation Ponds

The capital cost for the evaporation and concentration pond facilities is US$175.5 million (Table 18.3).

Table 18.3 Evaporation and Concentration Ponds Capital Cost	
Description	**Total Projected Budget (US$ M)**
Ponds	172.1
Power distribution	3.3
Total	**175.5**

18.1.3 Lithium Carbonate Plant

The direct cost for the construction of the Lithium Carbonate plant is US$361.7 million (Table 18.4). During engineering work, capital equipment costs were estimated using more than 100 quotes for various equipment items and construction contracts, estimates and using in-house data for minor items. As of the effective date of this report, all of the equipment purchase orders have been executed as well as construction contracts, validating the total construction of the plant. The initial material take-off (e.g. material quantity estimates) from 3-D models were confirmed during the construction phase to complete the capital cost.

Table 18.4
Lithium Carbonate Plant Capital Cost Summary

Description	Total Projected Budget (US$ M)
Lithium Carbonate Plant	
Boron SX	68.3
Lithium Carbonate wet plant	116.2
Dry area	41.4
In-plant evaporation. circuit (KCl)	73.1
Plant wide auxiliaries	24.1
Power distribution	3.3
Utilities	31.2
Non-Process Buildings	4.0
Total	**361.7**

18.1.4 Reagents Costs

Reagents costs refer to the installation for receiving, preparation and distribution of reagents for use in the process stages. Costs are shown in Table 18.5.

Table 18.5
Reagent Costs

Item	Cost (US$ M)
Reagents	24.5
Power supply	1.7
Total	**26.2**

18.1.5 Offsite Infrastructure Costs

Offsite infrastructure refers to gas and electrical interconnection and transmission. Costs are shown in Table 18.6.

Table 18.6 Offsite Infrastructure Costs	
Item	**Cost (US$ M)**
Natural gas supply	7.2
Power supply	6.4
Total	**13.6**

18.1.5.1 Natural Gas Supply to Plant

Natural gas is obtained from the Rosario gas compression station of the Gas Atacama pipeline located 52 km north of the Project site. Cost for this pipeline was obtained from a specific contractor bid.

Installed cost for this work is US$7.2 million (Table 18.6). This pipeline is designed to supply natural gas sufficient for production up to 50,000 tpa LCE.

18.1.5.2 Power Supply to Plant

The transmission system has been designed to provide sufficient electricity for a production capacity of at least 40,000 tpa LCE. Installed cost for this work is US$6.4 million (Table 18.6).

18.1.5.3 Onsite Infrastructure and General Cost Summary

Onsite infrastructure costs are summarized in Table 18.7.

Table 18.7 Onsite Infrastructure and General Capital Cost Summary	
Description	**Total Projected Budget (US$ M)**
On-Site Infrastructure	
General Area (including roads)	90.6
Camp	13.4
Utilities	1.7
Emergency Power Generation	3.1
Total	**108.7**

18.2 INDIRECT COSTS

The indirect costs used for this study are given in Table 18.8. The percentages listed indicates the relation between the estimated costs for the item and the direct cost.

Table 18.8 Project Indirect Costs		
Description	**Cost (%)**	**Cost (US$ M)**
EP - Engineering and Procurement	3.87%	37.9
CM - Construction Management	7.82%	76.6
Commissioning	2.02%	19.8
Vendor Representative	0.39%	3.8
Third Party Services	0.71%	7.0
Temporary Facilities	0.28%	2.7
Construction Camp	1.18%	11.5
Catering and Camp Services	0.31%	3.0
Freight (by owner)	1.88%	18.4
First Fills (calculated)	0.62%	6.1
Training	1.85%	18.1
Total Indirect Costs	**22.94%**	**224.5**

18.2.1 Final CAPEX for Exar 40,000 tpa Plant

The Final CAPEX for the 40,000 tpa LCE facilities, as defined during the engineering studies, reached a total of $979 million. This investment included the extraordinary cost incurred during the COVID-19 pandemic and the changes in cost due to inflation during construction.

The reported CAPEX is already committed and the ramp up period of three years is in the third year of implementation.

18.2.2 Exclusions

The following items are not included in this estimate:

- Legal costs;
- Special incentives and allowances;
- Escalation; and
- Start-up costs beyond those specifically included.

18.2.3 Currency

All values are expressed in current $US dollars. During the construction period, Argentine peso denominated costs follow the exchange rate as a result of inflation, and there was a significant impact of the exchange rate fluctuation on CAPEX and OPEX.

18.2.4 Sustaining Capital

A provision of US$971 million of the sustaining capital over the life of the Project was included in the economic model. The sustaining capital includes purchase of equipment or development of facilities which would otherwise be capitalized. The sustaining capital costs include processing equipment to be purchased in future years, replacement of equipment, drilling of replacement wells, capital repairs of ponds, equipment replacement for the processing plant, etc.

For the next 10 years, it is estimated that US$23.7 million will be allocated annually to sustainability capital, which is equivalent to US$601.4 per ton of lithium carbonate.

18.3 OPERATING COSTS ESTIMATE

18.3.1 Operating Cost Summary

The operating cost (OPEX) estimate for a 40,000 tpa lithium carbonate facility has been prepared using data generated during the ramp up. (Table 18.9). The OPEX that defined by Exar at this stage for a 40,000 tpa lithium carbonate is US $5,411 per tonne. This present cost is a substantial change from the FS OPEX definition that was US $3,579 per tonne. The inflation and devaluation of the local currency affected several items conforming the OPEX including reagent costs, maintenance, manpower, catering, security, consumables, and product transportation cost components.

During the ramp up, there is the opportunity to identify the requirement of an optimization program to control and if possible, to reduce OPEX cost.

Reagent consumption rates that were determined by pilot plant, laboratory, and computer model simulation have been actualized based on data obtained during ramp up period. Reagent cost values, which represent 36% of OPEX, has been obtained from the suppliers servicing the actual plant operation.

Energy consumption has been determined on an equipment-by-equipment basis and design utilization rate and confirmed with actual operational data.

Labour levels are confirmed in accordance with Exar Management's operating the new facility. Salary and wage are based on the actual data being used by Exar in Argentina.

Maintenance estimates were updated by Exar's management based on the actual maintenance cost and projected future cost based on their experience with similar operations.

Results are as summarized in Table 18.9.

TABLE 18.9
OPERATING COSTS SUMMARY

Description	Total (US$ 000 /Year)	Li_2CO_3 (US$/Tonne)	Allocation of Total OPEX (%)
Direct Costs			
Reagents	78,986	1,975	36%
Maintenance	16,300	408	8%
Electric Power	7,362	184	3%
Pond Salt Harvesting	20,259	506	9%
Solid Waste Management (Rises)	6,933	173	3%

Table 18.9 Operating Costs Summary			
Description	**Total (US$ 000 /Year)**	**Li_2CO_3 (US$/Tonne)**	**Allocation of Total OPEX (%)**
Natural Gas	4,567	114	2%
Manpower	31,823	796	15%
Other Personnel Expenses	2,516	63	1%
Catering, Security & Third-Party Services	25,860	646	12%
Consumables	4,226	106	2%
Diesel	829	21	0%
Bus-in/Bus-out Transportation	938	23	0%
Direct Costs Subtotal	**200,598**	**5,015**	**93%**
Indirect Costs			
G&A	15,824	396	7%
Indirect Costs Subtotal	**15,824**	**396**	**7%**
Total Operating Costs	**216,423**	**5,411**	**100%**

18.3.2 Pond and Plant Reagents Costs Definition

Reagents comprise 36% of total OPEX costs and were estimated by Exar using contractual prices for the present operation. Consumption volumes have been obtained from laboratory work and computer model simulations, performed by Exar and its consultant, and actual operational data collected by Exar.

Pond and plant reagents include the following:

- Calcium Chloride;
- Quicklime;
- Refined lime;
- Sodium Carbonate;
- Barium Chloride;
- Hydrochloric Acid;
- Sodium Hydroxide;
- Organic solvents (extractant, diluent); and
- Resins.

As indicated in Section 14.0, sulphate brines such as the one present in Cauchari typically require treatment with lime to remove unwanted elements before proceeding to the lithium carbonate plant. The lime is bought from a local producer (150 km from the Project) producing lime of suitable quality for the application This producer will require expansion of their facilities to be considered a preferable supplier; however, the proximity of this lime facility could provide cost savings over other supply alternatives from San Juan province located at 1,200 km from the Project.

Na_2CO_3 is the dominant reagent cost in the lithium carbonate plant. Boron removal costs are dominated by solvent extraction organic make-up and HCl, for pH adjustment.

18.3.3 Pond Salt Harvesting

Annual cost for harvesting and disposal of the projected precipitated salts were estimated at US $20,259,000 based on qualified service provider quote.

18.3.4 Solid Waste Management (Rises)

Annual cost of collecting and disposing of solids removed from brine was estimated at US$ 6,933,180, based on a quote from a qualified service provider.

18.3.5 Energy Cost

Overall electricity consumption is estimated to be 80.6 MWh/year. The Project cost includes the installation of a grid-tied high voltage transmission line to supply all electric power requirements for the plant facility.

Natural gas yearly expenditure is US $4,567,000.

Diesel fuel is also required by the stand-by diesel generators and mobile equipment. Annual diesel cost is estimated to be US $829,000.

Temporary diesel power generators were used to meet the energy requirements prior to the installation of the 33 kV line and are included in the capital cost estimate. As the high voltage line for power distribution to the field well is fully operational, the diesel generators are being phased out. Operating costs for these units were included in the OPEX during early years.

18.3.6 Maintenance Cost

Yearly expenditures for this item, including the Lithium Carbonate plant and supporting facilities, are estimated at US $16,300,000.

18.3.7 Labour Cost

Annual total costs, including base salary, contributions, bonuses, benefits and other remuneration inherent to the area and type of work performed, are approximately US $31,823,000 per year.

18.3.8 Catering, Camp Services Cost, Security and Third-Party Services

Catering and camp services include breakfast, lunch, dinner, housekeeping, security and other services. This item amounts to US $25,860,000 per year and is based on actual prices.

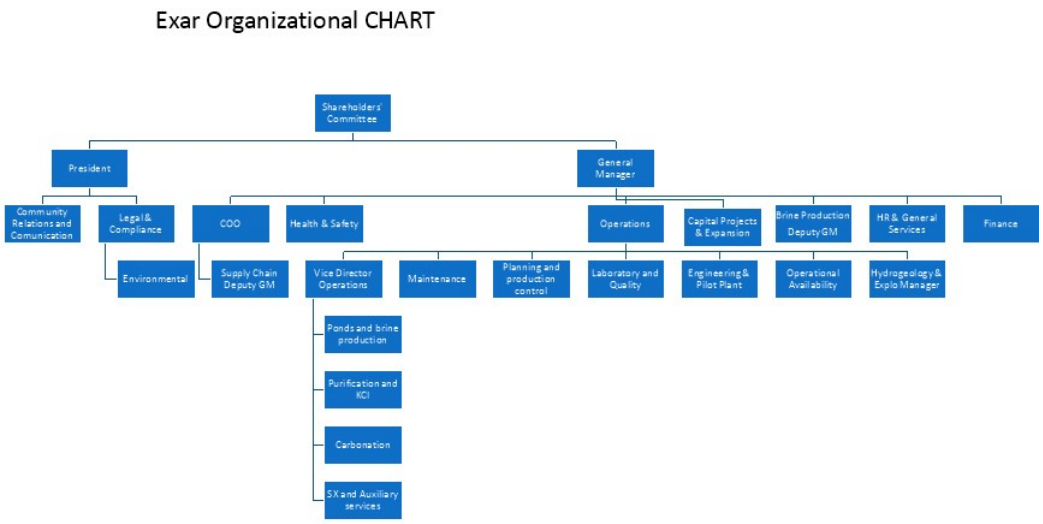
18.3.9 General and Administrative Costs

General and Administrative Costs are estimated to be US $15,824,000 per year.

18.4 COMPANY OPERATIONAL ORGANIZATION

The following diagram in Figure 18.1 Operational Organization presents an overview of the organization to operate the new lithium carbonate plant.

FIGURE 18.1 PROJECT ORGANIZATION



19.0 ECONOMIC ANALYSIS

This section has not been updated and added to this Report by LAR's request. This section is available in the previous Technical Report, Burga et al. 2025.

20.0 ADJACENT PROPERTIES

20.1 OLAROZ PROJECT - ARCADIUM LITHIUM

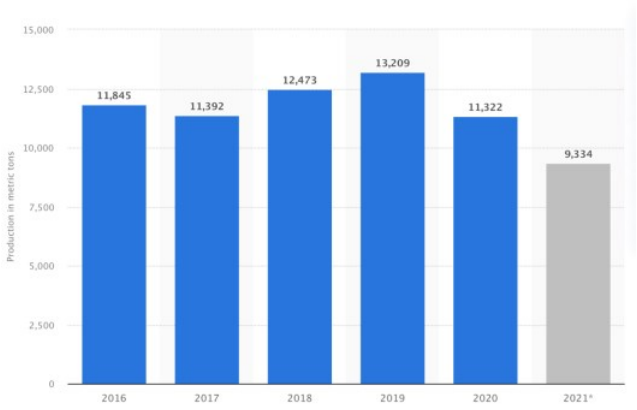
The Exar properties are adjacent to an operation owned by a joint venture between Rio Tinto, Toyota Tsusho, and JEMSE, where Rio Tinto owns 66.5% of the project, Toyota Tsusho owns 25% and JEMSE owns 8.5% of the project.

The 66.5% portion of the project was originally owned by Orocobre Limited ("Orocobre"). In August 2021, Orocobre and Galaxy Resources Limited merged to form Allkem. In January 2024, Allkem merged with Livent to form Arcadium Limited and finally, in January of 2025 Rio Tinto acquired 100% of Arcadium through an all-cash purchase.

The Salar de Olaroz project consists of 35 pr mining concessions covering 47,615 ha of claims (Figure 3.2 and Table 3.1). Exploration on the project began in 2008. In March of 2013, Orocobre began construction of a 17,500 tpa lithium carbonate production facility that was completed in November of 2014 with production subsequently commencing on November 21, 2014. Production began on the project without determining Mineral Reserves.

Production from the project from 2016 through part of 2021 is presented in Figure 20.1. An expansion of the plant to 42,400 tpa was completed in 2023. Production from the project from 2021 through 2023 is presented in Table 20.1 and the Mineral Resource Estimate presented Table 20.2 was taken from the Arcadium 2023 Annual Report. A photo of the Olaroz evaporation ponds and facility is presented in Figure 20.2.

FIGURE 20.1 OLAROZ PROJECT PRODUCTION - 2016-2021



Note: * In the first nine months of 2021, the Project produced approximately 9.3 thousand metric tonnes of lithium carbonate.
Source: Statista.com.

Table 20.1 Production From Rio Tinto's Olaroz Project - 2021 - 2023*			
Product	**Year**		
	2021	**2022**	**2023**
Lithium Carbonate (tonnes)	12,977	13,959	17,758

Note: * Information on this table was taken from the Arcadium Lithium Annual Report dated February 29, 2024. Figures reported in the Arcadium annual report were adjusted to reflect Arcadium's 66.5% ownership. The numbers in this table are reported to reflect 100% of the production.

Table 20.2 Mineral Resource Estimate for Arcadium's Olaroz JV Project In Tonnes of Lithium Metal (1-10)				
Item	**Mineral Resource Classification**			
	Measured (M)	**Indicated (I)**	**M+I**	**Inferred**
Li Mean Concentration (mg/L)	659	592	641	609
Resource (tonnes)	1,560,000	499,000	2,059,000	1,105,000

Notes:

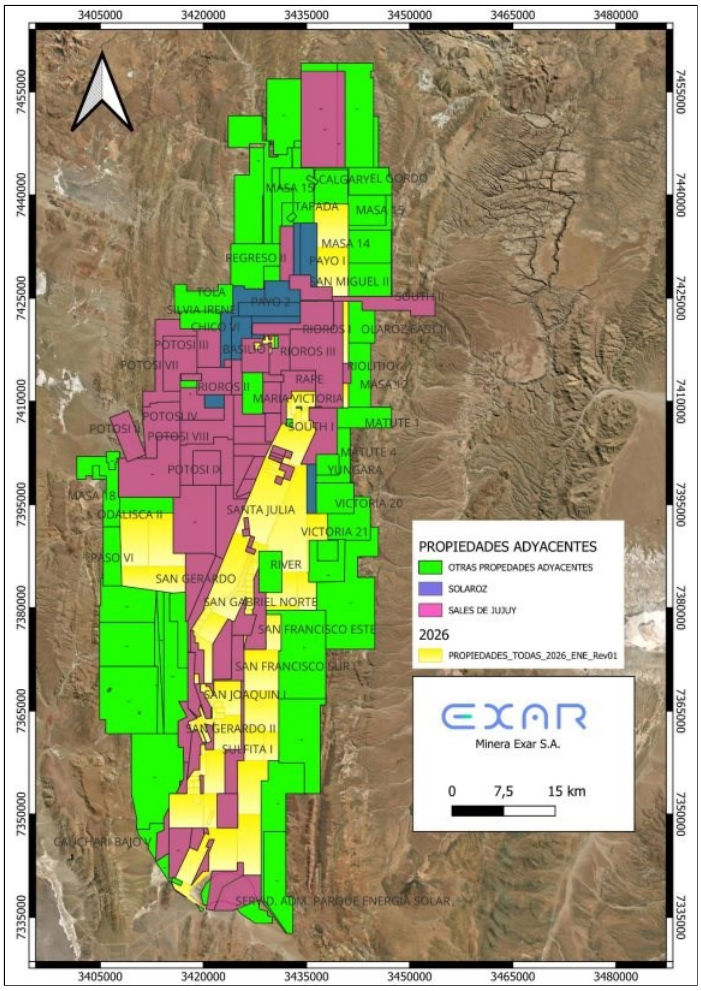
1. Mineral Resources are reported exclusive of Mineral Reserves. Mineral Resources are not Mineral Reserves and do not have demonstrated reasonable prospects for economic extraction.
2. Lithium metal is converted to lithium carbonate with a conversion factor of 5.323 (i.e., 5.323 metric tonnes of LCE per 1 metric ton of lithium metal).
3. The estimate is reported in-situ and exclusive of Mineral Reserves, but because no Mineral Reserves were estimated, the Mineral Resources have only been depleted by historical production.
4. An elevated lithium cut-off grade of 300 mg/l was estimated based on a projected price of $20,000 per metric tonne LCE over the entirety of the life-of-mine of 30 years. The average lithium grade of the Measured and Indicated Mineral Resources corresponds to 641 mg/l. Extracted grades at individual production wells and the average Mineral Resources concentration are well above the 300 mg/l cut-off grade, demonstrating that there are reasonable prospects for economic extraction.
5. The estimated economic cut-off grade used for Mineral Resource reporting purposes is 300 mg/l lithium, based on the following assumptions:
6. A technical grade LCE price of $20,000/metric tonne.
7. An estimated recovery factor for the salar operation over the span of life-of-mine is 62%, equivalent to the assumed process recovery factor of 62%.
8. An average annual brine pumping rate of 600 L/s is assumed.
9. Cost estimates are based on a combination of fixed brine extraction, G&A and plant costs and variable costs associated with raw brine pumping rate or lithium production rate and capital costs.
10. The Mineral Resource has been depleted for the historical well production which is approximately 0.323 million tonnes of lithium carbonate equivalent (LCE), 0.314 million tonnes of LCE were depleted from the Measured Mineral Resource and 0.009 million tonnes of LCE was depleted from the Indicated Mineral Resource (associated with the accumulative production of well E-26). The accumulated production between 30 of June of 2023 and 31 December of 2023 was 0.031 million tonnes of LCE.

Figure 20.2 Olaroz Project - Evaporation Ponds and Facilities



Source: arcadiumlithium.com.

Figure 20.3 Adjacent Properties Showing Boundary with the Exar Property



Source: Exar, (2026)

20.2 CAUCHARI PROJECT - RIO TINTO

Rio Tinto's Cauchari project is located at the south end of the Cauchari salar. Advantage was in a JV with Orocobre and in February of 2020, Orocobre announced the acquisition of 100% of the outstanding shares of Advantage. The subsequent changes in Orocobre are described in Section 20.1. In 2025, Rio Tinto acquired Advantage Lithium and the Cauchari project is now 100% owned by Rio Tinto. Exar's Cauchari-Olaroz Salars, the Project, is located between Rio Tinto's Cauchari project and its producing Olaroz project (Figure 20.3).

The Cauchari property consists of 22 mining concessions covering 28,906 ha. The Mineral Resource Estimate presented in Table 20.3 and Table 20.4 were taken from the Arcadium 2023 Annual Report.

Table 20.3
Mineral Resource Estimate for Arcadium's
Cauchari JV Project in Tonnes of Lithium Metal (1-7)

Item	Mineral Resource Classification			
	Measured (M)	Indicated (I)	M+I	Inferred
Li Mean Concentration (mg/L)	581	494	519	473
Resource (tonnes)	302,000	321,000	623,000	285,000

Notes:

1. Mineral Resources are reported exclusive of Mineral Reserves. Mineral Resources are not Mineral Reserves and do not have demonstrated reasonable prospects for economic extraction.
2. Lithium metal is converted to lithium carbonate with a conversion factor of 5.323 (i.e., 5.323 metric tonnes of LCE per 1 metric tonne of lithium metal).
3. The estimate is reported in-situ and exclusive of Mineral Reserves, where the lithium mass is representative of what remains in the reservoir after the life-of-mine. To calculate Mineral Resources exclusive of Mineral Reserves, a direct correlation was assumed between Proven Mineral Reserves and Measured Mineral Resources, as well as Probable Mineral Reserves and Indicated Mineral Resources. Proven Mineral Reserves (from the point of reference of brine pumped to the evaporation ponds) were subtracted from Measured Mineral Resources, and Probable Mineral Reserves (from the point of reference of brine pumped to the evaporation ponds) were subtracted from Indicated Mineral Resources. The average grade for Measured and Indicated Mineral Resources exclusive of Mineral Reserves was estimated based on the remaining brine volume and lithium mass.
4. An elevated lithium cut-off grade of 300 mg/l was estimated based on a projected price of $20,000 per metric tonne LCE over the entirety of the life-of-mine of 30 years. The average lithium grade of the Measured and Indicated Mineral Resources corresponds to 519 mg/l and represents the flux-weighted composite brine collected as brine is routed to the evaporation ponds. Extracted grades at individual production wells and the average Measured and Indicated Mineral Resource concentration are well above the 300 mg/l cut-off grade, demonstrating that there are reasonable prospects for economic extraction.
5. The estimated economic cut-off grade estimated for Mineral Resource reporting purposes is 300 mg/l lithium, based on the following assumptions:
6. A technical grade LCE price of $20,000/metric tonne.

7. An estimated recovery factor for the salar operation over the span of life-of-mine is 66%, lower than the estimated process recovery factor of 67%.

Table 20.4
Mineral Reserve Estimate for Arcadium's
Cauchari JV Project in Tonnes of Lithium Metal (1-7)

Item	Mineral Resource Classification		
	Proven	Probable	Total
Li Mean Concentration (mg/L)	571	485	501
Reserves (tonnes)	43,000	169,000	212

Notes:
1. Lithium metal is converted to lithium carbonate with a conversion factor of 5.323 (i.e., 5.323 metric tonnes of LCE per 1 metric ton of lithium metal).
2. An elevated lithium cut-off grade of 300 mg/l was estimated based on a projected price of $20,000 per metric tonne LCE over the entirety of the life-of-mine of 30 years. The average lithium grade of the Proven and Probable Mineral Reserves corresponds to 501 mg/l and represents the flux-weighted composite brine collected as brine is routed to the evaporation ponds. Extracted grades at individual production wells and the average Proven and Probable Mineral Reserves concentration are well above the 300 mg/l cut-off grade, demonstrating that there are reasonable prospects for economic extraction.
3. The estimated economic cut-off grade estimated for Mineral Reserve reporting purposes is 300 mg/l lithium, based on the following assumptions:
4. A technical grade LCE price of $20,000/metric tonne.
5. An estimated recovery factor for the salar operation over the span of life-of-mine is 66%, lower than the estimated process recovery factor of 67%.
6. An average annual brine pumping rate of 480 L/s is assumed.
7. Cost estimates are based on a combination of fixed brine extraction, G&A and plant costs and variable costs associated with raw brine pumping rate or lithium production rate and capital costs.

The information in this section has not been verified by the Qualified Person and it should be noted that the information is not necessarily indicative of the mineralization on the property that is the subject of this Technical Report.

21.0 OTHER RELEVANT DATA AND INFORMATION

This section contains excerpts of a Scoping Study Report for the Exar Expansion Project at the Cauchari-Olaroz Salar, Jujuy Province, Argentina by James Wang, P.Eng. This report was prepared by EXAR, WSP Golder and Deptford Geoscience.

The 2026 Scoping Study Report was prepared by WSP Golder to provide Lithium Argentina with a Technical Report in accordance with S-K 1300 Regulations ("S-K 1300") on the Cauchari-Olaroz Salars ("Cauchari-Olaroz" or "Project" or "Property"), located in the Jujuy Province, Argentina.

Minera Exar S.A. is the operator of the Cauchari Olaroz lithium mining project, designed to produce 40,000 tons per year ("tpa") of lithium carbonate equivalent ("LCE") through a conventional evaporation, precipitation, and carbonation process. This project commenced production in June 2023, making it a pre-existing Project not aligned with the RIGI.

The Large Investment Incentive Regime (RIGI) provides a legal, tax, and customs framework that is particularly favourable for the development of strategic projects such as the Cauchari-Olaroz expansion, providing predictability and suitable conditions to attract capital and promote sustained growth in Argentina's lithium industry.

The expansion project presented here involves the expansion of the pre-existing project known as Cauchari Olaroz. The objective of the expansion project is to increase production capacity by 45,000 tpa LCE through new direct lithium extraction ("DLE") technology. The introduction of direct lithium extraction technology will reduce the operating costs of lithium carbonate production and water consumption, while increasing lithium recovery efficiency from brine from the current 63% to approximately 75%.

For the Expansion project, Exar proposed a single 45,000 tpa LCE industrial scale plant. The combined production capacity of both projects will reach a total of 85,000 LCE annually, comprising of existing operation (Stage 1: 40,000 tpa LCE) and proposed expansion production (45,000 tpa LCE).

It should be noted that WSP Golder PEA has no impact on the Mineral Reserves and the key assumptions and parameters supporting the Mineral Reserves. The information presented in Sections 1 to 12 and 14 to 15 of the main Report also pertain the WSP Golder PEA, as do Sections 23, and Sections 25 to 27 and are therefore not repeated here. Information relating to Sections 13 and 16-22 from the WSP Golder PEA is provided in the following sub-sections.

Formatting changes, heading and section numbers, table and figure numbers and layouts have been changed to match those used in this Technical Report. Tables and figures may have been resized for easier viewing.

Note that the following abbreviations have been changed to be consistent throughout this section: K to k for thousands, Kg to kg, kw and Kw to kW, KV to kV, KTPA to ktpa, LoM to LOM, l/s to L/s, M^3 to m^3, PH to pH, T to t, TPA to tpa, tons to tonnes.

Abbreviation ρ t/m^3 means density measured in metric tons per cubic metre.

Punctuation: periods (.) have been added to bullet points as needed.

21.1 GEOLOGICAL SETTING AND MINERALIZATION

The Central Andean Altiplano-Puna Plateau is the second-highest orogenic plateau globally, averaging 4000 meters above sea level, and the highest associated with extensive arc volcanism (Allmendinger et al., 1997; Pingel et al., 2023). The eastward-propagating fold and thrust belt defines a series of longitudinal tectonomorphic zones relevant to lithium (Li) brine formation, including, from east to west: the Precordillera and Cordillera de Domeyko; the Salar de Atacama (a distinct salt flat separate from the Altiplano-Puna basins), the Western Cordillera; the Altiplano-Puna; and the Eastern Cordillera (Figure 21.1; Allmendinger et al., 1997; Strecker et al., 2007; Victor et al., 2004; Carrapa et al., 2011). The Altiplano-Puna Plateau comprises high-elevation internally drained basins, arid climate conditions, and thick sedimentary accumulations conducive to Li brine generation and is the geological setting of the Cauchari-Olaroz salar (Figure 21.1).

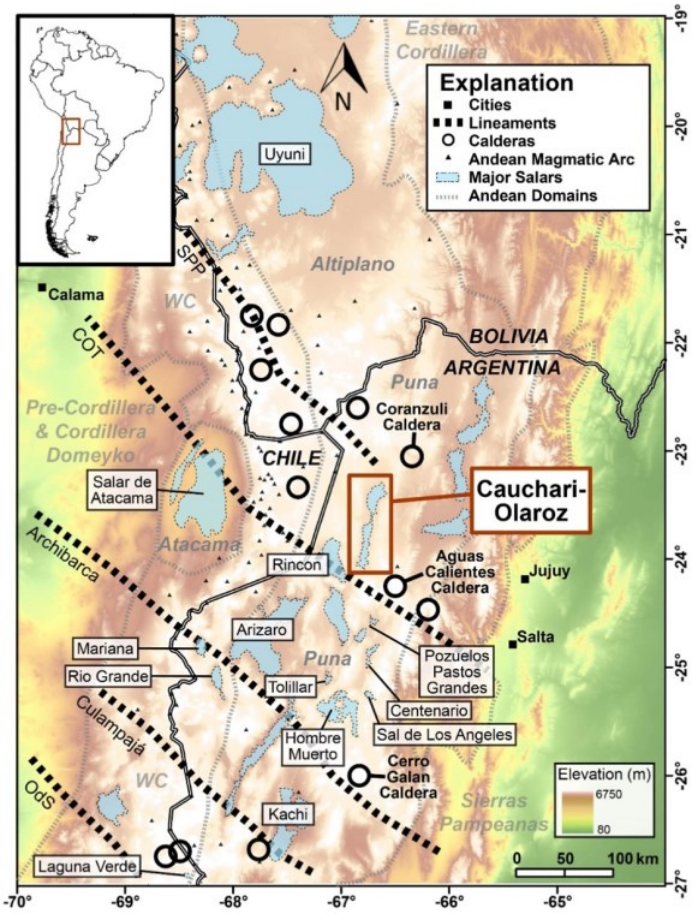
21.1.1 Regional Structural and Volcanic Features

The current relief of the Puna is characterized by north-south elongated mountain ranges separated by wide valleys, often with endorheic depocenters (Figure 21.1). In most cases, the ranges are dominated by Paleozoic and Paleogene rocks unconformably overlain by Neogene sedimentary and volcanic rocks. Structures in the Neogene rocks are predominantly characterized by open folds and low-displacement thrust faults, contrasting with tight folds and high-displacement thrust faults exhibited by the Paleozoic to Paleogene units (Seggiaro et al., 2017). These basins have formed primarily in the eastern and central sectors of the Puna Plateau, through compressional Miocene-age orogeny (Helvaci and Alonso, 2000), and have been accumulation sites for numerous salars, including Cauchari and Olaroz.

Altiplano-Puna Plateau uplift timing and mechanisms remain debated. Paleoaltimetric, thermochronologic, and palinspastic reconstructions contend either rapid kilometer-scale uplift during the Middle-Late Miocene (Ghosh et al., 2006; Pingel et al., 2023) or a more gradual rise since at least the Eocene (Canavan et al., 2014; Carrapa et al., 2014). Most of the uplift of the Altiplano began in the Late Oligocene, migrating eastward to the Eastern Cordillera of NW Argentina by ~12 Ma, where exhumation continued through ~4 Ma (Allmendinger et al., 1997; Carrapa et al., 2011). Farther south in the Puna, major uplift initiated in the Miocene and lasted until ~1-2 Ma. (Allmendinger et al., 1997).

Eastward migration of the orogen was accompanied by voluminous ignimbrite volcanism covering >500,000 km^2 (Allmendinger et al., 1997). Ignimbrites of the Altiplano-Puna Volcanic Complex (APVC), centered near the Argentina-Bolivia-Chile triple junction (Figure 21.1) erupted most extensively from large calderas between ~10-4 Ma (De Silva et al., 2006), and are often preserved as intercalated tuffs and tephra in Neogene sedimentary successions throughout the central Andes. Later Pliocene to Quaternary backarc volcanic centers and ignimbrite deposits became more subdued and more localized along NW-SE crustal lineaments such as Archibarca, Culampaja, Ojos del Salado, and Calama-Olacapato-El Toro (COT) lineaments (Figure 21.1; Richards and Villeneuve, 2002; Chen et al., 2020). These zones - including the Tocomar-Tuzgle area in the eastern Puna and the Cerro Galan Caldera in the Southern Puna (Figure 21.1) - reflect long-lived magmatism and hydrothermal activity in zones of elevated crustal permeability that likely contributed to Li mobilization and enrichment in adjacent basins.

Figure 21.1 Structural Features in the Central Area of the Cauchari Basin

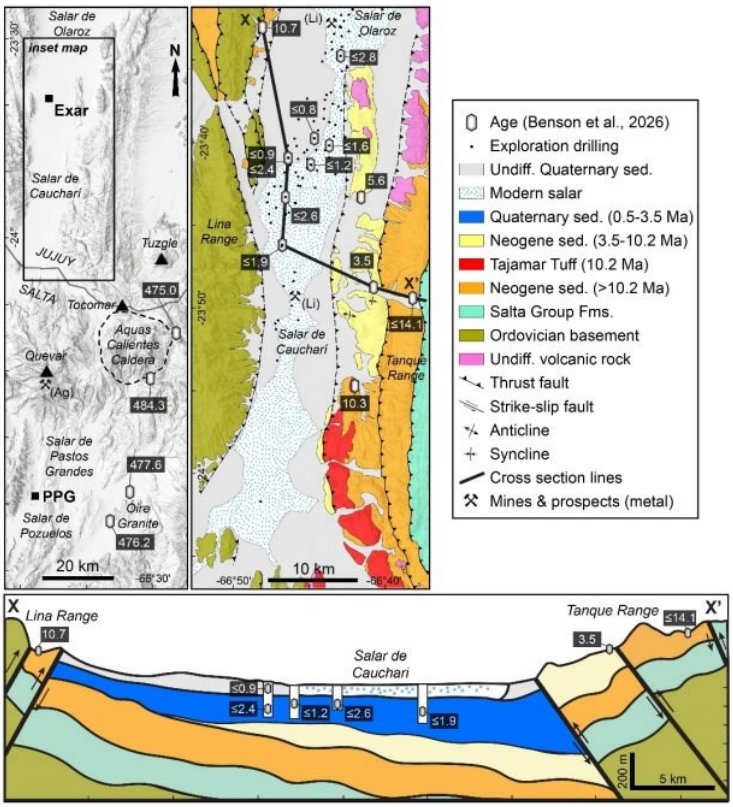


Source: modified from Burga et al., (2026)

21.1.2 Regional Geology

The regional geology of the Olaroz and Cauchari Salars is shown in Figure 21.2. The lithology in the region can broadly be defined into Ordovician metasedimentary basement locally intruded by igneous rocks of the Oire Complex, sediments of the Eocene Salta Group, Neogene sediments, Quaternary sediments, and volcanic rock, typically of Neogene to Pliocene age (Figure 21.2; Benson et al., 2026).

Figure 21.2 Regional Geology in the Vicinity of the Exar Project



Source: Burga et al., (2026)

21.1.3 Geology of the Olaroz and Cauchari Salars

21.1.3.1 Conceptual Geology

The margins of the north-south trending Cauchari and Olaroz salares (Figure 21.2) are dominantly composed of Ordovician metasedimentary rocks of the Coquena Formation (Seggiaro et al., 2015), which are overlain by Cretaceous to Eocene sedimentary rock formations of the Salta Group (Figure 21.2). A thick (>1 km) sequence of variably folded and faulted Neogene sandstones, siltstones, and subordinate claystones and conglomerates overlies these sediments, locally referred to as Vizcachera and Sijes Formations (Seggiaro et al., 2015). This long-lived alluvial to fluvial setting preserved intercalated volcanic rocks and tephra sourced from intermediate to rhyolitic centers of the region, including the 11.8 Ma Yungara Volcanics (Schwab and Lippolt, 1976), 10.2 Ma Tajamar Tuff (Petrinovic et al., 2010), and 6.6 Ma Coranzuli Tuff (Seggiaro et al., 2019). New U-Pb zircon ages on surface outcrops of these marker beds indicate that alluvial fan sedimentation was active for at least ten million years from ~14.1-3.5 Ma (Figure 21.2; Benson et al., 2026). The Tajamar Tuff, sourced from the Aguas Calientes Caldera to the south of the Salar de Cauchari, is a key marker bed in the stratigraphy to help to discriminate the stratigraphy of Neogene sedimentation in the area (Figure 21.2). In places, a sharp angular unconformity separates the post-Tajamar Neogene sediments from older units, indicating that an uplift event occurred sometime after the deposition of the Tajamar Tuff, enabling the deposition of alluvial to fluvial sediments between 10.2 and 3.5 Ma.

Shortly after 3.5 Ma, based on the youngest dated tephra in folded outcropping Neogene sediments (Benson et al., 2026), another Andean tectonic event caused east-dipping thrust faulting and folding of these sediments and formation of the modern Cauchari and Olaroz salares (Figure 21.2). These Neogene sedimentary rocks correlate with compacted, inclined sediments in core intervals at ~200 m depth in the western salar and ~600 m in the center. To date, no holes deeper than 700 m have been drilled in Cauchari, but the extrapolation of this trend eastward indicates this contact may be >1,000 m deep beneath modern sediments along the eastern margin Figure 21.2). Equivalent sediments have not yet been intersected in the Olaroz salar, suggesting that these 10.2-3.5 Ma sediments are significantly deeper than in Cauchari.

Most drilling in the whole basin has been within the modern younger, unconsolidated, flat-lying sandstones, siltstones, and halite-claystone lacustrine units (Figure 21.2). These halite-bearing sediments contain thin primary and reworked volcanic ashes with eight new detrital zircon U-Pb maximum depositional ages from seven drill holes, ranging from 2.8 to 0.80 ± 0.01 Ma (Benson et al., 2026). This constrains the timing of basin formation and halite deposition to less than 3.5 Ma. The lack of halite deposition in Neogene sediments prior to this time suggests that these systems were not endorheic and therefore open to exporting solutes. Closed-basin Li enrichment in residual brine has been active since basin development and continues to the present day.

21.1.4 Salar Surface Sediments and Mineralization

The surface distribution of alluvium, salar sediments, and basement rock in the central zone of the Cauchari Basin is shown in Figure 21.3. This zone is shown because it is the focus of the Mineral Reserve Estimate (Section 11.0). Flat-lying salar deposits occur throughout the salars, at the lowest ground surface elevation in the basin. Alluvial deposits intrude into these salar deposits to varying degrees, depending on location. The alluvium surface slopes upward from the salar surface and extends outside the basin perimeter. Raised bedrock exposures also occur outside the salar basin.

The most extensive intrusion of alluvium into the basin occurs on the Archibarca Fan (Figure 21.3), which partially separates the Olaroz and Cauchari Salars. Route 52 is constructed across this alluvial fan. The Archibarca Fan developed during the late-Holocene. In addition to this major fan, much of the perimeter zone of both salars exhibits encroachments of alluvial material forming fans of varying sizes. Alluvium deposition is interpreted to range from early- to late-Holocene.

A range of dominant sediment types and characteristic mineral assemblages are found across the surface of the Olaroz and Cauchari Salars. In the Olaroz Salar and the southern part of the Cauchari Salar, particularly in marginally elevated areas, buff clays occur, interlayered with dirty calcite travertine sand with irregular calcite cementation produced mainly by hydrothermal activity (calcareous sinters). Ulexite concretions with or without gypsum and mirabilite are occasionally associated with the carbonate deposits.

Borax is common throughout both salars, occuring as small, rounded concretions in red and brown clays along a narrow and discontinuous strip on the western border of Cauchari Salar and in the eastern and central area of the Olaroz Salar. In some areas of the central Olaroz Salar, surficial borax alters to form evaporitic ulexite. When this mineral occurs in significant concentrations it forms large ulexite concretions or "papas" that expand the associated black or red clays, creating a hummocky surface. In the subsurface, borax commonly occurs as concretions and as an in-filling of corrosion holes in halite. In some locations, borax has been replaced by ulexite and/or tincal.

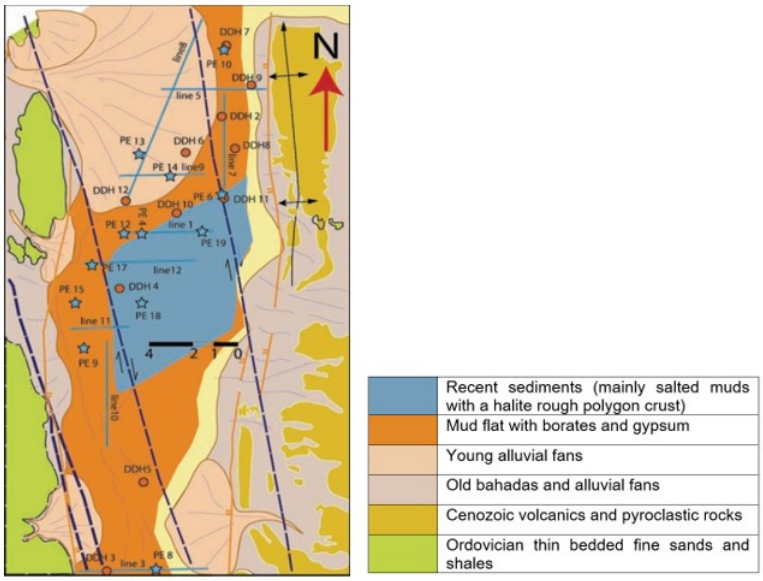
Gypsum is the primary sulphate mineral in the surficial muds and the crystals commonly have a small, bladed habit. In some locations, mirabilite and trona are associated with the gypsum-bearing layers. Trona is more abundant in the Cauchari Salar, although neither salar is known to contain exploitable amounts.

Halite occurs throughout the surface of both salars but is more dominant on the Olaroz Salar where a well-formed, polygonal-cracked, salt hardpan is present. In contrast, the surface layer across much of the Cauchari Salar consists of a thin, red silt / halite, polygonal-cracked crust over brine-saturated red plastic silt.

Distinctive accessory minerals occur within the red surface silt of the Cauchari Salar. Gypsum and minor glaserite are the main accessory phases in the southern area of the salar. In the central area, halite is a primary accessory mineral and gypsum is secondary. Ulexite, mirabilite, and trona are the primary accessory phases in the northern area of Cauchari.

In the zone where the recent alluvial fans merge with the salar sediments, the salar sediments often exhibit evidence of biological activity (bioturbation and rootlets) and are typically devoid of borate concretions and gypsum.

Figure 21.3 Surficial Geology in the Central Area of the Cauchari Basin



Source: King, Kelley, Abbey (2012)

Source: King, Kelley, Abbey (2012)

21.1.5 Salar Lithostratigraphic Units

The following five informal lithological units are interpreted from the drill core in 2012:

- Unit 1: Red silts with minor clay and sand;
- Unit 2: Banded halite beds with clay, silt, and minor sand;
- Unit 3: Fine sands with minor silt and salt beds;
- Unit 4: Massive halite and banded halite beds with minor sand; and
- Unit 5: Medium and fine sands.

The hydrostratigraphic units (HSUs) described briefly below according to the 2025 Conceptual Model (Montgomery, 2025):

- **HSU 1 - Upper Proximal Alluvial:** This unit consists mainly of red to grayish-brown silty layers with minor clay, interbedded with fine to coarse sand and trace gravel. Surface features include mud cracks and bioturbation, while deeper levels contain carbonate concretions and occasional gypsum crystals. Borate concretions are common, and halite occurs locally. Clay mineralogy is dominated by illite with minor kaolinite, smectite, and chlorite, indicating a Neogene volcanic source. Hydrogeologically, this unit exhibits hydraulic conductivity (K) ranging from approximately 2 to 120 m/d and storativity (S) on the order of 4×10^{-2}, representing a high-permeability unit.

- **HSU2 - Intermediate Alluvial**: This unit is characterized by stratified halite with interbeds of reddish clay or silt and massive fine-grained sand layers, locally cemented by halite. Minor evaporites, silts, and sands are also present. The unit typically reaches thicknesses of 50-60 m and is more clay-rich than HSU 1. Hydraulic conductivity (K) ranges from approximately 0.9 to 12 m/d, with storativity on the order of 4×10^{-2}. Based on these properties, HSU 2 is classified as an aquifer with good hydrogeological potential.

- **HSU 3 - Upper Distal Alluvial:** This unit comprises massive, light gray to brownish-gray fine-grained sands interbedded with evaporite layers, mainly halite. Thin red silt horizons occur locally. The sand is composed of quartz, feldspar, mafic minerals, magnetite, and volcanic glass, with minor halite, gypsum, and borates. Hydrogeological parameters indicate K values ranging from approximately 0.006 to 18 m/d and storativity on the order of 3×10^{-3}. This unit is therefore considered to have low hydrogeological potential.

- **HSU 4 - Evaporite-Alluvial Interbedded Unit:** This unit is dominated by stratified and massive halite beds interlayered with sand, with individual layers typically 1-3 m thick, locally reaching much greater thicknesses. Red clay layers, borate concretions, and occasional carbonate horizons are present. Hydraulic conductivity (K) ranges from approximately 0.04 to 2 m/d, with storativity on the order of 1×10^{-3}. Due to these characteristics, HSU 4 is classified as a low-potential aquifer.

- **HSU 5 - Lower Alluvial fan:** This unit consists of thick-bedded fine-grained sands alternating with massive light red silts, with coarser sand toward the base. The mineralogy indicates volcanic source rocks, with minor bioturbation and rare halite and gypsum crystals. Hydraulic conductivity (K) ranges from approximately 0.4 to 2 m/d, with storativity on the order of 2×10^{-2}. This unit is also classified as an aquifer with low hydrogeological potential.

- **HSU 6 - Base of the Current Aquifer for Resource Estimation:** This unit represents the hydrogeological base of the current aquifer system for the purposes of the Mineral Resource estimation and is interpreted as the basal boundary of the aquifer system.

Alluvial deposits intrude into these salar deposits to varying degrees, depending on location. The alluvium surfaces slope into the salar from outside the basin perimeter. Raised bedrock exposures occur outside the salar basin. The most extensive intrusion of alluvium into the basin is the Archibarca alluvial fan system, which partially separates SdO and SdC on the western boundary. In addition to this significant alluvial fan deposit, much of the perimeter zone of both salars exhibits encroachments of alluvial material associated with alluvial fan systems.

21.1.5.1 Sedimentation Cycles

Sedimentation cycles were evaluated for the salar sediments, as a supportive step for understanding, delineating, and grouping the important hydrostratigraphic units. The energy level and RBRC curves help to explain the vertical variations observed in the salar sediments. The RBRC curves show the distribution of measured RBRC, expressed over 10 m intervals. The collection and analysis of the RBRC samples are described in Section 11.9.2 of the NI 43-101 Technical Report, Deptford Geoscience Inc., March 19, 2026. The energy level curves represent a qualitative measure of depositional energy, expressed over five metre intervals. The lithology-based scale used to rank the energy level is summarized below:

- 0 - Massive halite beds (> 5 cm thick);
- 1 - Halite in thin beds (< 5 cm), including banded halite with thin sand, silt, or clay partitions;
- 3 - Silt with root marks or bioturbation; silty clay beds with or without halite crystals and borate concretions; silt or clay with plant remains; thin and irregular clay or halite bedding;
- 4 - Silt with or without halite crystals and borate concretions;
- 5 - Fine-grained sands;
- 7 - Medium-grained sands; and
- 8 - Coarse-grained sand with or without gravel.

This scale is qualitative and was developed as an aid for interpreting sedimentary cycles in the salar. The exclusion of Levels 2 and 6 is intended to represent a large energy level increase between Levels 1 and 3, and Levels 5 and 7, relative to the other levels.

The energy level measurements in DDH10 exhibit a repeating pattern, between the upper 130 m of the borehole and the lower part of the borehole. This pattern is considered to represent two distinct sedimentation cycles: an Upper Salt Generation Cycle ("USGC") and a Lower Salt Generation Cycle ("LSGC"), with the division between the two occurring at approximately 130 mbgs. These cycles are used as an aid to interpret the progression of sediment deposition throughout the Project area, and to support the development of a hydrostratigraphic model.

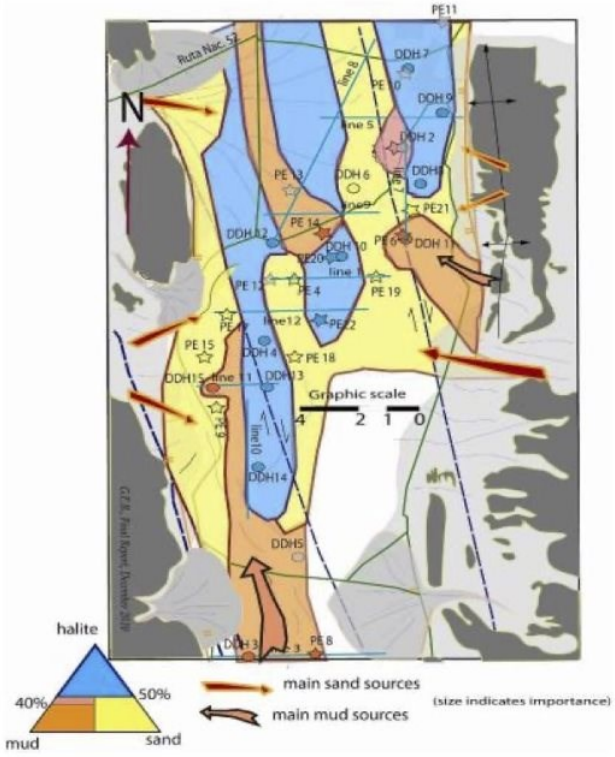
21.1.5.2 Sedimentary Facies Analysis and In-filling History

The figures referred to in this subsection are from a sedimentology report prepared on behalf of Exar (Bossi, 2011).

The distribution of dominant geologic materials within the LSGC (defined as > 130 mbgs) is shown in Figure 21.4. Materials are divided into fractions of three end members that exhibit unique porosity profiles: sand, silt, and halite. Isopleth maps of salt and sand thickness within the LSGC are shown in Figure 21.5 and Figure 21.6, respectively. These maps were used to infer the primary locations where salt deposition occurred within the basin, and where sand entered the basin.

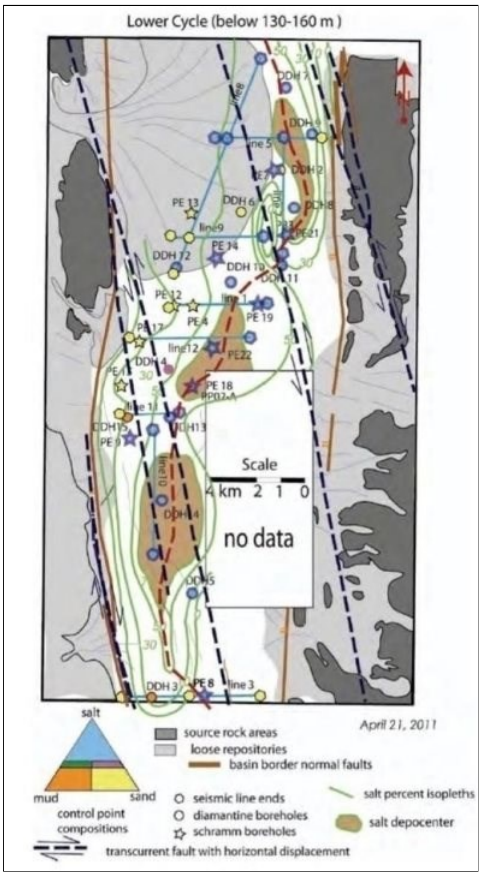
A central elongated salt deposition zone dominates the LSGC, as shown in Figure 21.4. This salt body is continuous, but irregular in the fraction that it comprises of the LSGC. As shown in Figure 21.5, elongated zones of relatively more dominant salt deposits occur in the southern, central, and northern areas of the salar. The northern zone is displaced towards the east, due to the strong influence of clastic sedimentation associated with the Archibarca Fan.

Figure 21.4 Facies Map of the Lower Salt Cycle Showing Line 1 Crossing a Thick Salt Succession



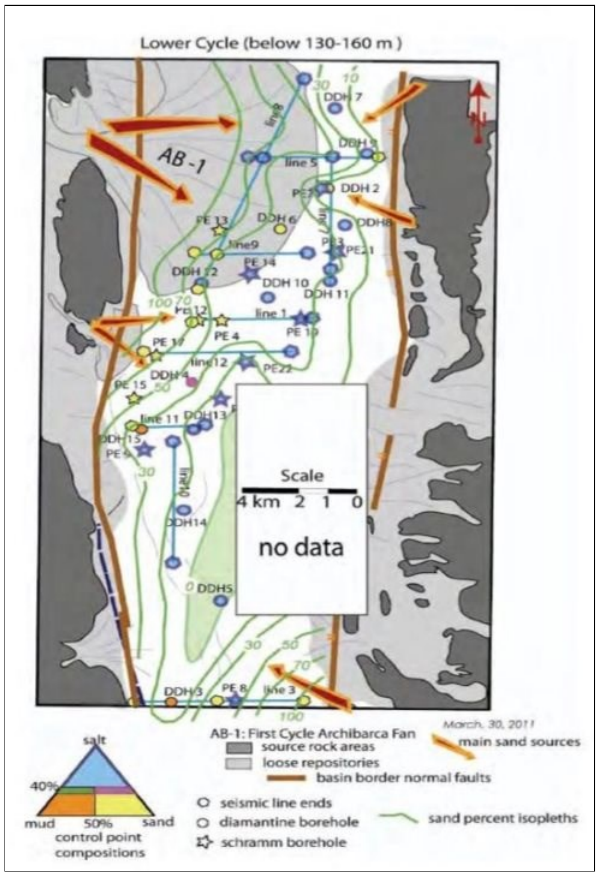
Source: Bossi, (2011)

Figure 21.5 Isopleth Curves of Salt Percent in the Facies Triangle



Source: Bossi, (2011)

Figure 21.6 Main Salt Sources of the Lower Cycle



Source: Bossi, (2011)

Clastic contributions to the LSGC originated from various locations around the salar Figure 21.6). However, the main sand source was located in the mountains to the west of the salar and is responsible for the LSGC occurrence of the Archibarca Fan. The influence of this source is indicated by the increasing sand fraction in the vicinity of the fan (Figure 21.6). The main mud source is south of the salar, with an additional source located to the west.

The distribution of materials in the LSGC is related to the equilibrium between subsidence and clastic supply. Brine became concentrated in the dropped zones, and extensive halite beds were formed through evaporation. Conversely, the horsts were relatively elevated and primarily received muds (silts) or sands. LSGC deposits were formed during the Late/Middle Pleistocene when the Puna region was situated at lower altitudes. At that time, cooler climatic conditions and rain-shadow effects associated with the eastern Pampean Ranges resulted in enhanced aridity. Climatic conditions cycled between relatively wet and dry periods.

The wet periods were characterized by the development of permanent shallow lakes with high evaporation rates and the dry periods by ephemeral lagoons. Saltpan formation was enhanced during the wet periods, and the salt deposited at these times tends to be white to grey in colour and lacking in clastic components. Conversely, banded halite and associated reddish-coloured clastic materials were likely crystallized and deposited in drier periods.
For these more recent deposits, the supply of clastic sediments is greater, particularly in association with the Archibarca Fan. Consequently, the saltpan is located mainly in the southern area of the salar with a minor isolated zone in the north, probably connected with the Olaroz Basin.

Similar to the LSGC, the primary location is at the Archibarca Fan (below the present-day fan), as indicated by the high sand fraction extending into the salar. Secondary locations occur at another fan system originating from the eastern mountains, and at two locations along the western basin border south of the Archibarca Fan. Penetration of the Archibarca Fan into the basin reaches a maximum during the period represented by the USGC. During this period, most mud still originated from the south with minor contributions from the mountains located on the western border.

21.1.6 Surface Water

The Cauchari-Olaroz watershed is shown in Figure 21.7. The watershed is an elongated depression with a length of approximately 150 km in a north-south direction and a width of 30 to 40 km in an east-west direction and covering approximately 4,500 km^2. The surface water network within the watershed eventually flows into the Olaroz or Cauchari Salars. There is no surface water outflow from the salars. These rivers are the main freshwater inflows into the salar and have been monitored since 2009.

The primary surface waterways within the watershed basin are Rios El Rosario, Ola, and Tocomar. Rio Rosario, which is locally called Rio El Toro, originates in the northern part of the watershed, at an elevation of 4,500 m. The river flows south-southeast for 55 km, past the village of El Toro, before it enters into the Olaroz Salar.

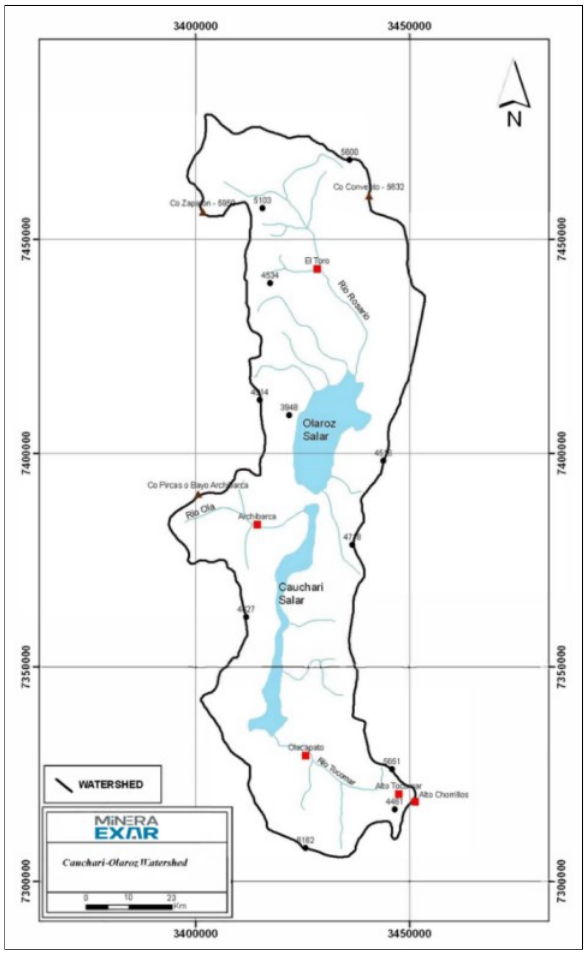
Rio Ola, which is locally called Rio Lama, originates just south of Cerro Bayo Archibarca, at an elevation of around 4,500 m, and flows east for 20 km. It enters the salars on top of the Archibarca Fan that separates Olaroz from Cauchari on the western flank of the basin.

Rio Tocomar, which is locally called Rio Olacapato, originates some 10 km west of Alto Chorillo at an elevation of around 4,360 m. The river flows west for approximately 30 km before it enters the Cauchari Salar from the southeast.

In addition to the surface waterways noted above which enter the salars, there is an area in the central southern part of the Cauchari Salar some 15 km north of the village of Cauchari, where surface water originates from an array of springs. Discharge from these springs is naturally channelled into a central stream that flows north for several kilometres and then gradually seeps back underground.

Chemistry and flow monitoring results from the Surface Water Sampling Program conducted throughout the Cauchari-Olaroz watershed are presented in Section 9.8 of the NI 43-101 Technical Report, Deptford Geoscience Inc., March 19, 2026.

FIGURE 21.7 CAUCHARRI-OLAROZ WATERSHED



Source: Burga et al., (2019)
Note: black dot with a number beside it = meteorological station, red square = town.

21.1.7 Mineralization

The distribution of alluvial deposits, salt flat sediments, and bedrock in the central area of the Cauchari Basin corresponds to the center of the estimation of measured, indicated, and inferred resources. However, the distribution surface trends of these three materials are similar across both salt flats.

In the salt flats, flat salt deposits occur in the lower part of the basin. Depending on the location, alluvial deposits are intercalated within these salt deposits. The most extensive alluvial intercalation in the basin occurs in the Archibarca Alluvial Fan. The fan developed at the end of the Holocene, partially separating the basins of the Olaroz and Cauchari salt flats. Although the most recent alluvial event produced the development of the fan over the original salt basin, intercalations of evaporites are verified below the fan.

In addition to this fan, a large part of the perimeter zone of the salt flats presents intrusions of alluvial material associated with fans of different sizes. The alluvial deposits originated in a range between the early and late Holocene.

A wide range of different dominant sediment types and characteristic mineral assemblages are found throughout the surface of the Olaroz and Cauchari salt flats. These salt flats are characterized by a great heterogeneity of accumulated components, among which may be mentioned clays intercalated with sands, travertine of hydrothermal origin, concretions of borates, gypsum ($CaSO_4 \cdot 2H_2O$), and mirabilite ($Na_2SO_4 \cdot 10H_2O$).

Borax occurs as rounded concretions in the clayey levels, which are found in the western area of the Cauchari Salt Flat and in the eastern and central areas of the Olaroz Salt Flat. Ulexite appears as an alteration product of borax, and in sufficient quantities it can form concretions or "papas" (potato-shaped masses) (center of the Olaroz Salt Flat) that expand within the clayey levels and generate a pillow-like structure. In the subsurface, borax fills cavities in halite (NaCl) levels, where it may be replaced by tincal or ulexite.

Halite is common in both salt flats, but it is more abundant on the surface of the Olaroz Salt Flat, where it forms a saline hardpan (a hard, impermeable crust) with typical polygonal fractures. In the Cauchari Salt Flat, in contrast, a thin saline crust with polygonal fractures is observed, resting on a silty layer of reddish color and plastic consistency.

In the Cauchari Salt Flat, gypsum ($CaSO_4 \cdot 2H_2O$) and glaserite ($3K_2SO_4 \cdot Na_2SO_4$) appear as accessory minerals in the southern area. Towards the center of the salt flat, the accessory minerals are halite and gypsum, and towards the north, ulexite, mirabilite, and trona appear.
The interstices of the clastic saline body of the Olaroz-Cauchari basin are saturated with brines. In the specific case of the Cauchari brines, they are saturated with sodium chloride, with a total dissolved solids (TDS) content of 27% (324 to 335 g/L) and an average density of 1.215 g/cm³. Other major components are potassium, lithium, magnesium, calcium, sulfate, HCO_3^-, and boron (as borates and as free H_3BO_3).

21.2 DEPOSIT TYPES

The Cauchari and Olaroz Salars are classified as "Silver Peak, Nevada" type terrigenous salars. Silver Peak, Nevada in the USA was the first lithium-bearing brine deposit in the world to be exploited. These deposits are characterized by restricted basins within deep structural depressions in-filled with sediments differentiated as inter-bedded units of clays, salt (halite), sands and gravels. In the Cauchari and Olaroz Salars, lithium-bearing aquifers have developed during arid climatic periods as halite precipitation drove up Li in residual brine. Within the basin, brines migrated to free and forced convection (Tyler et al., 2006). As a result, the brine-bearing aquifers occur laterally and beneath halite bodies as a function of the permeability subsurface stratigraphy (Benson et al., 2026). On the surface, the salars are presently covered by carbonate, borax, sulphate, clay, and sodium chloride facies. A detailed description of the geology of the Olaroz and Cauchari Salars is provided in Section 21.1.

Cauchari and Olaroz have relatively high sulphate contents and therefore both salars can be further classified as "sulphate type brine deposits".

21.3 MINERAL PROCESSING AND METALLURGICAL TESTING

21.3.1 Introduction

Key metallurgical testing was performed by Ganfeng Lithium to define the technology and engineering parameters required to design a direct extraction process for the Cauchari-Olaroz project.

This section was based on the info and reports provided by Ganfeng Lithium (GF). The QP has visited facilities performing the test-work and is confident that the quantity and quality of the test-work completed is sufficient to the level of S-K 1300 Scoping Study.

21.3.2 Process Overview

It was determined that the brine was only concentred to ~3 g/l lithium to feed a unique solvent extraction process to produce a pure concentrate that will report to the lithium carbonate plant at the Cauchari-Olaroz Salars. The process involved pre-concentration in solar ponds, Solvent Extraction, purification and product recovery.

21.3.2.1 Brine Evaporation

To determine the evaporation path of the brines, WSP relied on a traditional modelling commissioned to Adinf with extensive experience in design of solar evaporation ponds throughout Argentina and Chile. As often done for traditional technologies no test-work was performed for this step.

21.3.2.2 Purification of Brine

Impurities, such as Ca, and B, will be removed in the several purification steps used in the lithium plant. All purification test-work was performed by GF at its R&D Centre in China. Since these are traditional processes used in industry whether based on chemical precipitation or resin ion exchange, they are not reported in this Chapter but discussed in detail in Chapter 17.

21.3.3 Solvent Extraction Test Work

The objective of the test work is to verify the extractant selectivity for lithium and the efficiency of boron removal with a proprietary and selective solvent formulation. To identify the feasibility of the proposed experimental route and process of extraction method, and the reliability of multi-component synergistic extraction-water stripping. Whether the lithium extraction rate is ≥ 90%, and the content of stripped lithium is ≥ 19 g/l.

Note: Because of the confidentiality of the extractant formulation this chapter is limited in supplying sensitive information and relies on displaying the relevant results.

21.3.3.1 Experimental Principle

When the synergistic extractant is contacted with the brine containing high concentration of Cl- after being preconditioned with an active agent, lithium can be extracted to form a relatively stable complex. In the stripping stage, due to ion concentration difference, lithium chloride is stripped from the organic phase with water allowing for the regeneration of the organic phase. An aqueous phase rich in lithium chloride is obtained.

21.3.3.2 Experimental Steps

- Determine the proportion of organic phase and extraction ratio.
- Conduct a five-stage continuous extraction cascade experiment to simulate the continuous extraction effect of the mixer-settler.
- Carry out operation experiment of mixer-settler.

21.3.3.3 Experimental Summary and Data

21.3.3.3.1 Determination of Organic Phase and Extraction Ratio

Extractant #1, Extractant #2 and Extractant #3 in different are preloaded with an active agent.

Preloaded extractants #1, #2, and #3 were mixed with PPG Lithium-rich brine at different volume ratios, contacted for 15 minutes, then stripped to obtain the raffinate after single-stage extraction and an Li-loaded organic phase.

Analysis of the data showed Extractant #3 as best because of the lowest extraction of impurities at high lithium extraction. The solvent components were:

- 60% of main extractant.
- 10% synergistic agent.
- 30% diluent.

Table 21.1
Analysis of Five-Stage Simulated Extraction Experiment

Name	Li	Na	K	Ca	Mg	B	SO_4^{2-}	Fe	Unit
PPG Li-rich brine	3.190	104.11	16.78	0.120	12.68	2.03	67.16	/	g/L
Raffinate 1	0.027	92.96	13.76	0.176	23.12	1.12	68.24	0.031	g/L
Raffinate 2	0.126	103.12	14.24	0.216	12.80	1.68	67.92	0.065	g/L
Raffinate 3	0.361	105.20	14.16	0.184	12.56	1.84	70.00	0.063	g/L
Raffinate 4	0.856	102.32	13.76	0.152	12.32	1.84	68.64	0.050	g/L
Raffinate 5	1.703	102.56	14.56	0.128	12.40	1.84	68.96	0.034	g/L
Preloaded organic phase 1	0.806	1.42	0.082	0.012	0.038	0.178	0.102	/	g/L
Preloaded organic phase 2	0.473	1.58	0.022	0.014	0.038	0.166	0.080	/	g/L
Preloaded organic phase 3	0.221	1.96	0.072	0.019	0.054	0.164	0.136	/	g/L
Preloaded organic phase 4	0.095	1.94	0.038	0.024	0.050	0.150	0.092	/	g/L
Preloaded organic phase 5	0.027	2.40	0.058	0.034	0.132	0.116	0.096	/	g/L

Table 21.2
Analysis of Five-Stage Simulated Extraction Experiment Data

Name	Calculated by Raffinate	Based on Li + Loaded Organic Phase
Extraction rate of Li +	99.15%	101.07%
The extraction rate of Fe	99.95%	/
B extraction rate	44.83%	35.07%

The experimental data showed that when using Extractant #3 with the extraction phase ratio O: A of 4:1, the extraction rate of PPG Li-rich brine by five-stage continuous cascade extraction was ≥99%.

21.3.4 Operation Experiment of Mixed Clarification Tank

Operating parameters with Extractant#3:

- 6 to 7 stages of extraction,
- 6 to 7 stages of washing and
- 13 to 14 stages of water stripping;

Extraction stage:

- phase ratio O: A = 4.47 ~ 4.53: 1;
- organic flow rate is about 170 ml/min; and
- brine flow rate is 37.5 ~ 38.0 ml/min.

Washing stage:

- LiCl recycle 2.5 ~ 3 ml/min, (20% ~ 26% of the total).
- phase ratio O: A = 56.67 ~ 70:1,

Stripping stage:

- O: A ratio is 14.78 ~ 20:1,
- aqueous flow rate is about 8.5 ~ 11.5 ml/min.

21.3.4.1 Experimental Results and Discussion

After one month running time equilibrium was reached and the data analyzed.

Table 21.3
Experimental Data of PPG Li-Rich Brine Tank Extraction Operation

Time		Li in Extraction Aqueous by Stage							Extraction Rate (%)	The Aqueous Phase of Washing Section							Li in Stripping by Stage						Stripping Rate (%)
		1	2	3	4	5	6	Brine Feed		7	8	9	10	11	12	Wash/ Strip	13	14	24	25	25-O	12-O	
19-Dec	8:40	0.32	0.48	1.00	1.80	2.60	3.15	3.35	90.45	7.25	12.00	15.00	17.50	19.25	19.00	21.50	19.75	18.50	2.75	1.73	0.07	1.12	93.57
	14:00	0.33	0.43	0.75	1.35	2.30	3.05	3.45	90.43	6.40	12.00	14.75	16.75	19.25	18.75	21.25	18.75	16.75	3.60	2.13	0.09	0.84	89.29
20-Dec	8:20	0.30	0.43	0.90	1.65	2.65	3.10	3.40	91.18	6.40	12.00	15.00	17.25	19.50	18.75	21.25	17.75	16.25	2.50	1.20	0.04	0.90	95.56
	15:15	0.30	0.78	1.30	2.35	3.10	3.35	3.45	91.30	6.50	12.25	15.00	17.50	19.75	18.75	20.25	17.75	15.50	1.60	0.95	0.03	1.04	96.73
	21:00	0.34	0.75	1.65	2.55	3.10	3.45	3.35	89.85	6.40	12.00	14.75	17.50	19.25	20.25	21.00	18.00	15.75	1.90	1.18	0.05	/	/
21-Dec	7:50	0.29	0.68	1.50	2.40	3.05	3.35	3.35	91.34	7.40	13.00	15.25	17.50	19.75	20.50	21.00	19.50	17.25	2.25	1.40	0.06	1.18	95.25
23-Dec	12:15	0.37	0.85	2.00	2.85	3.35	3.55	3.40	89.12	7.70	12.75	15.25	17.50	20.00	20.75	21.25	19.00	16.50	2.25	1.35	0.05	0.96	94.58
	17:10	0.36	0.75	1.65	2.55	3.25	3.40	3.40	89.41	7.90	13.75	15.50	18.00	20.25	21.25	21.25	19.00	17.25	2.25	1.40	0.05	/	/
	21:10	0.35	0.73	1.60	2.65	3.15	3.40	3.40	89.71	8.10	13.75	15.50	18.75	20.25	21.25	21.25	19.50	17.75	2.40	1.55	0.07	/	/
24-Dec	14:30	0.34	0.63	1.35	2.25	3.00	3.45	3.40	90.00	8.30	13.50	16.50	18.75	20.25	21.00	21.25	20.00	18.75	2.85	1.72	0.08	1.08	92.41
26-Dec	14:30	0.28	0.45	0.85	1.65	2.65	3.25	3.40	91.76	7.50	14.25	16.00	17.00	19.75	21.00	21.00	19.75	18.75	3.35	2.03	0.07		/
27-Dec	14:30	0.31	0.50	1.05	1.90	2.75	3.15	3.35	90.75	7.60	14.00	15.75	17.00	20.00	21.50	21.25	20.25	18.75	3.60	2.15	0.08	1.16	93.45
28-Dec	14:30	0.46	0.63	1.35	2.30	3.05	3.55	3.45	86.67	7.70	13.75	15.50	17.25	19.75	21.25	21.25	20.25	19.00	3.35	1.98	0.06	1.18	95.08
29-Dec	14:30	0.38	0.70	1.50	2.55	3.10	3.30	3.30	88.48	8.10	14.25	15.75	18.50	20.00	20.75	20.75	20.00	18.75	3.25	1.90	0.06	1.14	94.56
30-Dec	15:30	0.40	0.73	1.60	2.50	3.20	3.55	3.40	88.24	8.30	14.00	16.25	18.50	19.50	21.00	20.75	20.50	19.25	3.25	1.93	0.07	1.10	94.00

Figure 21.8 Lithium Yield of PPG Li-Rich Brine

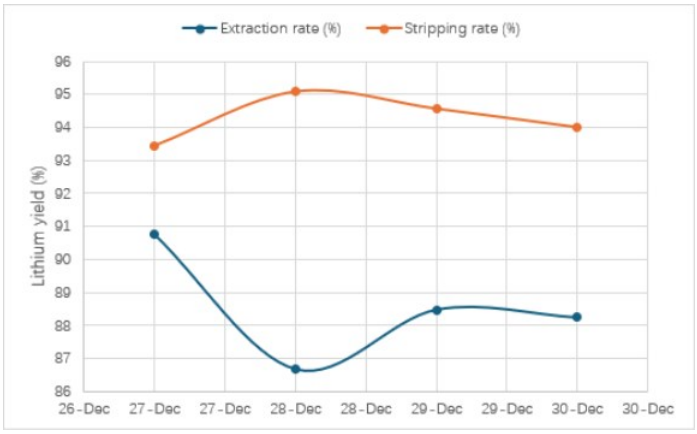


Figure 21.9 Lithium Content in Raffinate and Organic Phase

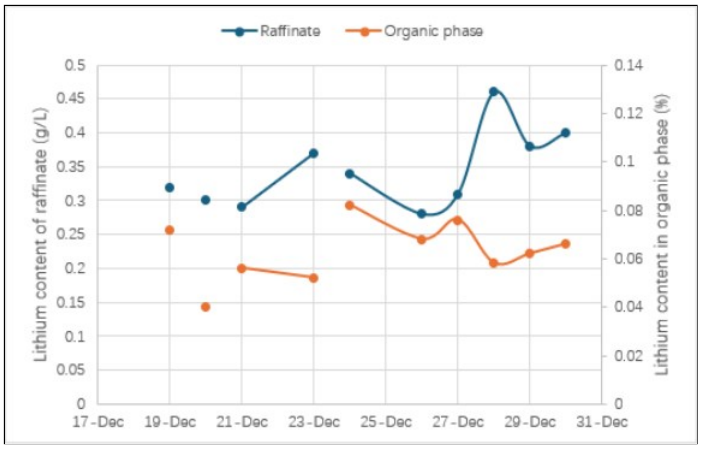


Table 21.3, Figure 21.8, and Figure 21.9 show that the average lithium extraction rate was 90% over one-month operation with an average lithium content in the raffinate of 0.34 g/L. Stripping with water reached an average 94.05% efficiency. The average lithium content in the barren organic was 0.062 g/L, indicating complete stripping.

Table 21.4
Summary of Experimental Data

No.	Date	Extraction Rate	Stripping Rate	Flow Rate/ (ml/mim)						Ratio		
				Organic	Lithium Material	Lotion	Stripping Water	Stripping Solution	Raffinate	Extraction	Washing	Stripping
1	2024-12-19	90.60%	87.60%	170.00	37.00	2.50	12.00	/	/	4.59	68.00	14.17
2	2024/12/20 (Morning)	90.50%	93.80%	170.00	38.00	2.50	12.00	/	/	4.47	68.00	14.17
3	2024/12/20 (evening)	91.50%	91.60%	170.00	37.50	3.00	11.00		/	4.53	56.67	15.45
4	2024-12-21	92.40%	91.50%	170.00	37.50	3.00	11.00	/	/	4.53	56.67	15.45
5	2024-12-23	91.10%	90.60%	170.00	37.00	3.00	11.00	9.00	42.00	4.59	56.67	15.45
6	2024-12-24	91.70%	89.40%	170.00	37.00	3.00	11.00	8.30	40.50	4.59	56.67	15.45
7	2024-12-25	92.30%	89.10%	170.00	37.00	3.00	11.00	8.50	41.60	4.59	56.67	15.45
8	2024-12-26	93.20%	89.20%	170.00	37.50	3.00	11.00	8.30	42.70	4.53	56.67	15.45
9	2024-12-27	92.30%	87.50%	170.00	37.50	3.00	11.50	8.30	41.90	4.53	56.67	14.78
10	2024-12-28	89.20%	91.70%	170.00	37.50	3.00	11.50	8.30	41.90	4.53	56.67	14.78
11	2024-12-29	90.40%	90.40%	170.00	38.00	3.00	11.50	8.30	43.70	4.47	56.67	14.78
12	2024-12-30	90.10%	89.00%	170.00	38.00	3.00	11.50	8.20	44.20	4.47	56.67	14.78

Table 21.4 shows under stable conditions, the extraction O: A is 4.5: 1, the washing O: A is 56: 1, and the stripping is 15: 1. The recycle strip is 0.25: 1, which is within the set operating range. The experimental data of simulated countercurrent extraction is in good agreement with the experimental data from batch operation. The expected results can be achieved by adjusting the flow rate and phase ratio of each phase.

Table 21.5
Analysis of PPG Brine Feed for Extraction Batch Operation Data

PPG Li-rich Brine									
Serial Number	**Date**	**Li**	**Na**	**K**	**Ca**	**Mg**	**B**	**SO_4^{2-}**	**Unit**
1	2024-12-19	3.39	88.78	21.21	0.18	17.48	2.56	41.58	g/L
2	2024/12/20 (Morning)	3.37	89.08	24.66	0.17	16.61	2.43	45.32	g/L
3	2024/12/20 (Evening)	3.28	83.06	22.58	0.18	17.69	2.51	38.25	g/L
4	2024-12-21	3.28	83.06	22.58	0.18	17.69	2.51	38.25	g/L
5	2024-12-23	3.26	82.74	21.04	0.18	17.16	2.48	39.17	g/L
6	2024-12-24	3.26	82.74	21.04	0.18	17.16	2.48	39.17	g/L
7	2024-12-25	3.24	82.33	20.59	0.19	17.26	2.41	37.43	g/L
8	2024-12-26	3.24	82.33	20.59	0.19	17.26	2.41	37.43	g/L
9	2024-12-27	3.23	85.51	22.62	0.19	17.77	2.53	37.38	g/L
10	2024-12-28	3.23	85.51	22.62	0.19	17.77	2.53	37.38	g/L
11	2024-12-29	3.23	85.51	22.62	0.19	17.77	2.53	37.38	g/L
12	2024-12-30	3.23	85.51	22.62	0.19	17.77	2.53	37.38	g/L

Table 21.6
Analysis of Raffinate from Extraction Batch Operation

PPG Brine Raffinate										
No.	**Date**	**Li**	**Na**	**K**	**Ca**	**Mg**	**B**	**SO_4^{2-}**	**Fe**	**Unit**
1	2024-12-19	0.32	71.22	16.71	0.15	13.54	1.93	34.59	0.70	g/L
2	2024/12/20 (Morning)	0.32	81.68	20.69	0.14	12.53	1.72	35.71	0.92	g/L
3	2024/12/20 (Evening)	0.28	74.31	18.28	0.14	14.74	1.77	38.07	0.29	g/L
4	2024-12-21	0.25	73.81	18.92	0.15	15.75	1.82	33.18	0.14	g/L
5	2024-12-23	0.29	70.35	17.72	0.16	14.50	1.88	31.66	0.27	g/L
6	2024-12-24	0.27	72.12	20.22	0.16	14.41	1.88	32.46	0.25	g/L
7	2024-12-25	0.25	71.84	19.27	0.15	14.97	1.89	32.57	0.32	g/L
8	2024-12-26	0.22	73.63	20.02	0.15	15.58	1.92	33.52	0.20	g/L

Table 21.6
Analysis of Raffinate from Extraction Batch Operation

PPG Brine Raffinate										
No.	**Date**	**Li**	**Na**	**K**	**Ca**	**Mg**	**B**	**SO_4^{2-}**	**Fe**	**Unit**
9	2024-12-27	0.25	78.99	19.65	0.16	16.13	2.03	33.70	0.18	g/L
10	2024-12-28	0.35	73.79	18.05	0.16	15.18	1.94	31.58	0.37	g/L
11	2024-12-29	0.31	76.38	19.01	0.17	15.87	1.97	33.03	0.19	g/L
12	2024-12-30	0.32	77.83	18.45	0.16	16.19	1.91	32.81	0.19	g/L

Table 21.7
Analysis Data of Stripping Solution

No.	Li	Na	K	Ca	Mg	B	SO_4^{2-}	Unit
1	19.16	3.55	0.10	0.15	0.08	2.02	3.78	g/L
2	16.02	1.84	0.08	0.11	0.04	2.08	2.66	g/L
3	17.05	2.09	0.11	0.12	0.04	1.99	2.52	g/L
4	18.19	2.04	0.07	0.12	0.04	1.94	2.42	g/L
5	18.54	2.13	0.07	0.13	0.05	1.91	2.34	g/L
6	18.89	2.18	0.09	0.14	0.08	1.88	2.51	g/L
7	19.54	2.04	0.07	0.12	0.05	1.79	2.46	g/L
8	19.57	1.98	0.06	0.12	0.05	1.77	2.41	g/L
9	19.64	2.43	0.07	0.13	0.06	1.87	2.33	g/L
10	19.68	2.37	0.07	0.13	0.06	1.87	2.29	g/L
11	19.79	2.41	0.09	0.13	0.06	1.87	2.29	g/L
12	20.05	2.58	0.12	0.14	0.07	1.86	2.36	g/L

Table 21.5 to Table 21.7 show that the lithium content in PPG brine decreased from 3.35 g/L to 0.286 g/L after extraction. Stripping resulted in a product lithium concentration of 18.84 g/L. Lithium concentration can reach over 20 g/L by adjusting the conditions, Na about 2.2 g/L, B 1.9 g/L, sulfate 2.4 g/L, while other impurities are about 0.1 g/L.

Sodium is extracted during the process, particularly when the lithium concentration is low. The recycle of strip solution to organic wash will control the sodium so that will not affect its quality.

This test work has been running for 694 hours, with no abnormalities.

Figure 21.10 Continuous Extraction Device Diagram



21.3.4.2 Conclusion

During testing, 6-stage extraction, 6-stage washing and 13-stage stripping were adopted and ran for 694 hours. No abnormalities have been found.

Operating conditions:

- organic flow rate of 170 ml/min, brine flow rate of 37.5-38.0 ml/min,
- washing solution flow rate of 3.0 ml/min.
- the stripping solution flow rate is 11-11.5 ml/min,
- extraction phase ratio is 4.47-4.53,
- washing phase ratio is 56.67, and
- the stripping phase ratio is 14.78-15.45.

Main Results Achieved:

- Extraction efficiency is ≥ 90%,
- Stripping efficiency ≥ 94%,
- Strip solution analysis,
  - lithium concentration of 19 ~ 20 g/L;
  - sodium concentration 2 ~ 2.5 g/L; and
  - iron concentration is about 0.12 ~ 0.20 g/L.
- Lithium concentration of raffinate is about 0.25 ~ 0.35 g/L, and the iron concentration is about 0.2 g/L.

21.3.5 Lithium Carbonate

After purification steps, the purified brine is sent to the Li_2CO_3 plant.

Again, since these are traditional methods there is no test work. Exar will use their industrial experience to define the design parameters.

21.3.6 Closing Statement

Solvent extraction of lithium has been extensively tested with a novel extractant formulated for the PPG brines which are similar to the Cauchari-Olaroz brines. Other testing used in the process were not specifically reported because they are based on state of the art steps commonly used in industry.

21.4 MINING METHODS (BRINE WELLFIELD)

Mineral brine, occurring as groundwater within the salars, is to be used as the primary raw material for lithium carbonate production.

21.4.1 LCE Production Schedule

The Expansion project will have the capacity to produce 45,000 tpa LCE for a nominal life of 40 years.

WSP Golder is comfortable with using 35% to 40% of Measured and Indicated (M+I) Resources for production planning. It is common to apply 35% of aquifer efficiency factor to measured and indicated resources to estimate pumpable resources for mine life planning in the lithium brine industry. The predictive groundwater flow and transport model simulations carried out for Cauchari-Olaroz support that the application of the 35% efficiency factor is reasonable.

Table 21.8 shows that 18% of Measured and Indicated (M+I) Resources will need to be extracted to meet the production schedule for Stages 1 and 2 (expansion) combined. It is the QP's opinion that the production rates and mine life are reasonable and conservative from the extractable resources perspectives.

Table 21.8
LCE Production Schedule for Both Stages

Items	Unit	Stage 1	Stage 2 Expansion
Measured + Indicated Resource_2026 S-K 1300 Report	t LCE	25,898,489	
Production wells	wells	39	39
Estimated average well brine output	L/s	17.45	17.45
Total brine from wells (average)	L/s	680.7	680.7
Average lithium concentration	mg/L	580	580
Processing efficiency	%	63%	63%
Average production rate (from the Process)	tpa LCE	40,419	40,419
Life of Mine	years	2026 - 2060 (35)	2026 - 2060 (35)
Resources extracted	t LCE	2,245,500	2,245,500
Accounting for M+I Resources	%	8.7	8.7
Accounting for M+I Resources (2 stages combined)	%	18	

The mining method will consist of pumping brine from wells drilled within the salar (salt flat), with the depth of each well depending on the depth of the aquifers. A submersible electric pump will be installed in each well to transport the brine through a network of pipelines (brine pipelines) to an intermediate storage station, and from there to the solar evaporation ponds.

The brine extraction well fields will be accessible by interconnected roads.

Exar has chosen a hybrid production process that begins with the pre-concentration of brine in evaporation ponds, followed by a Direct Lithium Extraction (DLE) process. The process will essentially consist of concentration ponds followed by a solvent-based lithium extraction plant.

The brine resulting from the DLE process will be sent to the processing plant, where the first stage involves impurity removal. It will then proceed to a carbonation stage, where lithium is recovered from the brine.

The precipitated lithium carbonate product will be filtered, washed to remove any retained impurities, dried, and bagged for subsequent transportation and sale.

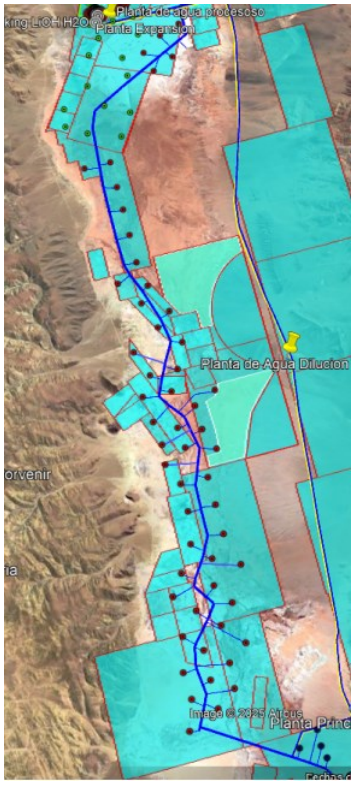
21.4.2 Production Well Field

A total of 56 brine production wells are planned for the expansion project:

- Average flow per well: 17.5 L/s.
- Diameter: 10".
- Pumps: 75 kW.
- Dynamic height: 60 meters.
- Depth: 600 meters.

The hypothetical spatial distribution for the construction areas of the future producing wells is presented in Figure 21.11, based on the analysis of geophysical and lithological records, aquifer modelling and the experience acquired in the historical construction of wells in the salt flat, as well as the results of their pumping tests and geochemical studies of samples obtained from them.

Figure 21.11 General Wells Layout



21.4.2.1 Drilling Method

The DC Rotary Drilling method is the most appropriate for this type of project. This methodology was tested during the exploration stage of the project, from which it has been possible to generate lessons learned, which are of utmost importance for the optimization of the implementation of this technology in the future development of the project.

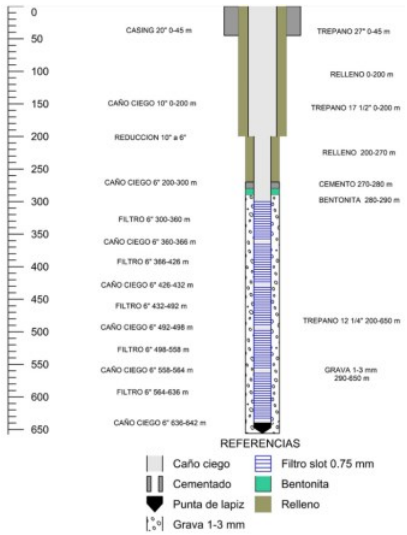
21.4.2.2 Well Design

The materials selected for the construction of the wells are 316L or 304L stainless steel alloys taking into account its resistance to corrosion, cost, useful life, availability in the country and the particular characteristics that the brines may have in the different areas of the project. For the grid or filter sections, the selected spacing is 0.75 mm based on particle size analysis.

As a pre-filter material, the use of Paraná type silicic gravel is recommended, with granulometry of 1 to 3 mm based on particle size analysis. This type of gravel is recommended because of its proven effectiveness for the task, high local availability, and low relative cost.

The fitting diameters for the wells will follow a telescopic design, with a diameter of 10" at the wellhead, with blind piping, up to a depth of 200 mbbp, to accommodate the different pumping and parameterization equipment of wells that need to be installed. Below and to the bottom of the well, the authorization will be carried out with 8" pipes, following the particular design required by each well (based on Figure 21.12).

Figure 21.12 Well Design



The brine production wells will have a 12-inch diameter stainless steel production casing and be equipped with 380V submersible pumping equipment. The coordinates and parameters for the wells are shown in Table 21.9. A simplified general layout of the wells is depicted in Figure 21.11.

Table 21.9
Cauchari Wells Location

Number	Well	X	Y	Number	Well	X	Y
1	DD19D-11	3422043.99	7360088.41	29	P22	3420463.61	7354489.58
2	DD19D-13	3420167.47	7358999.51	30	P23	3420641.70	7361413.86
3	DD19D-26 Bis	3419508.00	7363138.12	31	P24	3420674.29	7355588.14
4	DD19D-15	3419950.85	7356410.95	32	P25	3420696.91	7374362.91
5	DD19D-07	3420463.78	7367328.56	33	P26	3420709.09	7373075.08
6	DD19D-08	3421788.42	7365110.30	34	P27	3420710.32	7369275.85
7	P1	3423527.45	7379468.84	35	P28	3420718.52	7370639.12
8	P2	3424409.68	7380677.01	36	P29	3420722.49	7371919.29
9	P3	3424765.56	7381460.98	37	P30	3420747.44	7360483.03
10	P4	3425407.02	7380679.40	38	P31	3420784.81	7363061.01
11	P5	3422872.08	7377358.00	39	P32	3420907.66	7366044.81
12	P6	3423551.43	7378398.08	40	P33	3420935.86	7368068.54
13	P7	3419273.74	7355326.37	41	P34	3421033.16	7353618.62
14	P8	3419373.17	7350837.11	42	P35	3421158.83	7351894.17
15	P9	3419389.12	7349664.36	43	P36	3421290.67	7363966.78
16	P10	3419396.32	7352052.71	44	P37	3421372.33	7358981.18
17	DD19D-PE-09	3419472.74	7374367.09	45	P38	3421388.29	7357757.44
18	P11	3419489.70	7353681.83	46	P39	3421404.62	7356469.70
19	P12	3419596.35	7365204.00	47	P40	3421583.77	7366656.15
20	P13	3419664.65	7368499.70	48	P41	3421621.69	7362172.68
21	P14	3419679.64	7361932.51	49	P42	3421658.81	7361081.39
22	P15	3419739.10	7359976.62	50	P43	3422637.97	7362634.23
23	P16	3419810.31	7360863.20	51	P44	3418046.68	7349115.74
24	P17	3420047.87	7364000.47	52	P45	3418359.99	7351405.61
25	P18	3420184.71	7357780.90	53	P46	3418433.47	7350302.08
26	P19	3420233.49	7350261.37	54	P47	3418692.19	7352808.80
27	P20	3420303.51	7351294.94	55	P48	3418697.63	7354482.06
28	P21	3420346.76	7352834.97	56	P49	3419030.02	7348379.90

The current design of the brine wellfields is subject to change, as continuous long-term pumping will have a cumulative effect on salt flat groundwater level and water quality.

21.4.3 Uncertainty Assessment

Risks pertaining pumping wells were identified during the risk assessment conducted by the project team, as shown in Table 21.10. With the implementation of a remedy plan, the risks have been reduced to low.

Table 21.10
Summary of Well Management Risks and Remedies

Risk Description	Existing Controls	Initial Risk	Remedies	Residual Risk
Difficulty in maintaining constant brine feed to plant	Wellfield simulations are used for design	Moderate	Construct backup production well	Low
Additional cost associated with low-yield wells	Wellfield simulations used for design	Moderate	Using pumping test results to improve well design during well construction	Low
Lithium grade	Evaluation of test chemistry used for well design	Low	Monitor well chemistry during production and possibly redesign future wells	Low
Water level drawdown	Wellfield simulations to minimize drawdown	Low to Moderate	Monitor future drawdown and plan for well rehabilitation to improve efficiency	Low to Very Low
Potential impacts to surface water	Wellfield simulations to locate wells to minimize surface water impacts	Moderate	Field monitoring to identify possible impacts, and then additional modelling to relocate or change pumping for the wells	Low

21.4.4 Well Utilization Philosophy

The goals of wellfield management for the project are as follows:

- Ensure an uninterrupted supply of brine to the processing plant.
- Minimize the number of wells required to save costs.
- Maximize lithium grade in the brine feed water.

- Minimize water level drawdown at individual wells to reduce energy costs associated with pumping.
- Prevent or minimize environmental impacts to surface water areas that may occur as a result of production pumping.

To realize the wellfield goals as stated above, the existing, calibrated groundwater flow model was used for initial design of the wellfield and pumping regimen. In addition to initial planning, flexibility in wellfield operation is important to account for unanticipated changes in wellfield conditions or initial assumptions. Periodic monitoring of pumping rates and quantities, brine chemistry, and water levels in the wellfield and in the surrounding area are important for facilitating recalibration of the model, and to allow updated simulations and projections during the life of the mine.

The following remedies for achieving the goals above are summarized below.

Ensure an uninterrupted supply of brine to the processing plant: We recommend always having an extra well in the wellfield that is not pumped. If eight production wells are recommended for production, ten wells should be constructed. The extra well should be available in case of pump or well failure at one of the operating wells, or during maintenance, cleaning, and/or pump replacement. Cycling the production wells to give each well a "rest" is recommended during long-term production pumping.

Minimize the number of wells required to save costs: If possible, operating fewer wells at larger pumping rates may be cost beneficial regarding initial capital expenses and also operating expenses. The groundwater flow model can assist with an optimal design. Larger yield wells tend to be more cost-effective than low-yield wells.

Maximize lithium grade in the brine feed water: This optimization is important for increasing total output of final product. In this recommendation, it is important to ensure that the pumping design minimizes potential future dilution of brine with fresh water, as well as targets higher grade aquifer zones for increased lithium grade during production pumping.

Minimize water level drawdown at individual wells to reduce energy costs associated with pumping: During production well construction, it is important that the production wells are properly designed and developed to have the highest efficiency possible. This initial efficiency will be reduced over time naturally, resulting in increased pumping lift and increased pumping costs. Therefore, periodic rehabilitation (cleaning) of the well screen to improve transmissivity of the well is recommended. In addition, determining the optimal/maximum distance between the wells is important to avoid interference effects which increase water level drawdown at the wells, or positioning wells too close to no-flow boundaries, which can also increase water level drawdown over time.

Prevent or minimize environmental impacts to surface water areas that may occur as a result of production pumping: The groundwater flow model is an important tool to predict potential impacts to nearby surface water and/or environmentally sensitive areas that may occur as a result of water level drawdown due to wellfield pumping. Model simulations may suggest optimal initial well locations and well design to minimize potential future impacts to surface water. If environmentally sensitive areas have been identified, a long-term monitoring program should be developed and implemented to measure potential impacts to these areas.

21.5 RECOVERY METHODS

21.5.1 General

Lithium recovery is based on a direct extraction process using brine pre-concentration followed by solvent extraction. Purification steps follow in order to produce 45,000 tpa of lithium carbonate. The following sections cover the details for the phased production.

21.5.2 Process Description

The main activities involved in the process include:

- Extraction of brine from production wells.
- Pre-concentration of the brine in solar ponds.
- Solvent extraction of the pre-concentrated brine.
- Raffinate treatment.
- Primary purification.
- Secondary purification.
- Calcium and boron polishing with ion exchange.
- Lithium carbonate precipitation.

Lithium extraction is based on the concentration of brine from productive wells, in order to achieve saturation and precipitation of salts of low or no commercial interest such as NaCl (Halite) and $Na_2SO_4.10H_2O$ (Mirabilite) and increase the concentration of lithium in solution.

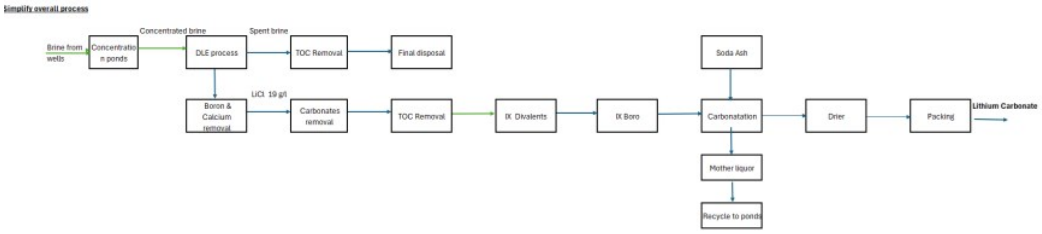
Table 21.11 describes the operating criteria considered for the process.

TABLE 21.11
OPERATING CRITERIA

Description	Value
Days of operation wells and pools	365 d/a
Hours per day	24 h/d
Well Availability	100%
Use of wells	80%
Lithium Carbonate Equivalent Design Capability	45,000 t/year
Plant Operation Days	300 d/a
Lithium concentration in well brine	465-607 mg/l
Overall Recovery	75%
Lithium Carbonate Grade Battery	99.5%

A simplified overall flowsheet of the process is shown in Figure 21.13.

FIGURE 21.13 SIMPLIFIED OVERALL PROCESS FLOWSHEET



The following table (Table 21.12) shows the brine chemistry from the wells.

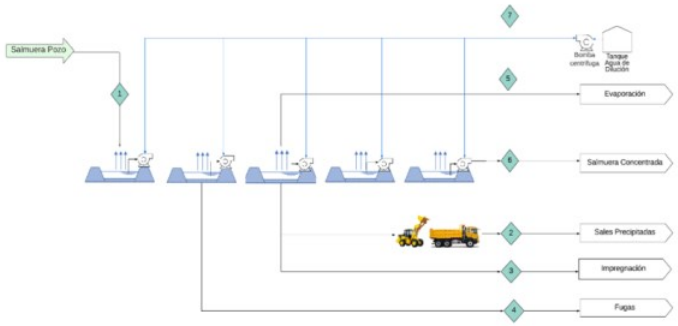
Table 21.12
Brine Chemistry Example

Component	Component	Units	Value
Lithium	Li+	mg/L	465
Magnesium	Mg^{2+}	mg/L	1.302
Calcium	Ca^{2+}	mg/L	518
Potassium	K+	mg/L	3.819
Sodium	Na+	mg/L	106.475
Sulphates	SO_4^{2-}	mg/L	15.786
Chlorides	Cl^-	mg/L	163.098
Boric Acid	H_3BO_3	mg/L	10.111
Density		kg/L	1,194

21.5.3 Pre-concentration Ponds

The evaporation process in the ponds begins with a pre-concentration stage, where almost 90% of the sodium chloride (halite) crystallizes. In this concentration stage, the volume of brine is reduced by between 70% and 80%, depending on its composition. 50% of the sulphate found in the brine is also extracted during concentration.

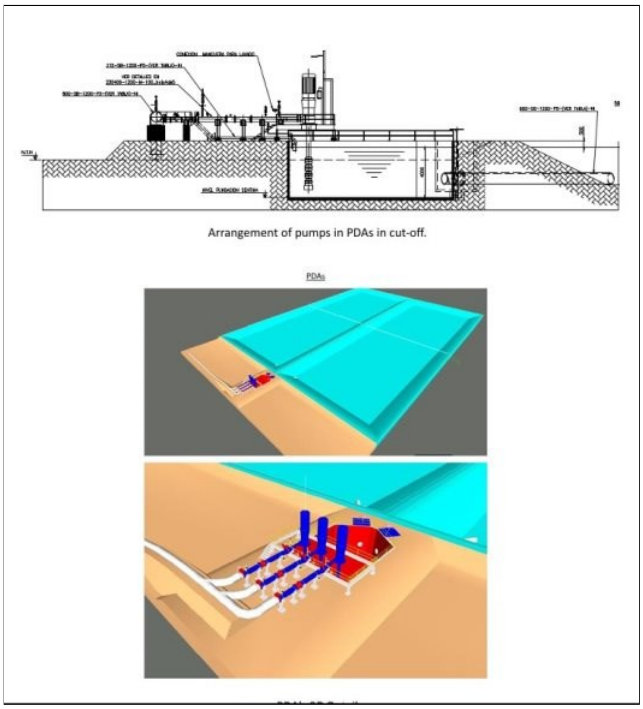
Figure 21.14 Evaporation Ponds Process



The design of the evaporation ponds process considers the entry of brine from the well field to the first pond of each string. Water evaporation occurs along the string, formed by a series of ponds, in which the ponds are separated by baffles, in such a way that the use of transfer pumps is reduced and the flow of dilution water injected into the system is also reduced. The string ends with a smaller pond, which also functions as a buffer. In this last pond, the final concentration of 3.09 g/L of lithium is reached. The concentrated brine is transferred to covered reservoirs, from where it is sent to the plant. The target lithium concentration for the plant has been defined as 3.05 g/L, which is obtained from the concentration of 3.09 g/L plus the dilution water added for transport to the plant.

The accumulation Ponds schematics are shown in Figure 21.15. The layout of evaporation ponds and salt stockpiles are shown in Figure 21.16.

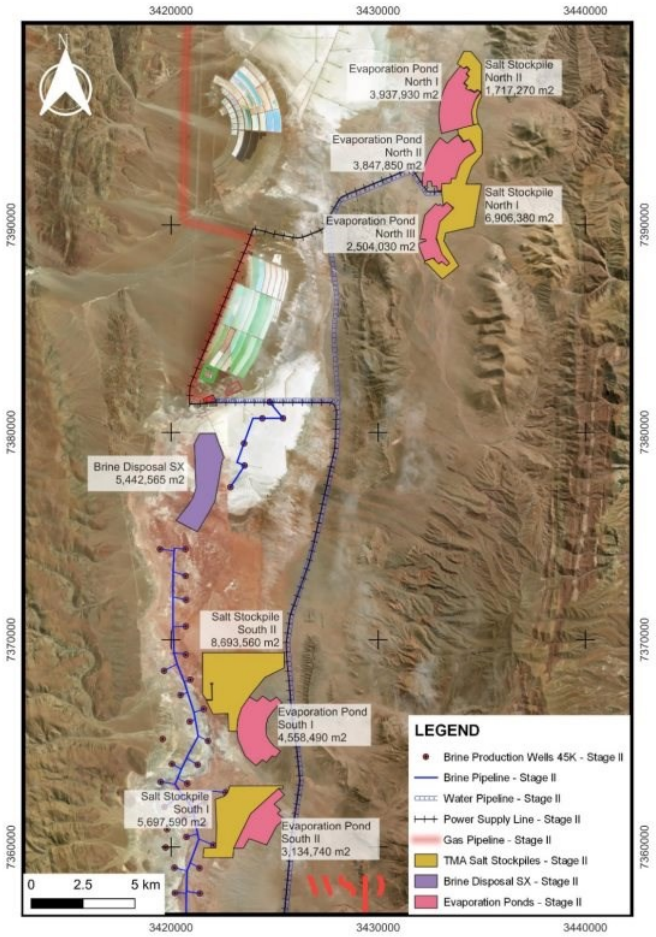
Figure 21.15 Accumulation Ponds Schematics



It is necessary to harvest the salts that precipitate in the ponds, as a result of the concentration and saturation of different brine compounds. The execution of the harvest determines that the area available for evaporation is slightly less than the area actually built. It is estimated that the availability is 90%, considering that at all times there is 10% of the built area that is out of service (not evaporated), while the salt harvest is carried out. The evaporation system includes the addition of dilution water at each transfer to prevent incrustations formed by brine concentration.

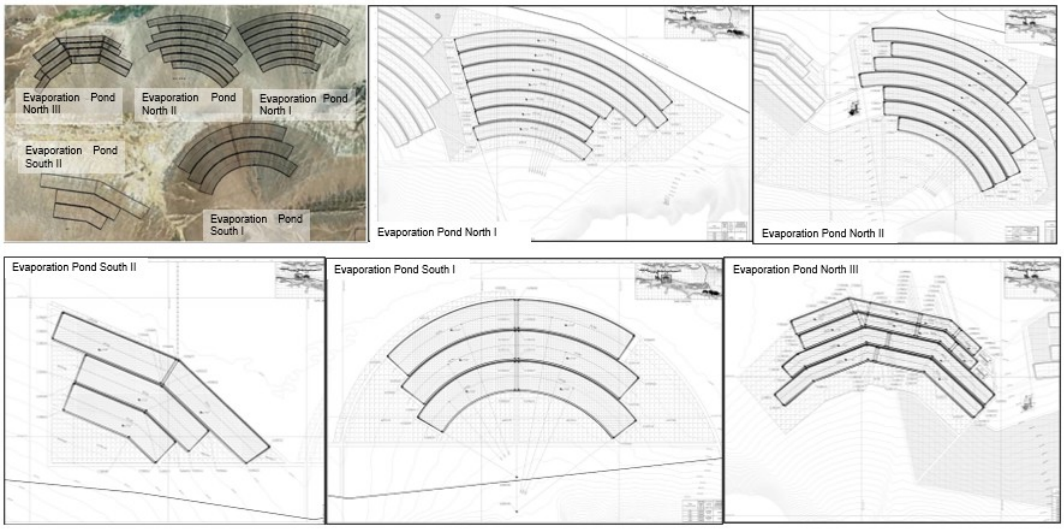
Salt precipitation occurs as a result of evaporation and the saturation of salts according to chemical equilibrium, removed and disposed into a Salts stockpile area (Figure 21.16).

Figure 21.16 Layout of Evaporation Ponds and Salt Stockpiles



The detail design of each evaporation pond is shown in Figure 21.17.

Figure 21.17 Evaporation Ponds Schematic and Detailed Designs



21.5.3.1 Salt Harvesting

The crystallized salts, mainly sodium chloride, are collected every 1 to 2 years to maintain the appropriate volume capacity of the ponds. This collection is known as harvesting, and it is conducted according to the steps listed below:

- The flow of brine entering the pond is stopped and the harvesting area inside the pond is isolated by baffles.
- Brine remaining in the pond is pumped out and directed to the closest pond of the string.
- Salt cords are formed with the crystallized salts, using a front loader or a backhoe tractor.

A second extraction of the remaining brine is conducted between the salt cords.

- Crystallized salts are removed from the pond and transported to a stockpile with backhoe tractors and trucks.
- The process is repeated in the remaining areas of the pond until all areas have been harvested.
- The pond is re-filled with brine.

Pond design and operation make it necessary to remove the salt deposits formed at the bottom of the ponds after a period of time. For this purpose, typical earthmoving machinery will be used, such as bulldozers, front end loaders and dump trucks. This service will be sub-contracted.

21.5.3.2 Waste Salts Quantities and Areas

All waste salts will be discharged to a Salts stockpile area. Yearly quantity of salt from the ponds is shown in Table 21.13.

Table 21.13
Salt Quantity for the 45,000 tpa Production

Description	Value	Unit
Salts density (average)	1.04	t/m^3
Salt waste tails production per year	5,500,000	tpa
Volume of Salt per year	5,303,761	m^3
Required storage for 5 years	26,518,804	m^3
Earthwork Qty (f=1.25)	1,564,609	m^3

21.5.3.3 Analyses of Brine

The table below shows the average analyses of the product brine.

Table 21.14
Preconcentrated Brine

Element	Li	Na	K	Mg	SO_4	Ca	B	Density
g/l	3.05	99	18.29	15.77	34.89	0.05	2.5	1.212

Once the brine has been concentrated, it is diverted to a buffer pond from where it is pumped to the extraction plant. The composition of the brine at the beginning of the process is described in Table 21.14 with approximately 3,000 mg/l in lithium.

The solvent-extraction process consists of a three-stage cycle: extraction, washing and stripping or reverse extraction.

There will be 5 direct extraction lines sized, in order to reach a production of 45,000 t/y of LCE.

21.5.4 Brine Processing Description

21.5.4.1 General

The process consists of a three-step solvent extraction cycle: extraction, washing and stripping.

21.5.4.2 Solvent Extraction Criteria

Table 21.15 shows the basic parameters of solvent extraction.

Table 21.15
Basic Parameters of Solvent Extraction

Item	Units	Value	Comment
Design	tpa LCE	45,000	
Concentrated Brine	g/L Li	3.05/3.09	
Recovery	%	90	Extraction
Extraction Stages	LINE	5	
Extraction	O/A	4	
Washing	O/A	40 to 66.7	
Stripping	O/A	20	

The extraction is accomplished in a multi-stage mixer settler system, where brine is mixed with the iron-loaded extractant TIAP/P507/sulfonated kerosene-Fe(III). Lithium is coextracted with iron to form a complex [Li(TIAP)2][FeCl4].

After water stripping, a lithium chloride solution with a pH of 1 and a lithium content of ≥19 g/L is obtained. Part of the stripping solution is recycled as washing liquid for the extraction section.

21.5.4.2.1 Process Description

The brine with a nominal lithium concentration of 3.05 g/L from the evaporation ponds is filtered and acidified to pH=1 with HCl. The filtrate after acidification is sent to a storage tank and then pumped to the solvent extraction plant. The extractant and diluent are mixed in a certain proportion to form an organic phase, which joins the acidified brine to extract lithium. The rich organic phase containing lithium is separated. The organic phase is then washed and stripped with water to obtain a lithium chloride product solution. The rich lithium chloride solution is then purified to remove calcium and boron, while the spent lithium raffinate is sent to a resin adsorption system to remove any entrained organic solvent and finally returned to the salar. The resin regeneration liquid from resin adsorption is sent to a wastewater treatment station for biochemical degradation, with clear wastewater is recycled for dilution of the brine during preconcentration.

21.5.4.2.2 Iron Pre-loading

Ferric chloride is pre-loaded on the extractant before being pumped into the solvent extraction system. Alternatively, the iron can be added to the acidified brine and then loaded on the solvent. The addition of ferric chloride is only for make-up purposes, due to losses that are generated in the process, guaranteeing a Fe/Li molar ratio of 1.3 in the feed brine to the extraction stage.

The conditioned brine enters each of the solvent extraction lines, consisting of 6 extraction stages, 6 washing stages and 13 stripping stages, which operates in counter-current.

The pre-concentrated brine from solar evaporation ponds requires to be conditioned in temperature and pH before entering solvent extraction. The brine is heated to 25°C with the use of saturated steam and adjusted to a pH of 1 by addition of hydrochloric acid.

At the extraction stage, the conditioned brine is contacted with a mixture of TIAP (Tri Isoamyl phosphate), P-507 (2-Ethylhexyl 2-Ethylhexyl phosphate) and sulfonated kerosene that form the organic phase. The extraction circuit operates with an organic/aqueous volumetric ratio of 4:1. To extract lithium from the brine, and separating it from impurities such as Na, K, Mg, and B, then moves to the washing stages. The Spent Brine with a low concentration of lithium, is sent to treatment for organic recovery and neutralization.

The main coordination reaction of the extraction process is:

$Li + FeCl4- + 2TIAP = [Li(TIAP)2][FeCl4]$

During the washing stages, the lithium-loaded organic is contacted with stripping solution in order to remove impurities. The washing circuit operates at an organic/aqueous volumetric ratio of 40-60:1. The stripping solution that comes out of the wash is recirculated to the process and mixed with the conditioned brine prior to entering extraction.

Finally, the organic loaded with lithium enters the stripping circuit formed by 13 stages, where it is contacted with water. The stripping circuit operates at an organic/aqueous volumetric ratio of 20:1. The aqueous solution extracts the lithium from the loaded organic, resulting in a lithium content of approximately 20 g/L.

The main reaction for re-extraction is:

[Li(TIAP)2][FeCl4] + HL2 = [FeCl2 L.(HL). 2TIAP] + LiCl + HCl

The organic phase with low lithium content is recirculated to the extraction stage. The organic circulates in a closed circuit through the stages counter-currently to the aqueous phase.

About 90% of the Li is selectively extracted in the stripping solution and about 10% of the B is also extracted in the stripping solution. In addition to amounts of Fe (100-200 mg/l, from the extraction recirculation matrix), Na (<2300 ppm), K (<110 ppm), among others.

In depleted brine the concentration of Li is reduced to 200-300 ppm, the concentration of B decreases by about 30%, to 2 g/l; while the other components are maintained with a concentration approximate to the concentration in the original brine.

The mass balance of the extraction system is shown in Table 21.16 below:

Table 21.16
Material Name Basic Parameters of Solvent Extraction

Item		Quantity (t/h)
Inflow	Concentrated brine	547.2
	Iron loaded organic phase	1,663.272
	Water	90.27
	7% HCl	23.46
	Total	**2,324.2**
Outflow	Raffinate	594
	Strip liquor	66.672
	Iron carrier organic phase	1,663.2
	Total	**2,324.2**

Table 21.17 lists the analyses of main solvent extraction streams.

Table 21.17
Analyses of Main Solvent Extraction Streams

Material Name	Li g/L	Na g/L	K g/L	B g/L	Ca g/L	SO_4^{2-} g/L	Mg g/L	Fe g/L	ρ t/m^3
Feed brine	3.05	98.99	18.29	2.5	0.05	34.89	15.77	ND	1.212
Raffinate	0.3	93.38	17.26	2.07	0.045	31.61	14.88	0.05	1.193
Strip liquor	19.51	0.2	0.011	2.16	0.005	0.06	0.01	0.2	1.058

21.5.4.2.3 Raffinate Treatment Process

The depleted brine (Raffinate) obtained from the lithium extraction plants is pumped into 8-stages of resin adsorption to remove entrained organic. The raffinate is first adjusted to pH 7 with NaOH, the entrained organic is removed, reducing the TOC (Total Organic Carbon) from 100 ppm to ≤30 ppm, returning to the Salar for Evapo-Infiltration.

The following table summarizes the mass balance showing the inflow and outlet streams of the plant.

The adsorption resin is regenerated with an alkaline solution, whose TOC is further controlled through a biochemical treatment system before being discarded at a maximum of 30 ppm C.

Table 21.18 shows the material balance of the raffinate resin organic removal process.

Table 21.18
Material Balance of the Raffinate Resin Organic Removal Process

Item	Material Name	Quantity t/h	Li g/L	Na g/L	K g/L	B g/L	Ca g/L	SO_4^{2-} g/L	Mg g/L	TOC ppm	pH	ρ t/m^3
Inflow	Raffinate in	594.333	0.3	93.38	17.26	2.07	0.045	31.61	14.88	100	7	1.19
	Fresh water	18									9	1
	0.7%NaOH	18		3.51								
	0.7%HCl	16.425										
	Total	**646.758**										
Outflow	Raffinate out	594.333	0.3	93.38	17.26	2.07	0.045	31.61	14.88	20	7	1.19
	Reclaimed wastewater	52.425		10.29						300		1
	Total	**646.758**										

21.5.5 Primary Purification

The LiCl-rich solution from solvent extraction undergoes primary purification, consisting of boron and calcium removal.

21.5.5.1 Boron Removal

The solvent extraction strip solution enters the liming plant to remove B at a temperature between 70 to 80 °C. Calcium oxide reacts with boron in a molar ratio of 1.2:1 with the concentration of Boron decreasing from 3 g/L to 0.31 g/L, and a loss of Lithium of less than 0.5%. The solid waste, Calcium Borate, is sent to the storage yard. Due to the addition of CaO for the reaction, the pH of removal B solution is pH=12.

Table 21.19
Boron Removal Mass Balance

Items	Material Name	Qty t/h	Li g/L	Na g/L	K g/L	B g/L	Ca g/L	SO_4^{2-} g/L	Mg g/L	Fe g/L	ρ t/m³
Inflow	**Strip Solution**	66.672	19.5	0.2	0.01	2.16	0.005	0.06	0.01	0.2	1.058
	CaO	1.332	0	0	0	0	61.40%	0	0	0	/
	Fresh water	2.664	0	0	0	0	0	0	0	0	1
	Total	**70.668**	**1.37**	**0.01**	**0.0007**	**0.15**	**0.91**	**0**	**0**	**0.01**	/
Outflow	**B Removed liquor**	66.672	19.11	0.2	0.011	0.31	2.54	0.043	0.01	0	1.057
	RESIDUE	3.996	0.37%	0.01%	0.01%	2.91%	16.50%	0.02%	0.01%	0.31%	/
	Total	**70.668**	**1.37**	**0.01**	**0.0007**	**0.15**	**0.91**	**0.004**	**0**	**0.01**	/

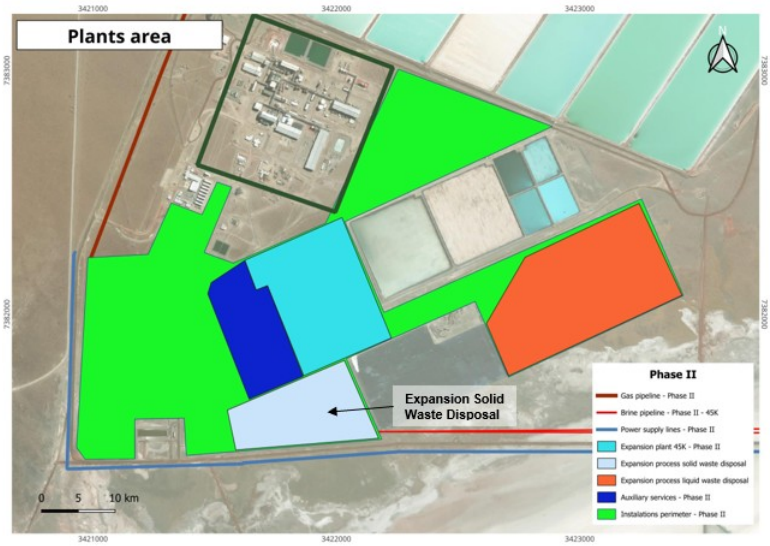
21.5.5.2 Calcium Removal

The solution after boron removal is then reacted with Sodium Carbonate at a temperature of 75 °C to reduce the Ca concentration down to 10 ppm. Solid calcium carbonate residue is disposed of in the storage yard.

The solid waste obtained from this plant, corresponding to the Boron and Calcium sludge, will be collected in an area as close as possible to the plants.

This area will have a maximum height of 10 meters, composed of 2 overlapping platforms. It covers an approximate area of 139,980 m^2 to cover a storage volume of approximately 36,000 m^3. Below is an image with the location of this deposit (Figure 21.18).

Figure 21.18 Location of the Expansion Solid Waste Deposit



After removing B, the brine is reacted with sodium carbonate, to remove calcium down to 10 ppm.

Table 21.20
Mass Balance for Ca Removal

Item	Material name	Qty t/h	Li g/L	Na g/L	K g/L	B g/L	Ca g/L	SO_4^{2-} g/L	Mg g/L	CO_3^{2-} g/L	ρ t/m^3
Inflow	**B Removed liquor**	66.67	19.11	0.2	0.011	0.31	2.54	0.043	0.01	0	1.057
	Na_2CO_3	0.4455									
	Water	1.944	0	99.81	0	0	0	0	0	130.19	
	Total	**69.0615**	1.34	0.229	0.001	0.022	0.178	0.003	0.001	0.28	
Outflow	**Ca Removed liquor**	68.3127	18.98	3.08	0.011	0.302	0.009	0.024	0.0005	0.39	1.053
	$CaCO_3$ Residue	0.7488	0.0074	0.0079	0.0001	0.0001	0.2134	0.0009	0.0004	0.3028	
	Total	**69.0615**	1.34	0.229	0.001	0.022	0.178	0.003	0.001	0.28	

21.5.6 Secondary Purification

The solution from the previous stage is acidified and then it enters in a resin system for organic removal and continues through the chelating resin calcium removal system.

21.5.6.1 Process Description

The brine from primary purification plant is acidified to remove CO_3^{2-} and then neutralized to pH 7 before entering an organic removal resin adsorption system, to reduce TOC down to 10 ppm. The effluent brine enters then a chelating resin to remove calcium down to 1 ppm. The brine is then sent to the lithium carbonate plant.

21.5.6.1.1 CO_3^{2-} Removal

The brine from the primary purification plant is acidified to pH 1 with recycle 7% HCl and then neutralized to pH 7 with 7% NaOH recycle.

Table 21.21
Material Balance of Removal CO_3^{2-}

Item	Material Name	Qty t/h	Li g/L	Na g/L	K g/L	B g/L	Ca g/L	SO_4^{2-} g/L	Mg g/L	CO_3^{2-} g/L	TOC ppm
Inflow	Primary purified brine	68.3127	18.98	3.08	0.011	0.302	0.009	0.024	0.0005	0.39	30
	7%HCI	3.86	0	0							
	Total	**72.1755**									
Outflow	Brine after Removal CO_3^{2-}	72.1566	17.99	3.06	0.01	0.3	0.009	0.023	0.0004	0	30
	CO_2	0.0189									
	Total	**72.1755**									

Table 21.22
Neutralization Process Material Balance

Item	Material Name	Qty t/h	Li g/L	Na g/L	K g/L	B g/L	Ca g/L	SO_4^{2-} g/L	Mg g/L	CO_3^{2-} g/L	TOC ppm
Inflow	Brine after CO_3^{2-} removal	72.1566	18.11	2.92	0.01	0.3	0.009	0.023	0.0004	0	30
	7% NaOH	3.743		0.334							
	Total	**75.8994**									
Outflow	Neutralized brine	**75.8994**	18.2	2.84	0.01	0.3	0.009	0.023	0.0004	0	30

Table 21.23
Secondary Purification TOC Removal Mass Balance

Item	Material Name	Flowrate t/h	Li g/L	Na g/L	K g/L	B g/L	Ca g/L	SO_4^{2-} g/L	Mg g/L	TOC ppm	pH	ρ t/m^3
Inflow	Brine after CO_3^{2-}	75.90	18.11	2.84	0.01	0.3	0.009	0.023	0.0004	30	7	1.053
	Resin wash water	1.125									7	1
	7% NaOH	1.879										
	7% HCI	1.026										
	Total	**79.929**										
Outflow	Brine after removal TOC	75.90	17.6	2.84	0.01	0.3	0.009	0.023	0.0004	0	7	1.053
	Reclaimed wastewater	4.030	5.61	10.29						55		1
	Total	**79.929**									7	1

The brine from the TOC removal process is filtered before entering the ion exchange Ca removal system, where Ca is reduced from 50 ppm to 1 ppm.

Chelating resin utilizes its special functional groups to form chelates with calcium ions, which can remove calcium and magnesium ions from high salt content solutions.

Table 21.24
Brine Specification and Mass Balance for Ca Ion Exchange

ID	Material Name	Qty t/h	Li g/L	Na g/L	K g/L	B g/L	Ca g/L	SO_4^{2-} g/L	Mg g/L	pH	ρ t/m³	T (°C)
Inflow	Brine after TOC Removal	75.90	17.60	2.84	0.01	0.3	0.009	0.023	0.0004	7	1.053	40
	Wash Water	1.125	/							9	1	
	7% NaOH	0.9395										
	7% HCl	0.5067										
	Total	**78.471**										
Outflow	Ca Free Brine	75.899	17.60	2.84	0.01	0.3	0	0.023	0	7	1.053	60
	Wastewater	2.571	2.8	5.2							1	
	Total	**78.471**										

Table 21.25
Secondary Purification - Boron Ion Exchange

ID	Material Name	Flowrate t/h	Li g/L	Na g/L	K g/L	B g/L	SO_4^{2-} g/L	pH	ρ t/m³
Inflow	Ca Free Brine	75.9	17.6	2.84	0.01	0.3	0.023	7	1.053
	Resin wash water	3.6						9	1
	7% NaOH	0.6794							
	7%HCI	0.5265							
	Total	**80.7053**							
Outflow	B Free Brine	75.9	17.6	2.84	0.01	0	0.023	7	1.053
	Acid-alkali neutralize wastewater	0.9333							
	Flushing wastewater	3.87							
	Total	**80.7053**							

21.5.7 Lithium Carbonate Plant

The lithium chloride solution is reacted with a solution of sodium carbonate to form a lithium carbonate precipitate.

Soda ash is dissolved in water to prepare a 220 g/L solution, which is preheated to 80°C.

The sodium carbonate solution and the purified lithium chloride solution react at 90°C with a molar ratio of LiCI : Na_2CO_3 = 1 : 0.525 (mol), resulting in lithium carbonate. After centrifugal separation, drying, and micronization, the lithium carbonate product is obtained.

The pulp resulting from this reaction is sent to a solid-liquid separation stage by centrifuges, where the lithium carbonate solids are sent to the drying process until a humidity of less than 0.4% is reached; and then they go to the packaging stage in a 1 ton big bag, to finally be stored in the final product warehouse

The mother liquor produced by the reaction is sent to an acidification and neutralization stage and sent to ponds for lithium concentration. The lithium-concentrated mother liquor will be used as a recycle to increase the overall recovery of the production process.

Table 21.26
Lithium Carbonate Plant Mass Balance

Item	Material Name	Flowrate t/h	Li g/L	Na g/L	CO_3^{2-} g/L	pH	ρ t/m^3	T (°C)
Inflow	Purified Brine	75.899	17.6	2.84	0	7	1.05	40
	Na_2CO_3	10.903		95.47	124.53	10.5	1.1	85
	water	43.612						
	Total	**130.414**						
Outflow	Li_2CO_3	6.230					1.05	85
	Mother liquor	124.184	1.3	41.2	2.38	10.5	1.07	85
	Total	**130.414**						

21.6 PROJECT INFRASTRUCTURE

21.6.1 General

Infrastructure at the Salar site consists of an electric power line, natural gas line, power distribution, water, and ancillary facilities such as camp, waste treatment and buildings for warehouses, truck shops, office buildings, reagents and fuels storage.

The Expansion Project is located adjacent to the Pre-existing(Stage 1) Project, in the Cauchari and Olaroz salars.

The infrastructure of the Pre-existing (Stage 1) Project has the following facilities:

- Wells field.
- Storage and distribution of brine, located in the sector of the well field, as a pumping point to the ponds.
- Pre-concentration ponds, where the raw brine is concentrated in lithium.
- Harvested Salts collection areas.
- Camp, offices, internal roads, etc.

And support infrastructure, such as:

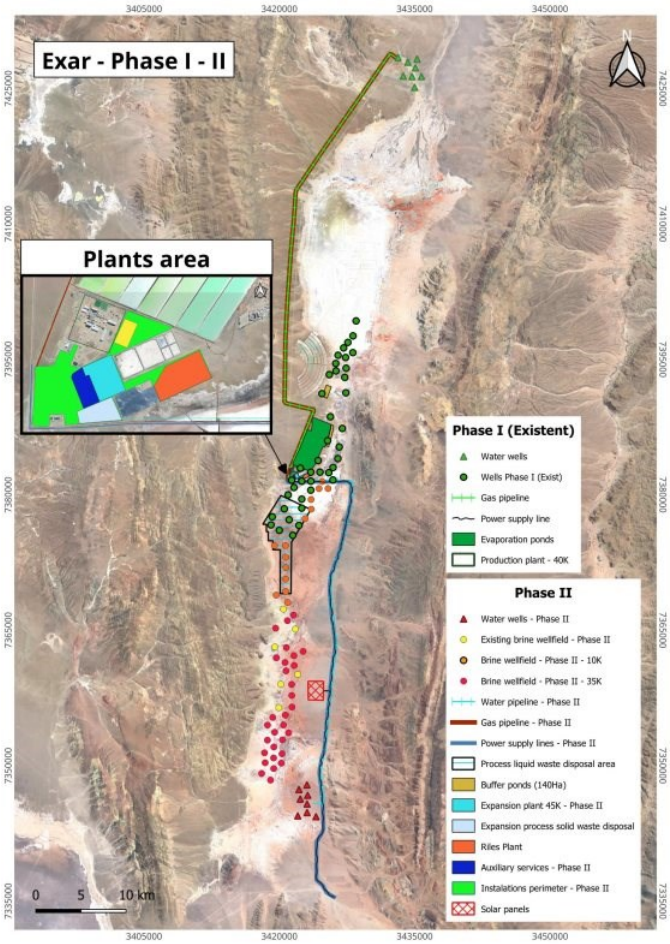
- Generation and distribution of electric power.
- Electrical installation and distribution.
- Water systems.

- Gas pipeline for the supply of natural gas.

The Expansion Project will be completely independent of the Pre-existing Project, with dedicated infrastructure and processes using a solvent extraction and purification.

The map below (Figure 21.19) shows the location of the infrastructure of the Pre-existing Project and the Expansion Project.

Figure 21.19 Locations of Infrastructure for the Pre-existing Project and the Expansion Project



21.6.2 Utilities

21.6.2.1 Power Supply

21.6.2.1.1 Power Supply and Distribution

Electricity will be provided by a new 66 kV transmission line that will interconnect with an existing 345 kV transmission line, located approximately 60 km south of the Project, at the NOA Transformer Station, node of the CAMMESA highland station. The interconnection consists of a substation with a voltage transformer (345/66 kV) and associated switching equipment.

The route follows the area of the existing line, crossing the western side of the salar.

Two 66/33 kV and 33/13.2 kV step-down substations at the Project site are composed of three voltage transformers (33/13.2 kV, 15-20 MVA).

The 13.2 kV local electrical distribution system provides power to the plant, camp, intermediate brine accumulation and homogenization ponds, pumps, wells, and evaporation ponds. In general, all distribution is carried out by overhead lines, except in cases of greater restrictions , where underground distribution is adopted.

The expansion project will have 40 MW of power as the main source of electrical power.

A 66 kV high-voltage line connected to the Argentine interconnection system (SADI); for this, the junction will be made at the transformer station of the Cauchari Solar Park from where a 66 kV high voltage overhead line will depart, which will run along the side of Provincial Route No. 52 to the southern entrance of the Cauchari Salars.

In the area of the ponds (South), a new transformer station will be built there to carry out the internal distribution of the property with two 66 kV lines.

A 66 kV high-voltage line and two EETTs were projected. The southern EETT will be to provide energy to the southern region of the Cauchari Salars (Pozos and Pozas). the northern EETT will be to provide energy to the process plant and infrastructure. The northern ponds will have a dedicated solar PV park to supply power to pond operations in the northern part of the Salars. The power distribution will be in 33 kV and 13.2 kV from each EETT.

From the EETT, a 33 kV line will be installed channelled by trays to the transformation centers of the production plant where the CCM and low voltage distribution systems will be installed for the different terminal circuits;

From the same Medium Voltage Distribution Center (CD-MV) will be the laying of a 33 kV medium voltage overhead line, approximately 15 km to energize the production wells and evaporation ponds located in the Salars, where each well will have a dedicated transformation center that will energize the pumping panels.

In the production plant, the laying will be carried out by pipes of the type hot-dip galvanized steel cable trays with variable widths and that will run along the main vine until they reach the industrial warehouses.

21.6.2.1.2 Electricity Generation with Natural Gas

It is planned to install a powerhouse with 4 natural gas generator sets.

Features:

- **Number of equipment**: 4 generators.
- **Brand**: Caterpillar.
- **Fuel Type**: Natural gas.
- **Individual power**: Approximately 3.75 MW per unit.
- **Total installed power**: 15 MW.
- **Generator**: Caterpillar CAT CG260-16 type model or similar.
- **Cooling system**: Water-based, with external radiators.
  - **Starting System**: Electric, with backup batteries.
  - **Control System**: Digital Control Panel with Remote Monitoring.
- **Automatic transfer boards (ATS)** for grid connection or critical load.

An integrated control system is planned for this Caterpillar EMCP (Electric Modular Control Panel) integrated digital control system, such as EMCP 4.4 or higher.

Supports parallel operation, automatic synchronization, and remote monitoring interaction with other energy sources (solar and high voltage line).

Main Functions should include:

- **Automatic start and stop** according to demand or network conditions.
- **Synchronization between generators** for balanced load sharing.
- **Engine and alternator protection** (overtemperature, low oil pressure, overload).
- **Fuel management and efficiency** to optimize gas consumption.
- **Remote monitoring** via Ethernet, Modbus or industrial protocols.
- **Alarms and event logs** for predictive maintenance.

These types of generators offer UL and IEC compliant control boards, designed to operate in parallel, with local and remote monitoring. These systems allow the operation to be adapted to varying conditions of load, climate or gas availability.

21.6.2.1.3 Electrical Load

Total operating electrical energy for the Project at the 45,000 tpa production rate is estimated at ~34 MW, which includes the required energy for brine extraction wells, evaporation ponds, processing plants, and workers' camp etc.

Table 21.27 shows the anticipated power consumption for each area and for each stage of the project.

Table 21.27
Power Consumption for 45,000 tpa Production

Project Area	Power Consumption (kW) at 45,000 tpa		
	Load kW	Operating	kW/year
Brine Well Field	5,250	80%	45,990,000
Ponds	9,000	100%	78,840,000
SX	6,710	78%	48,308,400
Primary Purification	771	90%	5,553,360
Raffinate Treatment	464	55%	3,337,200
Raff Water Treat	189	89%	1,360,800
Ancillary Facilities (Camp, Offices, Sewage Treatment, water treatment)	1,222	100%	8,028,540
Second Purification	626	63%	4,510,080
LCE Process Plant	7,344	96%	52,874,370
Utilities	2,421	100%	17,431,200
Operating Power Demand	33,996	31,157	266,233,950

21.6.2.2 Natural Gas Supply

The supply of natural gas is planned to follow the same route as the current gas pipeline does, which starts from the junction of the GAS-ATACAMA gas pipeline.

A gas pipeline of 53,044.44 meters in length, of 8" nominal diameter (actual outer diameter: 219.08 mm), with a thickness of 4.8 mm in normal terrain and 7.04 mm in areas with the presence of water, river or stream crossings and at road crossings, will be laid.

The gas pipeline begins from the Primary Regulation and Measurement Station (ERM2ª), owned by EXAR S.A., which will be located 120 meters from the perimeter fence of the Rosario Compressor of Gas-Atacama SA., and 30 meters from the wire fence of the Primary Regulatory Station of Sales de Jujuy S.A.

A primary metering station, to reduce variable pressure, will be located 120 meters from the Atacama Gas Compressor Plant, in Rosario, Susques Department.

A Secondary Station will be located on the premises of the Cauchari Process Plant, in the vicinity of the EXAR S.A. Plant. It receives the gas from the Primary Station, and regulates pressure, between 13-26 bar for distribution to Internal Facilities.

Heat and steam for the process will be distributed to the respective users as summarized in Table 21.28.

Table 21.28 Heat and Steam Consumption		
No.	**Item**	**Tonnes per Hour**
1	PP5000 Removal B process	7.263
2	PP5100 ion-exchange for removal Ca	2.916
3	PP6200	20.0475
	Battery grade Li_2CO_3 workshop	
Total	**Basis 0.7 mPA steam**	**30**
	Steam (tpa)	217,631

21.6.2.3 Aqueduct and Industrial Water System

The pumping field is located within the Tocomar Sub-basin defined in the Integrated Conceptual Model study, Cauchari-Olaroz Basin, Argentina, Montgomery 2025 with an average recharge of 454 L/s.

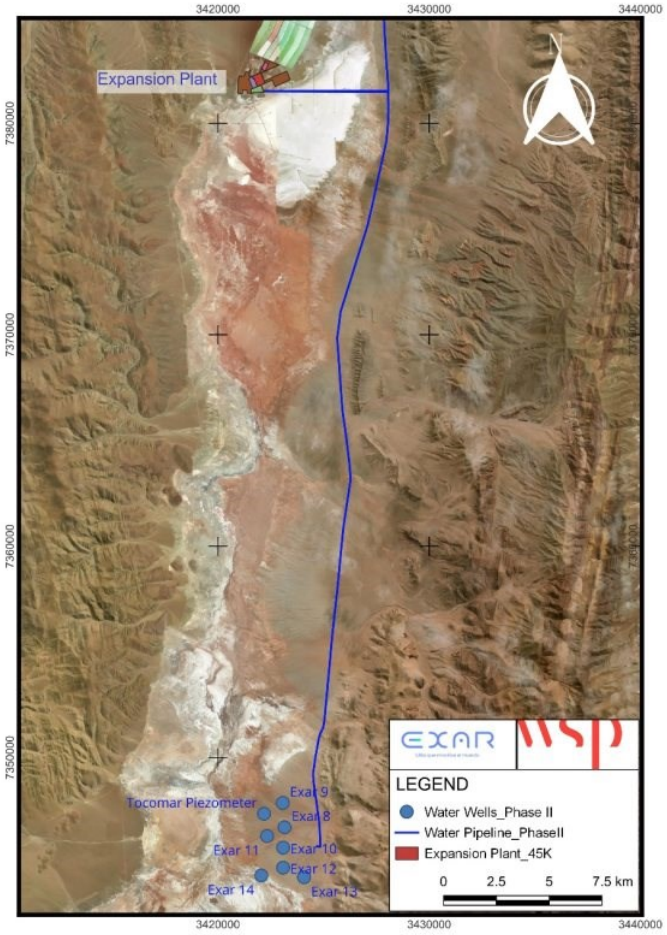
21.6.2.3.1 Producing Wells

- Number of Wells: 8 (7 producing wells + 1 piezometric control well).
- Estimated flow rate per well: 20-25 L/s.
- Water flow, pressure, and quality monitoring system.
- Location: South Cauchari Salar.

Technical characteristics:

- Depth: 100 meters.
- Dynamic height: 30 meters.
- Well Diameter: 8" in.
- Operating flow per well: 22.5 L/s.
- Consolidated flow: 160 L/s.

Figure 21.20 Location of Water System for Stage II Expansion



21.6.2.3.2 Primary Collectors

- HDPE or coated steel pipes, diameter between 250-400 mm.
- They connect each well to the main collector.
- Shut-off and bleed valves on each Branch.

21.6.2.3.3 Main Aqueduct

- Length: 35 km.
- Diameter: 560 mm (according to similar project design).
- Capacity: up to 200 L/s.
- Includes intermediate pumping stations if there is a topographic slope.

21.6.2.3.4 Main Pumping Station

- Located in the well field.
- Multistage Centrifugal Pumping Equipment.
- Backup system with diesel or solar generators.

21.6.2.3.5 Control and Automation System

- SCADA for Remote Monitoring.
- Pressure, flow, temperature and quality sensors.
- Alarms and emergency protocols.

21.6.2.3.6 Plant Storage Tanks

Regulation and reserve tanks:

- Capacity: 500 - 1000 m^3 - will be provided with an inlet and outlet manifold.

Integration with internal processing and distribution processes.
Location: Along the aqueduct, every 8-12 km (depending on topography).
Pump Type: Multistage Horizontal Centrifuges | Total power of the pumping train: 800 kW.

21.6.2.4 Water Supply

Freshwater is provided by local wells within the basin. It is projected that the available water sources will supply the temporary facilities during the construction phase, as well as the industrial demands as follows:

- Process Water.
- Dilution water.
- Sanitary water.

Water management infrastructure includes:

- 8 wells + 1 piezometric control.
- Medium voltage transmission lines.
- Pipes and manifolds.

- Storage tanks.
- Reverse osmosis plants.

Water production process

The water from wells is directed to a master collector, destined for the storage tanks located adjacent to the wells.

From a pumping station, located in the concentration plant, it is taken to the 4 points of consumption.

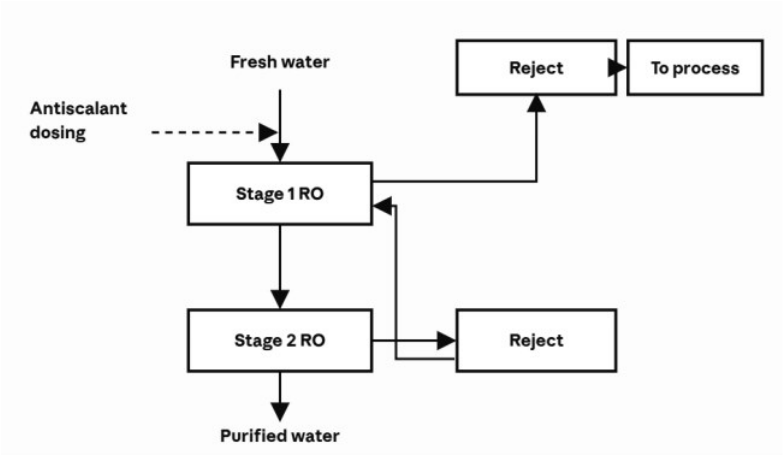
- Process plant.
- Camp Plant (Domestic Water).
- Dilution Water Plant (North Cauchari).

21.6.2.4.1 Industrial Water

A treatment system is used to produce high-quality water for the steam boiler and some processes that require pure water.

The system consists of a two-stage reverse osmosis process. The reverse osmosis (RO) process is a water treatment process that removes most dissolved solids, including monovalent salts, to obtain purified water, it does not eliminate microorganisms, which can be removed by ultrafiltration. This process is by using pressure to force water molecules through a semipermeable membrane.

Figure 21.21 Reverse Osmosis Plant Scheme



21.6.2.4.2 Domestic Water

A reverse osmosis plant will be used for water conditioning, for domestic uses and for sanitation of the camp and offices. Even if the parameters are not suitable for human consumption, they can also fulfil this purpose.

- Sanitary Water Treatment System
  The same facilities as the existing ones will be used for the expansion without the need for the construction of a new reverse osmosis plant, since the current plant covers the expected demand for the expansion project.

- Water for Sanitary Use

  Freshwater needs are met by local wells located within the watershed.

  The associated infrastructure includes a producing well, low-voltage transmission lines to feed the pump, pipelines, storage tanks, and reverse osmosis plants.

  The well currently in service, called PBI, is located 3.5 km north of the Operations Camp and will supply both camps.

21.6.2.4.3 Reverse Osmosis Plant (TAP Plants)

The infrastructure installed in the Construction Camp includes a 20 m^3 raw water storage tank, two reverse osmosis plants that together have a production capacity of 100 m^3/day, 110 m^3 of treated water storage distributed in 4 tanks and a pressurization system. This capacity is sufficient to supply the demand of a population of up to 600 people.

The Operations Camp has a 25 m^3 raw water storage tank, two reverse osmosis plants that together have a production capacity of 130 m^3/day, 160 m^3 of treated water storage distributed in 6 tanks and two pressurization systems. This capacity is sufficient to supply the demand of a population of up to 800 people. In addition, the reverse osmosis plant supplies water to 4 tanks of 25 m^3 each for the fire protection system. In the facilities of both camps, there are chambers where the reject water from the reverse osmosis system accumulates, which is pumped into an accumulation pond, from where it is extracted for irrigation and stabilization of roads.

The project has 4 dedicated Reverse Osmosis plants for sanitary water:

- 1 x Fluence - Reverse Osmosis Modules.
- 3 x Inquinat - Reverse Osmosis Modules.

The maximum supply capacity is 1,400 people housed daily.

21.6.2.4.4 Raw Water Consumption

Water will be consumed for the operation, service, and drinking etc. at the site. The main consumption of the raw water is for diluting the brines during transfer to avoid crystallization inside pump and pipes. Based on the empirical experience, 1% of brine dilution or 1% of the transfer brine flow rate is enough to maintain the adequate operation of the pump. Total water requirement at the site is summarized in Table 21.29.

The water requirements for the project will be met by regionally available water wells. It is projected that the available water sources will supply the temporary facilities during the construction stage as well as the permanent industrial facilities.

Table 21.29
Raw Water Consumption for 45,000 tpa of Production

Water Consumption 45,000 tpa		
Description	**Usage m^3/day**	**Water Usage tpa**
Process Plants	4,249	1,274,632
General Services	1367	498,984
Potable water	92	33,682
Evaporation Ponds	1348	492,093
Total Water	**7,056**	**2,299,391**

21.6.2.5 Steam

The plant will have a steam generation and distribution system to supply the different thermal consumption of the process, as well as certain auxiliary services that require indirect heat. Steam is an essential service for fluid heating, concentration, drying, and temperature conditioning operations within the plant.

Steam generation will be carried out by natural gas (NG) fired boilers, designed to operate continuously and efficiently. The boiler will have an economizer to take advantage of the heat from the combustion gases, optimizing the overall thermal performance of the system. The steam produced is of the saturated type, with a design pressure of approximately 10 bar(g) and a nominal capacity of 35 tons per hour, which allows to cover the simultaneous demands of the process and the auxiliary systems.

The steam generated is fed to a main collector from where it is distributed to the different areas of the plant through a network of thermally insulated pipes. Each distribution line will have control valves, steam traps and purge systems to ensure efficient operation and avoid having condensate in the lines.

The condensate return will be collected in a closed system and sent back to the boiler feed tank, where it will pass through a thermal degassing system before being recirculated. This scheme reduces the consumption of treated water and fuel, increasing the overall energy efficiency of the system.

The steam system will also include a suite of control and safety instruments - pressure switches, relief valves, flow and temperature meters - integrated into the distributed control system (DCS) for real-time monitoring and automated operation.

21.6.2.6 Fuel Storage System

The expansion project will use the existing fuel storage system, as it is estimated that the current storage capacity can meet the new requirements of the expansion project by increasing the frequency of suppliers.

For the collection of solvent required for the direct lithium extraction plant, it is estimated that tanks with similar characteristics to the existing ones will be built.

21.6.2.7 Sewage Treatment System

There are currently two TAS (Wastewater Treatment) plants, one in the Operations Camp and the other in the Construction Camp.

Each camp has a wastewater treatment plant, which processes the effluents from toilets and canteens.

Both are of similar characteristics, the TAS Operation plant has a capacity for 800 people currently in operation and the TAS Construction plant has a capacity for about 600 people.

It is estimated that TAS plants are sufficient for the expansion project considering that the construction camp is currently unused.

Expansion of operations = 700 current spaces + 100 new spaces = 800 spaces.
Expansion under construction: 450 current spaces + 150 new spaces: 600 spaces.

21.6.2.8 Reagents

Reagents used in the plant are lime, hydrogen peroxide, sodium carbonate, sodium hydroxide, hydrochloric acid and miscellaneous reagents and products used in solvent extraction and brine purification.

Table 21.30 shows the annual requirement for those reagents.

Table 21.30
Annual Consumptions of Reagents

No.	Item	Point of consumption	Totals
1	Extractant	SX Plant	11.47
2	$FeCl_3$	SX Plant	265.7
3	31% NaOH	SX/Purification	63,193
4	31% HCl	SX/Purification	50,366
5	98% H_2SO_4	Raff/Wastewater	576
6	27.5% H_2O_2	Raff/Wastewater	1,132
7	PMA	Raff/Wastewater	4
8	PAC	Raff/Wastewater	0.2
9	$FeSO_4$	Raff/Wastewater	754

Table 21.30 Annual Consumptions of Reagents			
No.	**Item**	**Point of consumption**	**Totals**
10	Org. Removal Resin	Raffinate	49
11	CaO	Purif1	9,590
12	Na_2CO_3	Purif1/LCE	81,709
13	IX Resin Ca	Purif2	5.4
14	IX Resin B	Purif2	5.4

21.6.3 Ancillary Facilities

21.6.3.1 Truck shops

Three truck shops consist of maintenance workshops for heavy and light machinery.

The shops will have bays for heavy equipment and for light equipment; equipped with lubricants, greases, refrigerants, compressed air, water, energy, drain, epoxy floor, tools and lifting equipment systems.

Both lubrication, greasing and cooling systems will include collection and storage of waste, including:

- Drainage system to allow for effluent treatment.
- Old tires shall be collected in suitable and defined areas.
- Spent batteries shall be stored in suitable areas.
- Solid waste will be collected in defined areas.
- Wash water from laundry room filtering system.
- Fire protection with evacuation zones.

21.6.3.2 Warehouses

Two areas are provided for raw material storages, one outdoor and one indoor. The warehouse will be constructed by a metal structure in STEEL ASTM A-36 with suitable coating for climate and ventilation. The warehouses will have a fire protection system with detectors in each section, sprinkler system and evacuation zone.

21.6.3.3 Offices

The administration building areas includes:

- management offices.
- supervisory offices.
- locations for administrative personnel.
- Men and women's washrooms.
- Kitchen.
- Meeting room.

21.6.3.4 Camp

The camp sector is divided into 4 terraces. The first terrace will house the maintenance and infrastructure areas of the camp. In the second and third terraces, the housing and office modules include the following:

- Camp 12 Mod. 2 Floor Capacity: 960 People.
- Nursing.
- Camp Office.
- Offices 6 Mod. Workspaces: 168.
- Camp 12 Mod 1 Floor. Capacity: 192 People.
- Dining Room & Kitchen - 3294.15 m^2.
- Gas Tanks.

In turn, to the east of the camp there is a space reserved as a workspace for contractors of and to the west the electrical park that supplies the camp, along with the fuel tanks.

The construction will be modular according to the layout of the permanent camp and will be located to the east of the existing camp.

21.7 MARKET STUDIES AND CONTRACTS

Lithium has unique properties that enables its use in many applications. Lithium-ion batteries represent the most electrochemically mature and commercially proven technology for electric vehicles, battery energy storage systems ("BESS"), owing to their high energy density, efficiency, and scalability., lithium is also used in a variety of industrial applications, including glass and ceramics, lubricating greases, metallurgy, pharmaceuticals, and polymers.

Benchmark projects global lithium demand to increase by approximately 18% year-on-year in 2026, with incremental annual demand growth of roughly ~125 kt LCE per year through 2030 under its base-case scenario. Benchmark estimates that BESS demand will expand by approximately 25% in 2026, reaching ~319 kt LCE, supported by accelerating global grid-scale and behind-the-meter deployments. Industrial and other non-battery uses are forecast to contribute a ~167 kt LCE of demand in 2026, with around half of this demand concentrated in China.

Over the longer term, Benchmark forecasts lithium demand to grow at a ~7.3% compound annual growth rate from 2025 to 2040, with battery demand increasingly dominated by lithium-ion chemistries, reinforcing lithium's strategic importance in electric mobility, stationary energy storage, and high energy-density applications. Currently, Argentina has 10 operating lithium projects, collectively producing approximately 106,000 metric tonnes LCE in 2026. This growth highlights Argentina's increasing role in the global lithium market as demand for critical resources continues to rise.

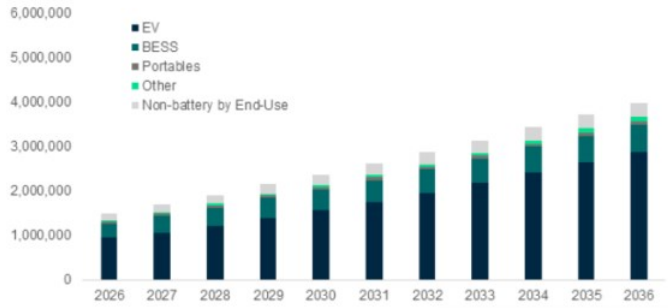
This section provides a summary of the supply and demand of lithium and price forecasts. Material presented in this chapter is primarily from the, Benchmark Minerals Lithium-Supply-Demand-Price-Forecast Q2 2026 Report, and U.S. Geological Survey, Mineral Commodity Summaries (USGS), January 2025.

21.7.1 Lithium Demand

Lithium has unique properties that enables its use in many applications. As the lightest metal with a high electrochemical potential, lithium is particularly well suited for energy storage. Lithium-ion batteries represent the most electrochemically mature and commercially proven technology for electric vehicles, battery energy storage systems ("BESS"), owing to their high energy density, efficiency, and scalability., lithium is also used in a variety of industrial applications, including glass and ceramics, lubricating greases, metallurgy, pharmaceuticals, and polymers.

According to Benchmark Mineral Intelligence, global lithium demand is expected to grow at a sustained double-digit pace through the end of the decade, driven primarily by battery applications. Benchmark projects global lithium demand to increase by approximately 18% year-on-year in 2026, reaching ~1,893 kt LCE, though annual incremental growth is expected to taper over the remainder of the decade rather than hold steady - from roughly 195 kt LCE in 2027 to around 125 kt LCE by 2030 under its base-case scenario. Battery applications remain the dominant source of demand, with electric vehicles accounting for approximately three-quarters of total battery-related lithium consumption, while BESS represents the fastest-growing segment. Benchmark estimates that BESS demand will expand by approximately 25% in 2026, reaching ~319 kt LCE under the base case, supported by accelerating global grid-scale and behind-the-meter deployments (in an upside scenario, BESS demand could reach ~427 kt LCE). Industrial and other non-battery uses are forecast to contribute ~167 kt LCE of demand in 2026. Over the longer term, Benchmark forecasts lithium demand to grow at a ~8.0% compound annual growth rate from 2025 to 2040, with battery demand increasingly dominated by lithium-ion chemistries, reinforcing lithium's strategic importance in electric mobility, stationary energy storage, and high-energy-density applications (Figure 21.22).

Figure 21.22 Lithium Demand in Batteries

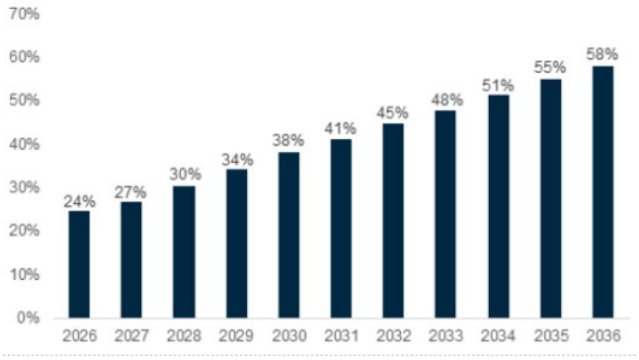


Source: Benchmark Minerals Lithium-Supply-Demand-Price-Forecast Q4 2025.

Lithium has been listed as one of the critical elements by the U.S. Department of Energy based largely on its importance in rechargeable batteries. Lithium-ion battery is the preferred form for high-density applications like EVs and portable electronics. A full-electric EV can require over 50 kg of LCE in the battery, depending on pack size and cathode chemistry.

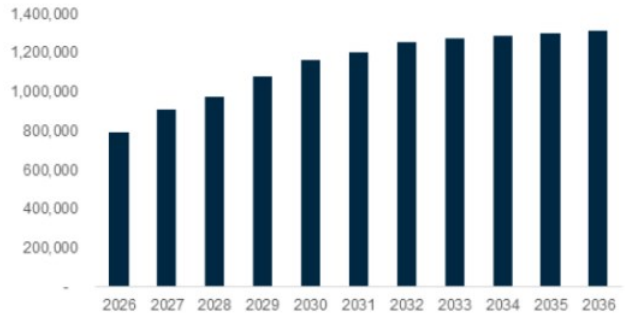
Lithium consumption is expected to increase significantly in the coming years driven by a rapid increase in demand for EVs and BESS. According to Benchmark Minerals, EV sales have grown by 3.5 - 4.0 million EVs per year over the last three years, which represents approximately 95-185 kMt-LCE of incremental EV-related demand year on year over that priod. The EV penetration rate forecast is presented in Figure 21.23 and the BESS penetration rate forecast is presented in Figure 21.24.

Figure 21.23 EV Penetration Rate Forecast



Source: Benchmark Minerals Lithium-Supply-Demand-Price-Forecast Q4 2025.

Figure 21.24 BESS Global Demand Growth



Source: Benchmark Minerals Lithium-Supply-Demand-Price-Forecast Q4 2025.

Benchmark Mineral Intelligence has identified notable rapid shifts within the industry, such as the structural shift of EV and BESS markets towards Lithium Iron Phosphate chemistry. Regarding competing chemistries, Benchmark has flagged Sodium-Ion technology as a demand risk to watch, particularly in stationary storage, given its avoidance of critical minerals including lithium, nickel, and cobalt, though it currently trails lithium-ion on energy density and requires greater manufacturing scale to realize its potential cost advantage. Benchmark has not published a specific market share figure for Sodium-Ion adoption as of 2025.

Separately, Benchmark notes that solid-state battery characteristics are expected to support demand in specific emerging applications such as humanoid robotics, though this has not been generalized to the broader EV and BESS demand outlook.

21.7.2 Lithium Supply

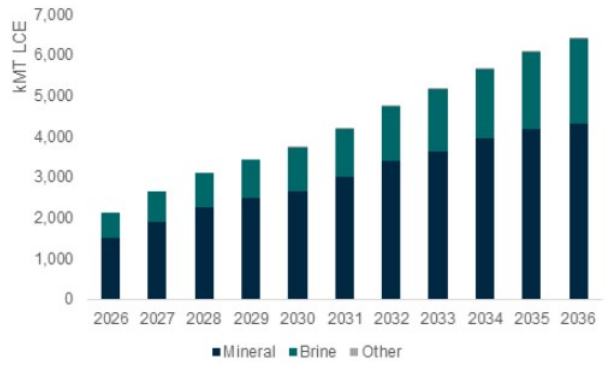
Lithium occurs in the structure of pegmatitic minerals, the most important of which is spodumene (hard rock) and due to its solubility as an ion, is also commonly found in brines and clays. Pure lithium does not occur freely in nature, only in compounds. Starting in the 1980s, brine-based lithium chemicals provided most of the supply; however, in recent years, hard rock forms have surpassed brine as the largest feedstock for lithium chemical production.

As a result of continued exploration, Measured and Indicated lithium Mineral Resources have increased substantially worldwide and total about 115 million tonnes. (USGS, January 2025).

The world's largest known lithium reserves are in Chile, which accounts for 31% of lithium reserves, followed by Australia with 21%, and Argentina in third place, accounting for 13% of global reserves (USGS, January 2025). Lithium production is summarized in Figure 21.25.

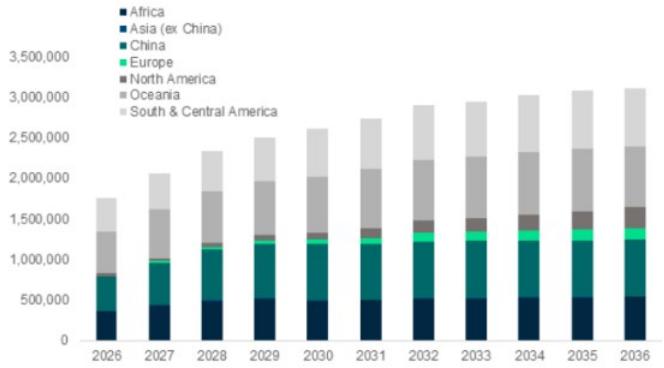
China is a global leader in lithium refining and battery production, with a highly advanced and integrated supply chain. It imports raw lithium minerals, mainly from Australia, South America and increasingly Africa and then processes them into lithium compounds, such as lithium hydroxide and lithium carbonate.

Figure 21.25 Lithium Supply Forecast per Resource Type



Source: Benchmark Minerals Lithium-Supply-Demand-Price-Forecast Q2 2026.

Figure 21.26 Lithium Supply Forecast per Country Type



Source: Benchmark Minerals Lithium-Supply-Demand-Price-Forecast Q2 2026.

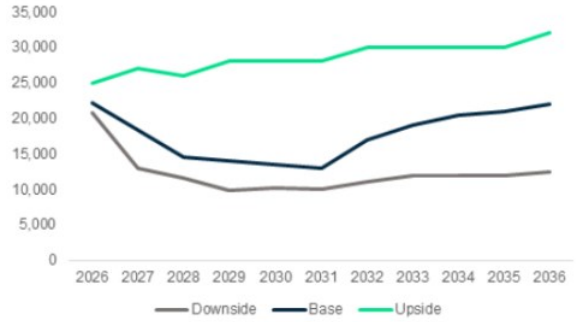
Benchmark Minerals has noted that the expected market balance of lithium carbonate equivalent is projected to move from a modest oversupply in 2025 of ~9 kt into a deficit of ~48 kt in 2026, before swinging into a substantial and growing surplus from 2027 through 2031 - peaking at approximately +227 kt in 2031 - before narrowing sharply and tipping into deficit again from 2033. This deficit is expected to widen progressively, reaching roughly -241 kt by 2035 and surpassing -350 kt by 2036, reflecting a structural long-term supply gap emerging in the early-to-mid 2030s.

21.7.3 Price Forecast

As the global transition toward sustainable energy accelerates, lithium has become a critical raw material. Over the past decade, alternating periods of supply constraint and oversupply have contributed to pronounced price volatility. Lithium prices increased sharply between 2021 and 2023, briefly peaking at approximately US$74/kg in late 2022, before correcting significantly and continuing to trend lower through 2024 and into 2025 as new supply entered the market and demand growth moderated outside of China. In recent months, prices have rebounded into 2026, more than doubling from cyclical lows.

More recently, market conditions have begun to reflect increased capital discipline across the industry, with high-cost projects deferred, operating curtailments implemented, and investment increasingly focused on lower-cost, scalable production. At the same time, continued investment in lithium extraction technologies, including direct lithium extraction ("DLE"), and selective capacity expansions are expected to influence the future supply-demand balance. As a result, market analysts generally anticipate a period of greater price stability over the medium term as supply rationalization and structurally growing battery demand move toward improved market balance. A range of projected prices to 2040 is presented in Figure 21.27.

Figure 21.27 Projected Pricing for Battery-Quality Lithium Carbonate Used in Economic Model



Source: Benchmark Minerals Lithium-Supply-Demand-Price-Forecast Q2 2026.

The average prices for the life of project are displayed in Table 21.31.

Table 21.31 Average Pricing Scenarios Adopted for the Economic Analysis of the Project Pricing Scenarios		
Average price Per Tonne - Battery-Quality Lithium Carbonate		
Low	**Medium**	**High**
US$16,000	US$18,000	US$20,000

Realized pricing for Exar is based on these price scenarios adjusted for deductions related to the removal of trace levels of impurities to achieve battery quality lithium carbonate.

WSP Golder's QP looked at the trailing 5-year average spot price of battery grade LCE as support for projected average LCE price over the next 5 to 10 years. The average prices are shown in Table 21.32 below. Most stock exchanges allow the use of the 5-year trailing averages for valuation of mineral assets.

Table 21.32 5-year Average Spot Price of Battery Grade LCE				
LCE Price	**From**	**To**	**LCE (CNY/t)**	**LCE (USD/t)**
Average over the last 5 years	2021-8-30	2026-8-31	155,105	22,255

The QP believes an FoB price forecast of US$18,000 per metric ton of Li_2CO_3 for years beyond 2028 is a reasonable figure for this Scoping Study Expansion report.

21.7.4 Offtake Contracts

LAR's offtake entitlement is governed by an upstream sales agreement between Minera Exar S.A. (seller) and Lithium Argentina AG (buyer), under which LAR is obligated to purchase its 49% proportion of production. LAR has in turn entered into separate downstream sales agreements with Ganfeng and Bangchak for portions of that entitlement, as described below.

Production from the Project is divided between the partners of Exar according to their ownership, excluding JEMSE's 8.5% interest (Ganfeng 51% and LAR 49%). Accordingly, LAR is entitled to 19,600 tpa of LCE based on a full production rate of 40,000 tpa. LAR has entered into lithium carbonate offtake agreements with two counterparties, Ganfeng and BCP Innovation Pte Ltd. ("Bangchak"). These offtake agreements are related to strategic investment agreements by the counterparties, which include both debt facilities for Project construction and equity investments. Assuming a 40,000 tpa production rate and LAR maintaining its 49% interest in the Project, the Ganfeng offtake agreement entitles Ganfeng to acquire 9,800 tpa of LCE (80% of 49% of the first 25,000 tpa of production), while the Bangchak offtake agreement entitles Bangchak to acquire 6,000 tpa of LCE (20% of 49% of the first 25,000 tpa plus 46.67% of production above that rate), at prices referenced to the simple average of Shanghai Metals Market (SMM) and Fastmarkets reported prices for battery-grade lithium carbonate (99.5% min., CIF China, Japan and Korea) over a defined window prior to each export shipment, subject to adjustments for delivery location and product quality. The remaining 3,800 tpa is unallocated, subject to certain rights of Bangchak to top-up its offtake entitlement to 6,000 tpa from this unallocated amount in certain circumstances.

For clarity at a production rate of 40,000 tpa, Ganfeng is entitled to its 51% share of production (20,400 tpa) and 80% of LAR's share of production up to 25,000 tpa (9,800 tpa) or, in aggregate, 75.5% of 40,000 tpa (30,200 tpa).

The current upstream sales agreement between Minera Exar and LAR is effective January 1 to December 31, 2026, consistent with prior annual agreements between the parties. No long-term upstream offtake agreement is currently in place.

It has been separated into two parts:

- 40,000 tpa LCE pre-existing contract agreements.
- 45,000 tpa LCE Expansion Project. The Expansion 45,000 tpa production is uncommitted.

21.8 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL COMMUNITY IMPACT

The operation of the Project is based on mineral reserves that are expected to support a total production rate of 85,000 tonnes per annum (tpa) over an estimated mine life of 40 years. Of this total, the Expansion will contribute approximately 45,000 tonnes per year of lithium carbonate equivalent (LCE) through the implementation of direct lithium extraction (DLE) technology. The Expansion is located adjacent to the existing Project in the Susques Department, Jujuy Province, Argentina, and is operated by Exar.

Key findings highlight stable environmental conditions, as validated through operational monitoring conducted during 2024-2025, effective mitigation measures, and strong community relations. The introduction of DLE technology is expected to reduce operating costs for lithium carbonate production, significantly decrease water consumption, and improve lithium recovery efficiency from brine from the current 63% to approximately 75%.

21.8.1 Environmental Studies and Permitting

21.8.1.1 Introduction

Environmental studies for Cauchari-Olaroz include detailed baseline data collection on climate, air quality, noise, water quality, soil conditions, flora, fauna, limnology and cultural heritage. These baseline studies, corresponding to the project, have been complemented by systematic environmental monitoring during the operational phase, including participatory monitoring campaigns conducted quarterly during 2024 and 2025, following the Project's transition from commissioning into sustained operations during 2024-2025.

Authorizations for mineral exploitation and water use for the Expansion will be obtained and maintained as part of the Project's regulatory approvals. Compliance will be ensured through the implementation of the Environmental Management Plan (EMP), monitoring programs, and periodic reporting to the competent authorities.

21.8.1.2 Legal Framework

The permitting process for Cauchari-Olaroz has been supported by a comprehensive legal framework study carried out early in the exploration phase. This study encompassed international, national, and provincial norms and standards relevant to the environmental and operational aspects of the Project.

Compliance with the legal and regulatory framework will be ensured through the implementation of the EMP, environmental monitoring programs, and reporting obligations established under the EIA process. These mechanisms will support the alignment of Project activities with regulatory requirements and ensure environmentally responsible development of the Expansion Project.

21.8.1.3 Exploration Phase Permits for the Expansion

Exploration activities at Cauchari-Olaroz were conducted under environmental approvals granted by the Province of Jujuy in accordance with applicable regulatory requirements. These activities included hydrogeological studies and resource characterization, as described within the framework of the Environmental Impact Assessment.

The Environmental Impacts Report ("IIA") for the exploration phase of Cauchari-Olaroz was first approved by the Provincial Government of Jujuy (Dirección Provincial de Minería y Recursos Energéticos) under Resolution No. 25/09 on August 26, 2009. Subsequently, a series of Environmental Impact Report studies were conducted, the results of which contributed to the environmental and technical evaluation of the Expansion within the current Environmental Impact Assessment process.

Table 21.33
Exploitation Permits for the Expansion

Report Submitted	Date Approved	Approvals	Observations
Update to Environmental Impacts Report for Exploration 2023 - 2025	February 2026	Resolution No. 028/2026	Includes drilling new brine wells and vertical electrical surveys focused on the southern area of the salt flat.

21.8.1.4 Exploitation Phase Permits for the Expansion

The IIA for exploitation was initially approved under Resolution No. 29/2012 on November 8, 2012, for an annual production of 20,000 tonnes of lithium carbonate. During December 2025, EIA for the Expansion was submitted and is under review. It evaluates the potential environmental and social impacts of the proposed works and establishes the corresponding mitigation, monitoring, and management measures. This approval process will involve review by the competent provincial authorities, including environmental and water resource agencies, to ensure compliance with applicable regulations. Updates to the Expansion EIAs will be presented in due course as the Project progresses through its various phases.

Table 21.34
Exploitation Permits for the Expansion

Report Submitted	Date Approved	Resolution	Key Updates
Environmental impact report for expansion to 85.000 tonnes/year.	December, 2025	Pending	Environmental impact report for new expansion plant with DLE technology presented

21.8.1.5 Water Permits

A Permanent Water Concession for a further 160 L/s from the south of the basin for the Expansion, to be used during the exploitation phase, is currently under evaluation. Current operations are not dependent on approval of this additional concession.

Table 21.35
Industrial Water Permits and Concessions for Cauchari-Olaroz Expansion

Report Submitted	Date Submitted	Date Approved	Validity Term	Observations
Permanent Water Concession (160 L/s) SOUTH	March 2024	Pending	40 Years	The provincial water resources department (DPRH) has authorized the drilling of exploration wells in the southern sector of the basin. Exploration well drilling commenced. 2 water wells and one piezometer drilled. Upon completion of the drilling campaign and hydraulic testing, results must be submitted to DPRH to support completion of the permitting process and granting of the industrial water use concession. Results obtained so far in the drilled wells are promising.

21.8.2 Environmental Impact Assessment

21.8.2.1 Introduction

This section presents the Environmental Impact Assessment (EIA) for the Expansion, incorporating DLE technology into existing Project operations. The assessment is based on baseline studies and operational monitoring data collected between 2010 and 2025. It identifies and evaluates potential environmental impacts associated with the Expansion and outlines the management and monitoring measures implemented to ensure impacts remain controlled, localized, and consistent with environmentally sustainable operation.

The EMP and associated monitoring programs provide a comprehensive framework for managing environmental impacts during Operations and Expansion. Impacts are expected to be predictable, localized, and manageable through the implementation of mitigation measures and continuous monitoring.

Environmental conditions are expected to evolve in accordance with predicted system behavior, taking into account the natural variability of the salar environment. Impacts are anticipated to remain confined within the Project area, without significant off-site effects. Overall, the project is considered compatible with environmentally safe and sustainable operation.

21.8.2.2 Sources of Potential Impacts

Potential environmental impacts for the Expansion incorporating DLE technology are associated with:

- Brine extraction and reinjection systems.
- DLE processing facilities.
- Evaporation ponds.
- Construction and operation of additional infrastructure.
- Increased vehicle traffic and logistics.
- Materials handling and storage activities.

The introduction of DLE technology is expected to increase process efficiency and recovery rates while modifying water use patterns compared to conventional evaporation-only operations.

The Expansion will generate solid salts and liquid wastes, primarily hypersaline brines, which will be managed within the operational system. These streams are not expected to represent a contamination risk under standard operating conditions, and no tailings storage facility is required.

21.8.2.3 Impact Evaluation Framework

Potential impacts have been assessed using a structured evaluation framework that considers:

- Magnitude.
- Spatial extent.
- Duration.
- Frequency.
- Reversibility.
- Receptor sensitivity.

This framework integrates baseline environmental conditions, regulatory criteria, and technical judgement, consistent with applicable legislation and international standards.

21.8.2.4 Overview of Environmental Impacts

The environmental impact assessment for the Expansion identifies:

Potential adverse impacts, primarily associated with:

- Freshwater abstraction requirements.
- Land disturbance and infrastructure footprint.
- Potential effects on fauna and habitat.
- Air emissions during construction and operation.

Potential positive impacts, which includes:

- Employment generation.
- Economic growth and regional development.

Overall, impacts are anticipated to be localized, of low to moderate magnitude, and manageable through mitigation measures.

21.8.2.4.1 Air Quality Impacts

Air quality impacts associated with the Expansion are primarily related to emissions of combustion gases and particulate matter generated during construction and operation. Environmental monitoring conducted between 2023 and 2025 indicates that concentrations of CO, SO_2, NOx, O_3 and particulate matter remain consistently below the guideline values established by Decree 5980/06, with no exceedances or upward trends observed.

21.8.2.4.2 Noise Impacts

Noise impacts during the Expansion are associated with construction activities, operation of additional equipment, and increased vehicle circulation.

21.8.2.4.3 Surface Water Quality Impacts

The Expansion introduces additional pressure on water resources due to increased operational demand. Potential impacts include changes in surface water quality associated with effluents, and operational activities.

However, monitoring programs indicate that variations in water quality parameters are largely influenced by natural conditions of the salar system. Management systems for effluents and runoff, combined with continuous monitoring, ensure compliance with applicable regulations and ensure that impacts are controlled.

21.8.2.4.4 Groundwater Quality Impacts

Groundwater impacts associated with the Expansion are related to increased pressure on the resource, potential changes in water quality, and modifications in brine levels. Hydrogeological assessments indicate that these impacts are predictable, controllable, and remain confined to the core of the salar, without affecting adjacent freshwater systems. The expansion operates within the aquifer's capacity, and continuous piezometric and hydrochemical monitoring enables adaptive management to ensure sustainable and environmentally safe operation.

21.8.2.4.5 Soil Quality Impacts

Soil impacts during the Expansion are primarily associated with land disturbance, earthworks, and infrastructure development, resulting in localized alteration of topography and loss of vegetation cover. These impacts are spatially limited and managed through mitigation measures such as erosion control, impermeabilization systems, and waste management practices. Monitoring programs indicate that soil quality remains within acceptable limits under current operational conditions.

21.8.2.4.6 Biological Environment - Impact Overview

Biological impacts associated with the Expansion are primarily related to habitat disturbance, loss of vegetation cover, and displacement of fauna due to increased operational activity. These impacts are localized and managed through monitoring, mitigation, and environmental management measures. Monitoring programs confirm the presence of diverse ecological communities, including species of conservation concern, with no evidence of large-scale ecosystem degradation.

21.8.2.5 Environmental Management Plan ("EMP")

21.8.2.5.1 Purpose of the EMP

The EMP of the Expansion comprises the set of measures, recommendations, and specific technical actions aimed at:

- safeguarding environmental quality within the Project's area of influence,
- preserving archaeological and paleontological resources,
- protecting social and cultural resources,
- ensuring that project implementation and development are carried out in an environmentally responsible manner, and
- implementing specific actions to prevent the environmental impacts identified in the Environmental Impact Assessment and, if they occur, to mitigate them.

21.8.2.6 Monitoring and Reporting

Environmental monitoring programs are implemented as part of the EMP and include physical, chemical, and biological parameters to assess environmental conditions within the Project's area of influence. These programs are designed to verify compliance with applicable regulations, evaluate the effectiveness of mitigation measures, and detect potential impacts at an early stage. Environmental monitoring programs for the Expansion are integrated within the Project's environmental management framework and are designed to address both existing operations and new components associated with the expansion.

Monitoring activities include participatory programs involving local communities, ensuring transparency and integration of social considerations into environmental management. Data generated through monitoring is reported to regulatory authorities and supports environmental management and decision-making processes throughout the Project lifecycle.

Overall, the monitoring framework supports the conclusion that environmental impacts remain controlled and compatible with environmentally safe and sustainable operation under the expansion scenario.

21.8.2.6.1 Adaptive Management and Continuous Improvement

The EMP function as a dynamic management tool, incorporating monitoring results, operational data, and regulatory requirements to guide continuous improvement. Adaptive management mechanisms, including environmental monitoring and control systems, enable timely adjustments to operational practices in response to any deviations from expected environmental performance. This approach ensure that environmental management remains effective and aligned with the evolving conditions of the Project and its area of influence.

21.8.2.6.2 Recommendations

Existing environmental monitoring programmes should be maintained during the operational phase and the Expansion to ensure continuity with historical data sets and to support ongoing interpretation of environmental trends.

Integrated oversight of brine extraction, groundwater levels and water quality data should be maintained to confirm continued consistency with predicted system behaviour and baseline conditions.

Current environmental management and grievance response processes, including those addressing nuisance-type effects, should be maintained to ensure timely, documented and proportionate responses to operational phase issues.

21.8.3 Social or Community Relations

21.8.3.1 Introduction

Social management for the Expansion is implemented through the Company's Community Relations framework and corresponding Community Relations Plan, which define engagement objectives, stakeholder identification, dialogue mechanisms, monitoring and follow-up activities, and internal responsibilities. The Community Relations area structures its work through a set of corporate procedures that operationalize the Plan across its main lines of action: community engagement, consultation and participation; management of community inquiries and grievances; local employment and community supplier participation; community development initiatives; and engagement with contractors and service providers. Community Relations works cross-functionally with operations, human resources, supply chain, environment, legal & compliance and other relevant areas to integrate community-related considerations into project planning and implementation. Where project activities may affect local stakeholders, engagement and communication are undertaken as early as practicable, with information provided in an accessible manner and opportunities for questions, feedback and participation.

For the Expansion specifically, this framework is applied through the EMP, which incorporates the Community Relations Plan alongside mitigation measures and monitoring programs to manage potential social impacts. Established dialogue frequencies and dedicated follow-up and record-keeping mechanisms ensure that engagement activities and commitments made to stakeholders are tracked consistently throughout the Project lifecycle.

Potential social impacts are expected to be manageable through the implementation of these measures, with benefits associated with employment generation, local economic participation, and institutional engagement. Continued application of monitoring and adaptive management will be required to ensure effective social impact management throughout the Project lifecycle."

21.8.3.2 Social Baseline Context and Re-characterization - Operations Phase

The social baseline for the Project was originally established during earlier project phases through baseline studies characterizing demographic, socio-economic, institutional, and cultural conditions within the Project's area of influence.

Subsequent updates incorporated into the EIA for the Expansion do not redefine the baseline in methodological terms. Instead, they provide an updated description of prevailing social conditions based on the most recent available data, while maintaining a clear distinction between baseline characterization and impact assessment.

Within this framework, the EIA describes the socio-economic and institutional conditions within the Project's areas of direct and indirect influence, including the communities of Susques, Huáncar, Pastos Chicos, Puesto Sey, Catua, Olaroz Chico, and El Toro, all located within the Susques Department, Jujuy Province. These communities are recognized as neighboring communities with whom the Company maintains an ongoing, permanent relationship of dialogue and engagement - one that extends beyond the assessment of expansion-related impacts and reflects a long-term commitment to the social fabric of the area throughout the life of the Project.

21.8.3.3 Evaluation of Social Outreach - the Expansion

Social impacts associated with the Expansion are expected to differ in character and duration from those associated with earlier project stages. Short-term impacts related to construction activities may occur, while longer-term effects will be associated with employment generation, local economic participation, institutional engagement, and demand for services. The principal impact pathways are outlined below.

21.8.3.3.1 Employment and Workforce Integration

The Expansion phase is expected to generate employment opportunities during construction and operation, contributing to local and regional economic activity. Recruitment strategies will prioritize local hiring within the Project's area of influence, supported by training and capacity-building initiatives designed to address skills requirements associated with lithium brine operations.

Where local capacity does not meet specific technical requirements, personnel may be sourced from outside the region, consistent with industry practice. Potential social risks may arise from the management of employment expectations, long-term workforce integration, and local demand for jobs. These risks will be addressed through communication, workforce planning, and training programs.

21.8.3.3.2 Local Procurement and Economic Inclusion

Local economic participation through employment and procurement is a central pillar of the Company's Community Relations model for the Project. Local economic participation is supported through a territorial approach to employment and procurement: subject to applicable technical, safety, quality, commercial and compliance requirements, the Company promotes opportunities for suppliers and workers from the Project's area of influence and broader Jujuy and regional markets. Capacity-building and information initiatives may be implemented to strengthen the ability of local businesses and potential suppliers to participate in procurement processes.

Contractors and service providers are expected to comply with applicable Company requirements concerning local employment and community supplier participation. Relevant contracting processes incorporate mechanisms for communicating these requirements and, where applicable, monitoring and reporting compliance, with Community Relations involved at the relevant stages.

21.8.3.3.3 Community Relations and Participation

Stakeholder engagement during the Expansion will be based on ongoing dialogue mechanisms, participatory environmental monitoring programs, and consultation processes with local communities. These mechanisms are intended to support transparency, early identification of concerns, and integration of community perspectives into project management.

21.8.3.3.4 Grievances and Social Risk Management

Community Relations maintains an accessible, permanent system for receiving and handling inquiries, complaints, and feedback from communities in the Project's area of influence. The approach prioritizes proximity, timeliness, case traceability, and effective case closure, with feedback provided to the person or community that submitted the request.

Concerns may be channeled informally - through in-person meetings, field visits, community assemblies, or direct communication with the Community Relations team - with all information documented and logged in accordance with established procedures to allow each case to be tracked from intake to closure. A corporate Whistleblowing Channel, administered by the Legal Department, is also available to communities as an additional avenue for raising any concern or complaint, and is commonly used for matters requiring specific treatment, such as alleged irregularities or regulatory non-compliance.

These systems support the identification and management of social risks associated with Project activities and are implemented as part of the EMP.

21.8.3.3.5 Cultural and Social Cohesion

Project activities have the potential to interact with cultural practices and community dynamics. Measures included in the EMP will aim to preserve cultural heritage and support social cohesion, including respect for local traditions and protection of archaeological and cultural resources.
No significant adverse impacts on cultural practices are expected, provided that mitigation measures and engagement processes are effectively implemented.

21.8.3.4 Social Management for the Expansion

The Expansion is expected to introduce changes in the scale and nature of social interaction within its area of influence, with impacts associated with construction activities and longer-term dynamics related to employment, local economic participation, institutional engagement, and community participation. These aspects are currently being managed under the existing EMP.

This section is based on (i) the social baseline characterization and updates presented in the EIA; and (ii) the evaluation of potential social impacts and corresponding management measures defined under the EMP.

Within this framework, social impacts are expected to be manageable through the implementation of mitigation, monitoring, and stakeholder engagement mechanisms. Potential benefits may arise from employment generation, local procurement, and strengthened institutional relationships, provided that these measures are effectively implemented and supported by adaptive management throughout the Project lifecycle. Internally, Community Relations continues to coordinate with the relevant operational and corporate areas referenced above to ensure that social commitments identified through these processes are implemented consistently across the organization.

For the Expansion, social management continues to be implemented through structured programs defined under the EMP, in accordance with applicable provincial regulatory requirements and the EIA framework. These programs are maintained and adapted, as required, to prevent, mitigate, and manage social impacts associated with project activities.

21.8.3.5 Community Co-Creation and Long-Term Social Sustainability

Within this framework, community engagement is expected to progressively evolve beyond information-sharing towards more active participation mechanisms, supporting greater involvement of local stakeholders in development initiatives associated with the Project. Community development initiatives are implemented through participatory processes that seek to identify priorities jointly with local communities and to support initiatives with social, institutional or economic development potential, consistent with the scale and duration of the Project.

Capacity-building initiatives will support the development of technical, organizational and leadership capabilities within communities located in the Project's area of influence, including community leadership development and other training activities. These initiatives are designed to strengthen local organizational capabilities, facilitate informed participation in dialogue processes, and support communities in identifying and advancing their own development priorities. As part of this approach, the Company implements initiatives aimed specifically at strengthening the leadership, organizational and dialogue capacities of community representatives in the Project's area of influence.

From a long-term perspective, this approach contributes to sustainable social management by promoting local participation, reducing dependency on project-driven interventions, and supporting the gradual consolidation of institutional and community capacity. These efforts lay the groundwork for the progressive planning of social transition and closure in later phases of the Project, and for the long-term sustainability of community initiatives beyond the Project's operational life. This is consistent with good practice for long-life mining projects operating in remote and socio-environmentally sensitive areas.

21.8.4 Closure and Reclamation Plans

21.8.4.1 Introduction

Closure and reclamation planning for the Expansion has been carried out in accordance with applicable legislative requirements and recognized good practice. Provincial requirements for mine closure are defined under Decree No. 7751-DEyP-2023, which replaces Decree No. 5772/2010 and establishes updated provisions for environmental management, including closure planning, progressive rehabilitation, and associated financial assurance mechanisms.

As part of the EIA, a Conceptual Closure Plan has been developed and maintained to reflect the Project configuration and applicable regulatory requirements. This plan defines closure objectives, mitigation measures, and monitoring requirements to ensure that environmental and social considerations are addressed throughout the Expansion lifecycle.

Closure planning incorporates progressive rehabilitation principles; whereby feasible measures are implemented during the operational life of the Expansion to reduce long-term impacts. Site-specific evaluations and monitoring programs may be used to inform the effectiveness of rehabilitation strategies and support adaptive management approaches under the EMP.

All future EIA submissions and updates will be required to comply with the applicable regulatory framework established by Decree No. 7751-DEyP-2023.

21.8.4.2 Closure Objectives

Closure objectives for the Expansion include:

- Compliance with applicable regulatory requirements and approved closure criteria;
- Prevention, minimization, and mitigation of environmental impacts associated with closure activities;
- Achievement of stable and safe post-closure conditions that ensure environmental protection and public safety;
- Consideration of social aspects through stakeholder engagement and alignment with community expectations; and
- Implementation of rehabilitation measures appropriates to site conditions, including landform stabilization and management of project infrastructure.

Closure activities are expected to be aligned with the Project life cycle, including the implementation of progressive closure measures where feasible.

21.8.4.2.1 Financial Assurance

The regulatory framework established under Decree No. 7751-DEyP-2023 introduces requirements for financial assurance associated with closure and environmental liabilities. The Expansion will comply with these requirements, as defined through the Environmental Impact Assessment process and subsequent regulatory approvals.

21.8.4.2.2 Post-Closure Monitoring

Post-closure monitoring programs were defined as part of the Conceptual Closure Plan of the Expansion and include verification of environmental stability and effectiveness of rehabilitation measures. Monitoring duration and scope were established in accordance with regulatory requirements and site-specific conditions, ensuring that closure objectives are achieved prior to final relinquishment.

21.8.5 Effluent Generation

The following effluent streams were identified for the Expansion Project:

- Cleaning effluents and sewage liquids.
- Laboratory effluents.
- Effluents from resin regeneration for organics removal.
- Equipment and vehicle washing effluents.
- Liquid industrial waste / Residuals brines.

Each of these streams is described below:

21.8.5.1 Cleaning Effluents and Sewage Liquids

Sewage effluents are considered to originate from the domestic activities of the staff (sanitary, kitchens, laundry rooms). Liquids will be collected and sent for treatment to a centralized system.

In the Operation Stage, effluents will be treated at the sewage treatment plant, which will consist of a system of appropriate capacity for the maximum number of personnel who will reside in the camp during the operation stage.

They will be treated in an aerobic digestion reactor. The treatment procedure includes:

- Pumping raw liquid.
- Biological oxidation in aeration chamber.
- Secondary sedimentation.
- Aerobic sludge digestion.

To ensure aerobic digestion during the low temperatures, heaters are installed to ensure normal operation.

21.8.5.2 Laboratory Effluents

For the operation stage, it is planned to build a laboratory with equipment for routine brine control by ICP and atomic absorption, as well as analysis of sewage effluents and process waters.

The liquid waste to be generated shall be dilute solutions of glassware wash water to be treated in conjunction with sewage liquids.

Discarded analytical tests and solutions will be sent to neutralization tanks stored temporarily until they can be collected in tankers for final disposal according to requirements.

21.8.5.3 Effluents from Resin Regeneration for Organics Removal

The wastewater produced during resin regeneration in the process is sent to the biochemical wastewater treatment plant, where the organic matter in the solution is broken down.

The wastewater goes through several stages to make sure it is properly treated. It is then used as dilution water for the brine concentration ponds.

The main stages of the organics removal process are:

- Primary oxidation reaction (Fenton reaction).
- Secondary catalytic oxidation reaction.
- Neutralization with sodium hydroxide (NaOH).
- Primary and secondary sedimentation.
- Primary anaerobic treatment.
- Contact oxidation treatment.

21.8.5.4 Effluents from Truck Shop Washing Vehicles and Equipment

In the truck shop the washing operation will be carried out in a specially arranged area. The washing area will have a concrete pad to avoid contact of the washings with the ground, and to allow their separation and collection.

The vehicles wash area will be covered and thermally insulated. Washing is restricted to the bodies of vehicles and equipment and not to the engines with an estimated frequency of twice a week. As a part of this operation, a liquid residue containing suspended solids and oil residues will be generated.

It is important that effluents containing greases or oils are handled independently of domestic waters and that hydrocarbons are separated from the main stream, as both oils and grease can interfere with disposal systems or accumulate in unwanted areas.

The purpose of hydrocarbon separators is the separation of water from lighter substances that tend to float. The material collected on the surface of these tanks includes greases, oils, soaps, etc.

This separator tank shall consist of a reservoir where floating matter rises and remains on the surface of the water until it is collected, while the liquid will continuously exit from the bottom behind baffles.

Decanted solids shall be temporarily deposited in a drying area, to reduce the water content by evaporation and then tagged as hydrocarbon-contaminated waste.

Greases and oils recovered will be put in containers in the oil waste storage area for final disposal offsite.

The treated liquid from the decanter shall be sent to the waste liquid treatment system.

21.8.5.5 E-Liquid Industrial Waste/Residual Brines

The primary solutions to be sent to the industrial liquid waste ponds consist of dilute filtrates from the lithium carbonation stage and the various impurity removal stages. These solutions will be contained in industrial liquid waste ponds, from which they will be reused for reagent preparation or recirculated to other process stages.

21.8.6 Waste Management

21.8.6.1 Generation of Solid and Semi-solid Waste

During the project operating stage, a series of waste materials will be generated, which are then classified, according to their amounts and origin:

- Industrial Waste (RI):
  Waste from the industrial activity itself. Industrial waste can be hazardous or non-hazardous depending on its characteristics. They are sub-classified into:
  - RI not from production: waste that is not directly related to production, but to other general activities of operation of the site. Example: scrap, raw material packaging material, pallets, discard PPE, maintenance waste.
  - RI from production: waste that comes directly from production processes and activities of lithium production or reagent generation. Examples: calcium sulfate cakes, calcium and magnesium carbonates, etc.
  - Construction Debris: Construction debris will be temporarily stored in a designated area of the waste yard. It will be stockpiled neatly, away from drainage lines and low-lying areas, so surface water can keep flowing normally. All debris storage areas at the Exar Project will have signs showing the type of material stored there.

- Waste assimilated to urban or household waste (RD):
  Waste generated in general human activity, in camp and offices. They are sub-classified into:
  - Inorganic RD: recyclable plastics (packages, disposable bottles, bags); recyclable papers and recyclable cartons; non-recyclable plastics (polystyrene); non-recyclable papers and cartons (metallic, plasticized, etc.); and glass.
  - Organic RD: includes traces of solid and liquid meals.

  Daily waste production is estimated to be 0.7 kg/person/day in operation.

- Hazardous Waste (RP):
  Hazardous waste is residual materials that will not be used again on site. The hazardous waste generated by the Project is mainly used oils and lubricants, paint residues, solvents, hydrocarbon-contaminated material, among others. Hazardous waste generation is estimated to be less than 200 kilograms per month and shall be temporarily stored in the waste yard until its disposal by a company authorized for transfer, and treatment. The different areas of waste storage will have Olympic perimeter enclosure, signage with legends for the types of waste and waterproofing to avoid direct contact with the soil.

- Pathological waste:
  Organic fluids and solids of human and animal origin, which by their biological nature are considered dangerous. Medical services, clinical and research laboratories, etc. come. In legal terms they are by definition special hazardous waste.

21.9 CAPITAL AND OPERATING COSTS

The cost estimate for the Project is divided into Capital Expenditures (CAPEX) and Operational Expenditures (OPEX). Sustaining capital expenditures over the life of mine (LoM) are included in the cash flow. These will be discussed in the following sections. All estimated costs have been based on Argentinian and international prices for similar lithium Projects.

The CAPEX and OPEX are compliant with a Class 4 Estimate minimum (-15% to +25%), as defined in American Association of Cost Engineers (AACE) International Recommended Practice.

21.9.1 Capital Cost Estimate

Capital and Operating Cost estimates are based on the capacities stated in the previous sections of 45,000 tonnes per year as lithium carbonate for each phase of production. A simple breakdown structure was developed to facilitate cost allocation of the different elements of the Salar and the process facilities.

Civil, structural, piping and mechanical costs were partially derived from similar projects, and factored. Equipment and construction prices were obtained from in-house pricing for similar installations.

Capital Operating Cost estimates developed by WSP Golder are in conformance with the standards required by the Canadian Institute of Mining, Metallurgy and Petroleum unless specifically qualified in this report.

Project CAPEX is shown in Table 21.37 and Figure 21.28. These estimates incorporate direct and indirect costs for the implementation of the entire Project, including:

- Brine production well-field and pipeline delivery system.
- Evaporation ponds and liners.
- Solvent extraction plant.
- Purification plants.
- Lithium carbonate plant.
- General services.
- Infrastructure; and utilities.
- Indirect and Owner's Costs.

No provision has been included to offset future cost escalation since estimated expenses, as well as expected revenue, are expressed in constant dollars. The capital expenditure for the Cauchari-Olaroz Project, including equipment, materials, indirect costs, owner's costs and contingencies during the construction period, is estimated to be US$1,013,675,846.

These values exclude interest expense that might be capitalized during the same period but include the following:

- Direct Project Costs.
- Indirect Project Costs.
- Project Contingencies.
- Owner's Costs.
- Freight and Duties.
- VAT Taxes.

21.9.1.1 Basis of Estimate

The Basis of Estimate (BoE) is a description of how a cost estimate was obtained for each Work Breakdown Structure (WBS) element for which a cost is estimated.

The BoE is as follows:

- Product specifications are assumed: lithium carbonate battery grade.
- Process diagrams were prepared.
- The brine extraction method, using wells and based on modelling.
- Production schedules are estimated to form the basis of process facilities capacity, using process requirements.
- Factoring has been used derived from historical data or similar projects.

For calculation of Direct Cost, estimated percentages have been used for labour, materials and subcontracts that represent the installed costs for similar facilities. The Indirect Costs are factored as percentage (%) of Direct Cost to account for EPCM, Commissioning, Owner's Costs and other miscellaneous field costs.

- Unit costs were applied for evaporation ponds and wells accounting for costs in Argentina; Process plants costs were factored from the estimated CIF equipment cost for each process plant.
- A similar methodology was used for infrastructure items.
- Percentage factors are used for contractor's field overhead, construction plant, construction camp, contractor's profit, engineering and procurement and construction management.
- Engineering, project management, project controls, procurement and contracting, and site construction management (EPCM) labour costs have been developed from first principles based on the developed schedule and expected engineering deliverables.
- Owner's Costs were assumed at 4% of direct costs and include field staffing, travel, general expenses, basic office costs, and insurance. No allowance has been made for pre-production operating costs.
- Contingency refers to costs that will likely occur based on experience, but with some uncertainty in regard to precisely how and where it will be spent. Contingency, used as a percentage of total direct and indirect costs, was 15-25%.
- Mine closure costs assumed at 5% of capital investment.

21.9.1.2 Exclusions and Assumptions

The following items are specifically excluded from the estimate at this level of study:

- Allowances for special incentives (schedule, safety or others).
- Cost changes due to currency fluctuation and escalation.
- Force majeure issues.

- Finance charges and interest during construction.
- Sunk costs.
- Any future criteria or design changes occurring after the start of this study.
- Environmental mitigation costs.
- Delays and redesign work associated with any antiquities.
- All costs associated with weather delays including flooding or resulting construction labour stand-down costs.

The following assumptions underlie this estimate:

- Suitably qualified and experienced construction labour will be available at the time of execution of the project.
- No extremes in weather will be experienced during the construction phase and as such no allowances are included for flooding or construction-labour stand-down costs.
- No geotechnical design data was used due to insufficient information at the proposed Cauchari-Olaroz sites.

Engineering, project management, project controls, procurement and contracting, and site construction management (EPCM) labour costs have been developed from first principles based on expected engineering deliverables.

Engineering support labour costs for commissioning has been developed from first principles based on the developed schedule. Support from Cauchari-Olaroz operations and maintenance staff has been assumed.

Owner's Costs include field staffing, travel, general expenses, basic office costs, and insurance.

Contingency refers to costs that will probably occur based on experience, but with some uncertainty in regard to precisely how and where it will be spent. A cost contingency of 15 to 25% has been applied.

21.9.1.3 Sustaining Capital Costs

Exar Expansion project determined that the 40-year LOM sustaining capital requirement is approximately $378 million. This capital was based on a percentage of certain direct costs for the different areas of the project for all Phases of the project.

21.9.1.4 Brine Well Field

The cost of the brine field was estimated based on drilling, subcontract and materials similar to other salars in Argentina. Based on this relation, the total cost for the well field was estimated at $140 million for the project inclusive of indirect costs and 15% contingency.

21.9.1.5 Evaporation Ponds

The CAPEX for the evaporation ponds is shown in Table 21.37 for the project.

Table 21.37 Capital Estimate for Evaporation Ponds and Wells		
Wells, Pipelines and Ponds Capital Estimate		
Production wells	**$**	100,914,677
Ponds	**$**	209,803,882
Monitor Wells	**$**	3,274,500
Subtotal Direct Costs	**$**	**313,993,059**
Contractor Fees	$	15,699,653
Construction Camp	$	6,279,861
Start-up Assistance	$	6,279,861
Consumables	$	6,279,861
EPCM	$	17,583,611
Subtotal Indirects	$	**52,122,848**
Subtotals	$	**366,115,907**
Contingency	$	54,917,386
Totals	$	**421,033,293**
Owner's costs	$	12,559,722

21.9.1.6 Process Plants

The estimate for the processing plants, as shown in Table 21.38, is based on the process design and costs given by Exar. The tables below represent the cost for the Exar Expansion project.

The Cost for the Process Plants is estimated at **US$372,088,355** inclusive of indirect and 25% contingency but exclusive of operator's costs (US$9,865,544).

Table 21.38 Cost Summary of Process Plants						
SX and Raffinate Plants Capital				**Purification Plants Capital**		
Total Equipment Cost	**$**	**43,185,076**		**Equipment Cost**	**$**	**10,282,161**
Earthwork	$	10,796,269		Earthwork	$	2,570,540
Concrete	$	11,659,970		Concrete	$	2,776,183
Bldgs&Stru	$	17,274,030		Bldgs&Stru	$	4,112,864
Piping	$	18,137,732		Piping	$	4,318,508
Electrical	$	6,477,761		Electrical	$	1,542,324
Painting	$	1,295,552		Painting	$	308,465
Instr.&control	$	6,477,761		Instr.&control	$	1,542,324
Installation&assembly	$	15,114,776		Equipment setup & assembly	$	3,598,756
Total Directs	**$**	**130,418,928**		**Total Directs**	**$**	**31,052,126**
Field Exp	$	7,773,314		Field Exp	$	1,542,324

Table 21.38
Cost Summary of Process Plants

SX and Raffinate Plants Capital		
Constr. Supplies	$	5,182,209
Start up	$	2,159,254
Temp Facilities	$	2,591,105
Constr. Equipment	$	2,591,105
Craft Benefits	$	2,159,254
EPCM	$	7,643,758
Total Indirects	**$**	**30,099,998**
Directs + Indirects	**$**	**160,518,926**
Contingency	$	40,129,731
Total Factored Cost	**$**	**200,648,657**

Purification Plants Capital		
Constr. Supplies	$	1,233,859
Start up	$	514,108
Temp Facilities	$	616,930
Constr. Equipment	$	616,930
Craft Benefits	$	514,108
EPCM	$	1,804,519
Total Indirects	**$**	**6,842,778**
Directs + Indirects	**$**	**37,894,904**
Contingency	$	9,473,726
Total Cost	**$**	**47,368,630**

Aux. Plants Capital Totals		
Total Equipment Cost	**$**	**3,667,510**
Earthwork	$	916,878
Concrete	$	990,228
Bldgs&Stru	$	1,467,004
Piping	$	1,540,354
Electrical	$	550,127
Painting	$	110,025
Instr.&control	$	550,127
Installation&assembly	$	1,283,629
Total Directs	**$**	**11,075,880**
Field Exp	$	550,127
Constr. Supplies	$	110,025
Start up	$	183,376
Temp Facilities	$	117,360
Constr. Equipment	$	146,700
Craft Benefits	$	110,025
EPCM	$	614,675
Total Indirects	**$**	**1,832,288**
Directs + Indirects	**$**	**12,908,168**
Contingency	$	3,227,042
Total Factored Cost	**$**	**16,135,210**

LCE Plant Capital		
Equipment Cost	**$**	**24.533,665**
Earthwork	$	6,133,416
Concrete	$	6,624,089
Bldgs&Structures	$	9,813,466
Piping	$	10,304,139
Electrical	$	3,680,050
Painting	$	736,010
Instruments &control	$	3,680,050
Equipment setup & assembly	$	8,586,783
Total Directs	**$**	**74,091,667**
Field Exp	$	3,680,050
Constr. Supplies	$	736,010
Start up	$	1,226,683
Temp Facilities	$	785,077
Constr. Equipment	$	981,347
Craft Benefits	$	736,010
EPCM	$	4,111,842
Total Indirects	**$**	**12,257,019**
Directs + Indirects	**$**	**86,348,686**
Contingency (25%)	$	21,587,171
Total Cost	**$**	**107,935,857**

21.9.1.7 Infrastructure and Energy

Infrastructure and Energy costs were estimated based on different criteria, input from Lithea, internal estimating and quotations from vendors. These costs are included in Table 21.39 for other capital investments.

Table 21.39
Other Capital Investments

		Cost
Industrial Water Supply	$	20,433,100
Internal Roads	$	12,000,000
Transformers Salar	$	23,071,108
Workshop/truck shop	$	3,398,064
Warehouses	$	5,426,805
Office Building	$	2,880,000
Camp	$	15,966,667
Effluent Plant	$	1,348,037
Waste Yard	$	1,900,000
Subtotal	**$**	**86,423,781**
Contingency	$	12,963,567
Total Infrastructure	$	**99,387,348**
Power Lines	$	22,831,428
Fuel Plant	$	797,524
Emergency Generation	$	23,477,027
Gas pipeline	$	13,320,000
Subtotal	**$**	**60,425,979**
Contingency	$	9,063,897
Direct cost	$	44,110,965
Indirect cost	$	16,315,014
Total Energy	$	**69,489,876**
All Totals	$	**168,877,224**
Owner's cost	$	5,873,990

21.9.1.8 Salts Stockpile Area

A CAPEX costing methodology based on a unit cost of storage area is applied to the Salts stockpile area, as shown in Table 21.40. Site levelling preparation, liner installation and a perimeter protective berm is included in the estimate. The Salts stockpile area cost for the salts at the different phases of production is estimated for the first five (5) years of operation. The remaining 35 years of operation will require construction of additional storage every five years. The cost of expansion of the Salts stockpile area after the first five years is included into the Cash Flow as sustaining capital.

Table 21.40 CAPEX for The Salts Stockpile Area and Process Waste					
Capital Cost Summary Salts Stockpile Area and Process Waste					
	5-Year Capex				
Direct Costs	**Earthwork Quantity (m^3)**	**Liners Quantity (m^2)**	**Labor Cost**	**Material Cost**	**Totals**
Salts Stockpile Area	1,564,609	0	$ 14,081,485		$ 14,081,485
$Ca_2B_2O_5$ Deposit	257,180	113,414	$ 1,614,208	$ 567,068	$ 2,181,276
Total Direct Costs	**1,911,280**	**113,414**	**$ 15,796,711**	**$ 567,068**	**$ 16,262,761**
Indirect Costs					$ 2,439,414
Directs + Indirect					$ 18,702,175
Contigency					$ 4,675,544
Total Capex					**$ 23,377,718**

The 5-year Cost for the Salts Stockpile Area and process waste is estimated at **US$23,377,718**.

21.9.1.9 Sustaining Capital

Sustaining capital expenditures (S-CAPEX) are investments for replacement of large equipment not covered by maintenance costs required to keep all equipment for the operation in good shape (e.g. replacement of a main pipeline section on the brine field). The estimate is based on an estimation of the averaged aggressiveness of the environment and the expected lifetime of main equipment.

Sustaining CAPEX is estimated as a percentage of the direct CAPEX. At the process plants and on-site supporting facilities, the S-CAPEX is taken as 1.5%. For the brine field the S-CAPEX is taken as 2.5%. For evaporation ponds, the S-CAPEX is taken at 1.0%.

The five (5) year Salts Stockpile Area expansion costs are estimated based on the annual tonnage of waste to be deposited to the Salts Stockpile Area facilities. The initial CAPEX covers the Salts Stockpile Area for the first five (5) years of operation. Following the first five (5) years, an expansion of Salts Stockpile Area will be required at each subsequent five (5) years. The sustained capital costs are allocated to these years of operation.

Table 21.41 Sustaining CAPEX 45,000 tpa LCE			
Sustaining CAPEX 45k			
Items	**%**	**Direct CAPEX**	**Total**
Brine Field	2.5%	$ 104,189,177	$ 2,604,729
Evaporation Ponds	1.0%	$ 209,803,882	$ 2,098,039
Process Plants	1.5%	$ 235,562,721	$ 3,533,441
On-site Infrastructure	1.5%	$ 63,089,360	$ 946,340

Table 21.41 Sustaining CAPEX 45,000 tpa LCE			
Sustaining CAPEX 45k			
Items	**%**	**Direct CAPEX**	**Total**
Salt Stockpile Area (Included in DCF)	-	$ 16,262,761	$ 16,262,761
Energy Infrastructure	3.0%	$ 44,110,965	$ 1,323,329
			$ 26,768,639
		Total	**$ 10,505,878**

21.9.1.10 Owner's and Indirect Costs

Indirect Costs are estimated at percentages of Direct Costs for each of the areas according to standard estimating practices. These costs are listed in the various tables presented above and include Owner's costs at 4% of directs.

21.9.1.11 Engineering, Procurement and Construction Services

The EPCM services are estimated at a percentage of Direct costs.

21.9.1.12 Contingency

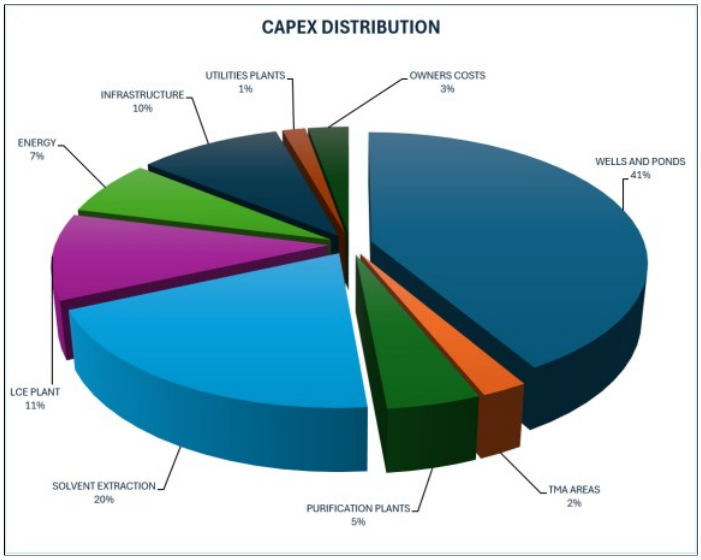
A contingency of 15 to 25% was applied across the project. This level of contingency allowance is in line for an AACE Class 4 estimate, where typical method of factored capacity, parametric model, judgment or analogy are used.

21.9.1.13 CAPEX Summary

The CAPEX summary for the 45,000 tpa LCE of production is presented in Table 21.42.

Table 21.42 Capital Cost Summary		
CAPEX for 45,000 tpa Total Installed		
Cost Area	**Total Installed Cost**	
General Project		
Wells and Ponds		$ 421,033,293
Salt Stockpile Areas	Initial	$ 23,377,718
Purification Plants		$ 47,368,630
Solvent Extraction		$ 200,648,657
Lce Plant		$ 107,935,857
Energy		$ 69,489,876
Infrastructure		$ 99,387,348
Utilities Plants		$ 16,135,210
Owner's Costs		$ 28,299,257
Total Capital Expenditures	USD	**$ 1,013,675,846**

Figure 21.28 Capital Cost Distribution for Stage II Expansion



21.9.2 Operating Costs Estimate

21.9.2.1 Basis of Estimate

The operating cost estimate uses prices obtained from Exar and is considered to have an accuracy of ±15%. The estimate includes all site-related operating costs associated with the production of high purity lithium carbonate. The operating costs were developed by WSP Golder in conjunction with Exar.

Table 21.47 summarizes the overall operating costs assuming a steady state operation. Costs increase in year to year due to the reduction in lithium feed grade resulting in less lithium production are not included. Note that the operating cost is based upon a steady-state operation and an estimated average brine grade for the 40 years operation (hence, excludes ramp up).

Exclusions

- Exploration costs.
- All withholding taxes and other taxes.
- All sunk costs.
- Any impact of foreign exchange rate fluctuations.
- Any escalation from the date of the estimate.
- Any contingency allowance.
- Any land compensation costs.
- Any rehabilitation or closure costs.
- Any license fees or royalties, government permits, legal fees, insurances.
- Government monitoring/compliance costs.
- Business interruption.
- Project finance costs.
- Interest charges.
- Corporate overheads.
- Political risk insurance.
- Maintenance cost of hauls and plant access roads.
- Union fees.
- Contract labour.

Estimate Basis

- All costs are as of Q2 2026.
- Accuracy: ±15%.
- Consumables costs have been based on data from Exar database.
- Reagent consumption rates are based on the mass balance average consumption.
- Reagent costs have been supplied by Exar.
- Average throughput, availability, grades based on Process Design Criteria and mass balance by Ganfeng and Exar.

- Power unit costs based on Exar supplied rates.
- Maintenance costs have been factored on the capital cost estimate using similar sized plants, using factors from the WSP Golder's database.
- Labour unit costs have been advised by Exar.

The operating expenditures (OPEX) have been calculated based on the following breakdown:

- Manpower.
- Electric power.
- Reagents.
- Consumables & miscellaneous.
- Camp operation & personnel transport.
- Product transportation.

21.9.2.2 Manpower

Manpower costs were supplied by Exar and reviewed by WSP Golder.

The annual costs for personnel have been estimated for the various parts of the plant based on the required personnel for each area, taking into account a two or three-shift system required for the different unit operations.

The manpower requirement listed in the tables below include management and administration.

Table 21.43
Personnel and Cost

Labour Type	Totals
Management	35
Operations	233
Maintenance	56
Services	140
Total	465
Total Cost	**$27,420,000**

During engineering, construction, start-up and acceleration of the operations, increased personnel will be required. This additional personnel are not included in the direct operating cost since it part of other allocated costs such as capitalized indirect.

21.9.2.3 General and Admin Costs

General and administrative cost cover items such as software licenses, training, consultants, legal permits, insurance, community support, communications etc.

21.9.2.4 Electric Power

Energy will be a mix of electric power and natural gas for steam generation; photovoltaic will be used for back up and emergency. The unit costs used for natural gas and for grid was supplied by Exar.

The electrical power consumption summary is given in Table 21.44.

Table 21.44
Electricity Consumption

Project Area	Power Consumption (kW) at 45,000 tpa Productions		
	Load kW	Operating	kWh/year
Brine Well Field	5,250	80%	45,990,000
Ponds	9,000	100%	78,840,000
SX	6,710	78%	48,308,400
Primary Purification	771	90%	5,553,360
Raffinate Treatment	464	55%	3,337,200
Raff Water Treat	189	89%	1,360,800
Ancillary Facilities (Camp, Offices, Sewage Treatment, Water Treatment)	1,222	100%	8,028,540
Second Purification	626	63%	4,510,080
LCE Process Plant	7,344	96%	52,874,370
Utilities	2,421	100%	17,431,200
Operating Power Demand	**33,996**	**31,157**	**266,233,950**

21.9.2.5 Reagents, Fuel and Consumables

Items under this budget line include reagents and other additions that are required for brine concentration and in the production process of Lithium carbonate.

Regents required for production include Lime, hydrogen peroxide, Sodium Hydroxide, Hydrochloric acid and sodium carbonate. The cost summary is given in Table 21.45.

Table 21.45 Reagents Cost Summary			
	Unit Cost ($)	**tpa**	**Total Cost**
NaOH (100%)	857	19,590	$ 16,788,524
Lime	315	9,590	$ 3,020,976
H_2SO_4	484	576	$ 278,784
HCl 32%	330	50,366	$ 16,620,886
Sodium Carbonate	477	81,709	$ 38,975,313
Extractant	3,461	11	$ 39,710
Other Chemicals		Various	$ 2,326,303
Total Reagents Cost			**$ 76,111,020**

21.9.2.6 Ponds Harvesting and Salts Stockpile Area

Additional costs occur, which apply to the evaporation ponds harvesting and operations of the Salts stockpile area. These costs are based on cost of the equipment and manpower required to harvest, store and load-out the salts from the evaporation ponds and the equipment to operate the Salts stockpile area. An annual cost of about **$35 million** was calculated based on the total combined estimated salts produced from pre-concentration for the production case.

21.9.2.7 Water

The estimated cost of process and domestic water is based on the supply of water from an on-site desalination plant, which processes the brackish water from local springs. These costs are included in the equipment used and their operating personnel. Table 21.46 shows the water consumption.

Table 21.46 Water Use		
Water Consumption 45,000 tpa		
Description	**Usage m^3/day**	**Water Usage tpa**
Process plants	4,249	1,274,632
General services	1367	498,984
Potable water	92	33,682
Evaporation ponds	1348	492,093
Total Water	**7,056**	**2,299,391**

21.9.2.8 Camp

Camp operation is estimated at on the "all-inclusive" charges by contracted camp operator for room and board per person based on a monthly cost per person staying in the camp from other projects data. Costs of camp construction are included in CAPEX.

The estimated annual cost of camp operation is based on an average 12-month cost of **US$13,161,000** inclusive of the following services:

- food, cleaning, maintenance.
- Disinfection.
- Transportation.

21.9.2.9 Product Transportation

The products transportation cost estimate is based on the following:

- Lithium products will be delivered to destination (FOB) via the port of Antofagasta. Products will be packed according to its UN numbers.
- Salar sites Site to Plant site.

The estimated annual cost of transportation of Lithium products to market has been included in this report based on other projects data.

21.9.2.10 Other Costs (General and Maintenance Supplies)

Other costs included in the OPEX were estimated as a percentage of the overall cost or given by Exar. These costs include:

- General Supplies.
- Maintenance materials.
- Catering Costs.
- Security, cleaning service etc. included in G&A's.

21.9.2.11 OPEX Summary

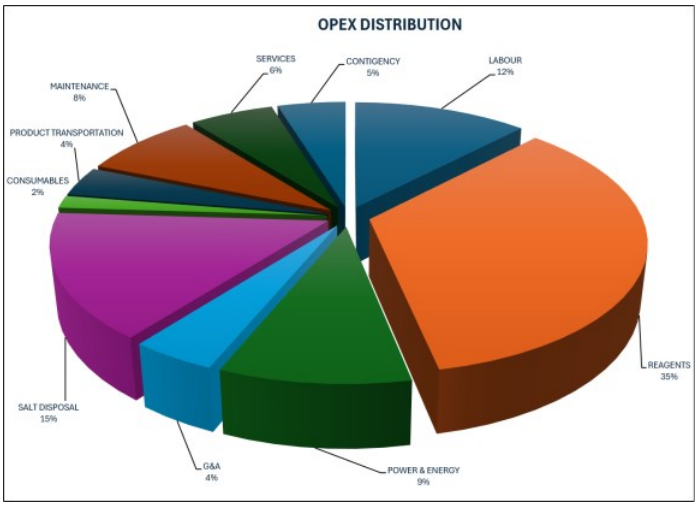
Annual operating cost summaries for the Exar Expansion project are given in Table 21.47 and Figure 21.29.

Table 21.47
Annual Operating Cost Summary

Operating Cost	
Production tpa LCE	45,000
	$/Year
Labour	$ 27,420,000
Reagents	$ 78,050,496
Power & Energy	$ 21,248,125
G&A	$ 9,585,000
Salts Disposal	$ 34,902,653
Consumables	$ 3,510,000

Table 21.47 Annual Operating Cost Summary	
Operating Cost	
Product Transportation	$ 8,325,000
Maintenance	$ 18,360,000
Services	$ 13,161,600
Contingency	$ 10,728,144
Total Annual Costs	**$ 225,291,018**
Cost/t LCE	**$ 5.006**

Figure 21.29 OPEX Distribution for Stage II Expansion



A total production cost of **US$5,006/ton** LCE is estimated after the operation is in full production. A VAT has been included in the cost of reagents, and consumables.

21.10 ECONOMIC ANALYSIS

Discounted Cash Flow (DCF) analysis was based upon scheduling of the currently available Measured and Indicated (M+I) Resources with the assumptions that 18% of M+I Resources is pumpable as brine feed to the evaporation ponds and an overall lithium recovery efficiency of 75%.

21.10.1 Main Assumptions

A financial analysis of the project was carried out using a discounted cash flow (DCF) approach. This method of valuation requires projecting yearly cash inflows, or revenues, and subtracting yearly cash outflows, such as operating costs, capital costs, and taxes. The resulting net annual cash flows are discounted back to the date of valuation and totalled to determine the NPV of the project at selected discount rates.

The analysis was prepared using an economic model and assesses both before-tax and after-tax cash flow scenarios. Capital (CAPEX) and Operational (OPEX) Expenditures presented in previous sections have been used in this analysis. Prices for Lithium carbonate and hydroxide was given by GANFENG. The results include Net Present Values (NPV) for 8% discount rate, Internal Rate of Return (IRR) and sensitivity analysis of key inputs.

The economic analysis presented in this section reflects solely the 45,000 tpa SX development case and does not incorporate the potential initial adsorption-based DLE module, its associated capital or operating costs, or any alternative phased development sequence.

Cautionary Statement

The results of the economic analysis represent forward-looking information that are subject to a number of known and unknown risks, uncertainties, and other factors that may cause actual results to differ materially from those presented here. Forward-looking information includes Mineral Resource estimates; commodity prices; the production plan; projected recovery rates; use of a process method, infrastructure construction costs and schedule; and assumptions that project environmental approval and permitting.

21.10.2 Evaluation Criteria

The following criteria have been used to develop the economic model:

- **Project life:** engineering and construction and life of mine is estimated to be 40 years.
- Pricing for Lithium carbonate of US$18,000 per ton was approved by Exar.
- Final Production for Lithium carbonate is 45,000 tpa LCE, assuming a ramp up rate of 50% for the first year of operation, 75% for the second year, and full production at third year.
- The Discounted Cash Flow (DCF) economic evaluation was carried out on a constant money basis so there is no provision for escalation or inflation on costs or revenue.
- **Equity basis:** for Project DCF evaluation purposes, it has been assumed that 100% of capital expenditures, including pre-production expenses, are financed with owner's equity.
- Pre-construction expenses are treated as sunk costs and not included into DCF analysis.

- The key inputs to the economic analysis are shown in Table 21.48.
- Duties and VAT included.
- Royalties to third parties not included.
- Lithium grades and recoveries constant for 40 years, no dilution was applied.

Table 21.48
The Key Inputs to Economic Analysis

Overview	Units	Base Case
LCE Production	tpa	45,000
Mine Life	years	40
Capital Cost (CAPEX)	US$	1,013,675,846
Operating Cost (OPEX)	US$	225,291,018
Operating Cost (OPEX)	US$/t LCE	5,006
Average Selling Price LCE	US$	18,000
Annual Revenue	US$	810,000,000
Discount Rate	%	8
Net Present Value (NPV) Pre-Tax	US$ million	4,182
Internal Rate of Return (IRR) Pre-Tax	%	33%
Net Present Value (NPV) Post-Tax	US$ million	3,064
Internal Rate of Return (IRR) Post-Tax	%	28.5%

21.10.3 Tax

The following taxes and royalties have been applied to the economic analysis of the Project.

21.10.3.1 Provincial Royalty

Argentinian provinces can charge up to 3% of the value of the mineral "mine of mouth" according to the Federal Mining Legislation in place (Act. N° 24196). A rate of 3% of sales is applied to the DCF model.

21.10.3.2 Export Refund

No export refund is applied for this evaluation.

21.10.3.3 Tax on Debits and Credits Accounts

In Argentina, the tax on debits and credits on bank accounts considers 0.6% on debits, plus another 0.6% on credits. A company is permitted to book 34% of the tax paid on credit accounts as a credit for income tax; thus, the net effective rate on both debit and credit accounts is approximately 0.996%. Due to the insignificant value, this item in not included in the DCF economic model.

21.10.3.4 Aboriginal Programs

The economic model has accounted for anticipated development contributions to local aboriginal groups. The cost of engagement in community programs is included in the Owner's Costs.

21.10.3.5 Capital Allowance

Investments are eligible for an accelerated amortization incentive, which includes the following:

- 60% of the total amount of the infrastructure cost can be depreciated in the 1st year fiscal year of operation;
- 40% can be depreciated in equal portions in two subsequent years; and
- investment made in machinery, equipment, vehicles and facilities can be depreciated over three years from the start of operation.

Nevertheless, the economic model includes RIGI depreciation scheme which allows the investments amortization to be accelerated to 60% of the time it would take the standard amortization of the asset.

Provision for an accelerated depreciation of equipment assets is in the first two (2) years of operation and infrastructure in the first six (6) years of the operation is included in the DCF.

21.10.3.6 Corporate Taxes and VAT

Corporate tax rate is 25% with RIGI and was used in the DCF. VAT Opex rebates are included in the model.

21.10.4 Capital Expenditures

The economic model assumes that all capital investment will occur before start of each production phase. However, the actual Spend Schedule may be done in according to the following table (Table 21.49) depending on the schedule envisioned.

Table 21.49
Capital Expenditures Spend Schedule

Area	Y-2	Y-1	Y0	Total $
Wells and Ponds	$ 84,206,659	$ 231,568,311	$ 105,258,323	$ 421,033,293
Process Plants	$ 52,830,500	$ 145,283,874	$ 66,038,124	$ 264,152,498
LCE Plant	$ 21,587,171	$ 59,364,721	$ 26,983,964	$ 107,935,857
Infrastructure and POWER	$ 33,775,445	$ 92,882,473	$ 42,219,306	$ 168,877,224
Owner's Costs	$ 5,659,851	$ 15,564,591	$ 7,074,814	$ 28,299,257
VAT	$ 11,606,340	$ 31,917,435	$ 14,507,925	$ 58,031,699
Factors	20%	55%	25%	-

Table 21.49 Capital Expenditures Spend Schedule				
Area	**Y-2**	**Y-1**	**Y0**	**Total $**
Salts Stockpile Area (in DCF)				$ 23,377,718
Total	**$ 198,059,626**	**$ 544,663,970**	**$ 247,574,532**	**$ 1,013,675,846**

21.10.5 Operating Costs

Operating cost assumptions are covered in Section 21.9.2. For the financial model, yearly constant operating costs are assumed for the life of mine without regard to potential fluctuations in lithium grades, brine flowrate and recoveries that could change over time and that will impact the operating cost.

21.10.6 Production Revenues

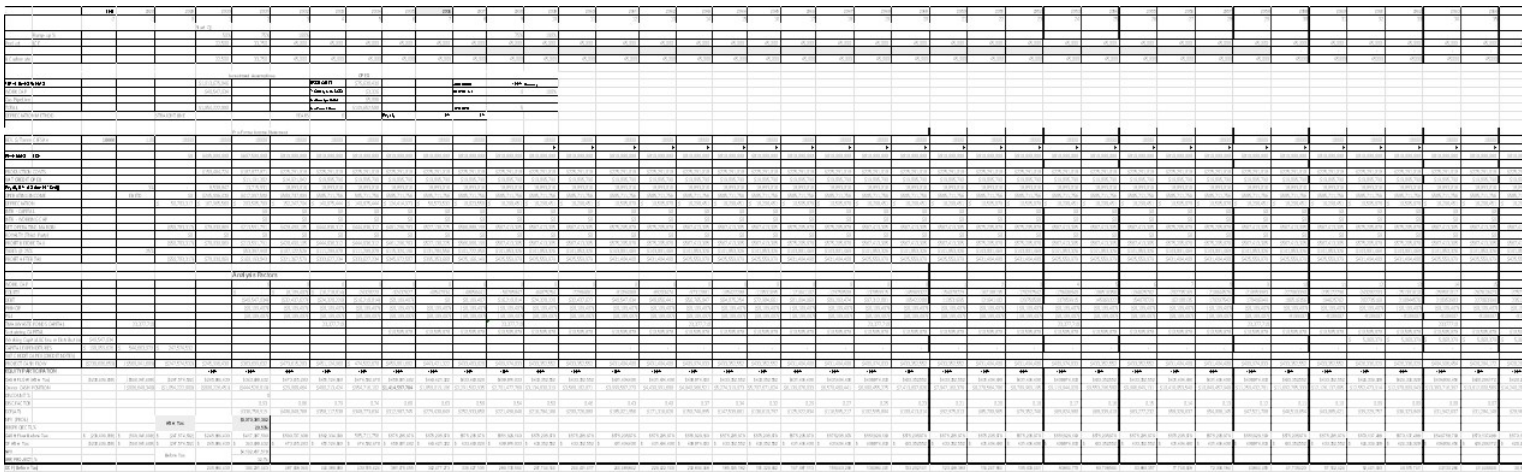
Production revenues have been estimated based on a single price scenario for Lithium carbonate equivalent of US$18,000/ton irrespective of the actual lithium compound sold.

No attempt has been made to project product pricing beyond the first year. The same gross revenue per year (at design production) has been used for the duration of the project.

21.10.7 Cash Flow Projection

Table 21.50 summarizes the Discounted Cash Flow (DCF) for the assumed Base Case price and production level scenario.

Table 21.50
Discounted Cash Flow Summary



21.10.8 Economic Evaluation Results

The project is currently estimated to have a payback period of six years. The economic analysis with the RIGI incentives indicates an after-tax Net Present Value (NPV), discounted at 8%, of approximately US$3.064 Billion with an Internal Rate of Return (IRR) of approximately 28.5%.

The Project economics, resulting from the assumed price scenario used in the economic model, are presented in Table 21.51.

Table 21.51
Economic Evaluation - Case 1 (Base Case Summary)

Overview	Units	Base Case (with RIGI)
LCE Production	tpa	45,000
Mine Life	years	40
Capital Cost (CAPEX)	US$	1,013,675,846
Operating Cost (OPEX)	US$	225,291,018
Operating Cost (OPEX)	US$/t LCE	5,006
Average Selling Price LCE	US$	18,000
Annual Revenue	US$	810,000,000
Discount Rate	%	8
Net Present Value (NPV) Pre-Tax	US$ million	4,182
Internal Rate of Return (IRR) Pre-Tax	%	33%
Net Present Value (NPV) Post-Tax	US$ million	3,064
Internal Rate of Return (IRR) Post-Tax	%	28.5%

The application of RIGI results in a US$0.4 billion increase of NPV, compared with the case without RIGI, and an IRR improvement of 2%.

21.10.9 Payback Analysis

The project is currently estimated to have a payback period of three years since production starts (or five years since investment starts).

21.10.10 Sensitivity Analysis

A sensitivity analysis was conducted to illustrate the impact of changes in key variables on the Project's NPV and IRR (Table 21.52).

Sensitivity of NPV, IRR to OPEX increase and decrease from the Base Case (with RIGI) is shown in Table 21.53.

Table 21.52 Sensitivity Analysis			
	CapexNPV*1000	**OpexNPV**	**PriceNPV**
-20.00	3272	3366	2008
-15.00	3221	3290	2272
0.00	3064	3064	3064
15.00	2898	2838	3856
20.00	2839	2763	4120
	CapexIRR	**OpexIRR**	**PriceIRR**
-20.00	33,60	30,05	22,67
-15.00	32,14	29,66	24,19
0.00	28,46	28,46	28,46
15.00	25,54	27,24	32,36
20.00	24,69	26,83	33,59

Project economics IRR results are most sensitive to variability in product pricing. The Project is shown to be less sensitive to capital expenditures than to total operating cost when measuring IRR and NPV.

After-Tax sensitivity of NPV and IRR to variations in CAPEX, OPEX and Price is shown on Figure 21.30 and Figure 21.31.

Figure 21.30 After-Tax NPV Sensitivity to CAPEX, OPEX and Price Variation

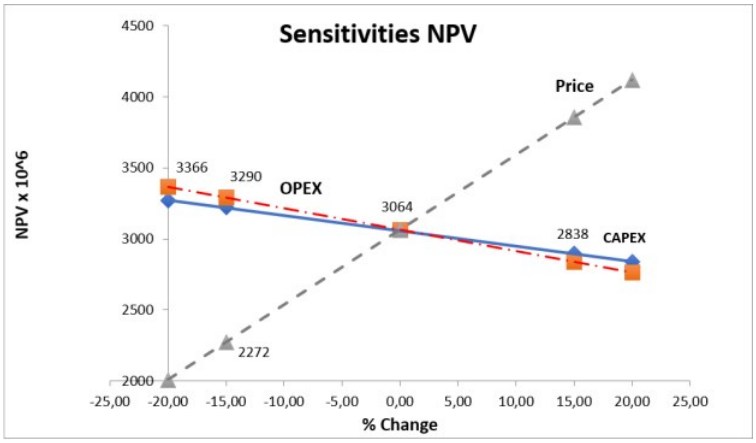


FIGURE 21.31 AFTER-TAX IRR SENSITIVITY TO CAPEX, OPEX AND PRICE VARIATION

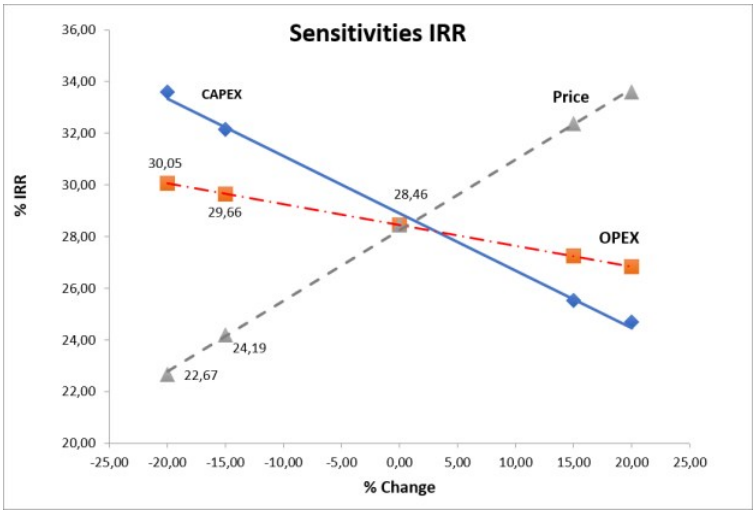


TABLE 21.53
DISCOUNT RATE VARIATION

Overview	Unit	Case 1 (Base Case)	Case 2	Case 3
Production (LCE)	tpa	**45,000**	**45,000**	**45,000**
Capital Cost (CAPEX)	US$	$1,013,675,846	$1,013,675,846	$1,013,675,846
Operating Cost (OPEX)	US$	$225,291,018	$225,291,018	$225,291,018
Average Selling Price LCE	US$	18,000	18,000	18,000
Discount Rate %	%	8	6	10
Net Present Value (NPV) Post-Tax M$	US$ M	$3,064	$4,399	$2,185
Internal Rate of Return (IRR) Post-Tax	%	28%	28%	28%

21.10.11 Discussion and Conclusions

Project economics resulting from assumed price scenario used in the economic model are presented in Table 21.51. A sensitivity analysis was conducted to illustrate the impact of changes in key variables on the Project's NPV and IRR (Table 21.52).

CAPEX: Capital investment for the 45,000 tpa LCE Project, including equipment, materials, indirect costs and contingencies during the construction period is estimated to be ~US$1 billion. This total excludes interest expense that might be capitalized during the same period but includes owner's cost.

Main CAPEX components are wells and pond construction and the Process plants, representing about 40% of total Project capital expenditures. Pond investment is driven by two variables, namely, evaporation rate, and pond construction unit cost.

OPEX: The operating cost for the 45,000 tpa Project is estimated at US$225 M annually after full production. This figure includes ponds and plants, chemicals, energy, labour, salt waste removal, maintenance, camp services, and transportation.

Sensitivity Analysis: Sensitivity analysis indicates that the Project is very profitable.
Project strengths are as follows:

- Simple and proven evaporative process.

The following Project weaknesses are also identified:

- The Project location presents certain challenges. As with most salars, the Project is located above 3,800 masl. This elevation can be difficult for some workers. Location disadvantages have been partially addressed by moving some of the operating facilities to a lower altitude.
- Difficulty for owner's to construct the Project in a timely fashion.

21.11 OTHER RELEVANT INFORMATION

21.11.1 Project Schedule

A Level 3 Project Schedule has been prepared considering main project activities (Figure 21.32), starting with the Kick off DESIGN Work Plan and continuing through to the production ramp-up to 45,000 tonnes/year.

The schedule and the project management plans will be developed together, for the next phase of the Project. Exar and its engineering consultants have developed the historical information utilized to determine the timeline for this schedule. The activities included in the schedule assume multiple tasks could be conducted in parallel.

The schedule considers the following: government timelines and requirements, availability of key resources, project management information systems, software requirements and development plans. It follows Argentinean regulations and includes consideration of productivity factors, weather conditions, seasons, etc. The schedule assumes that sufficient workforce and equipment are available to accomplish the activities as scheduled.

During 2026 and 2028 the following activities will be developed:

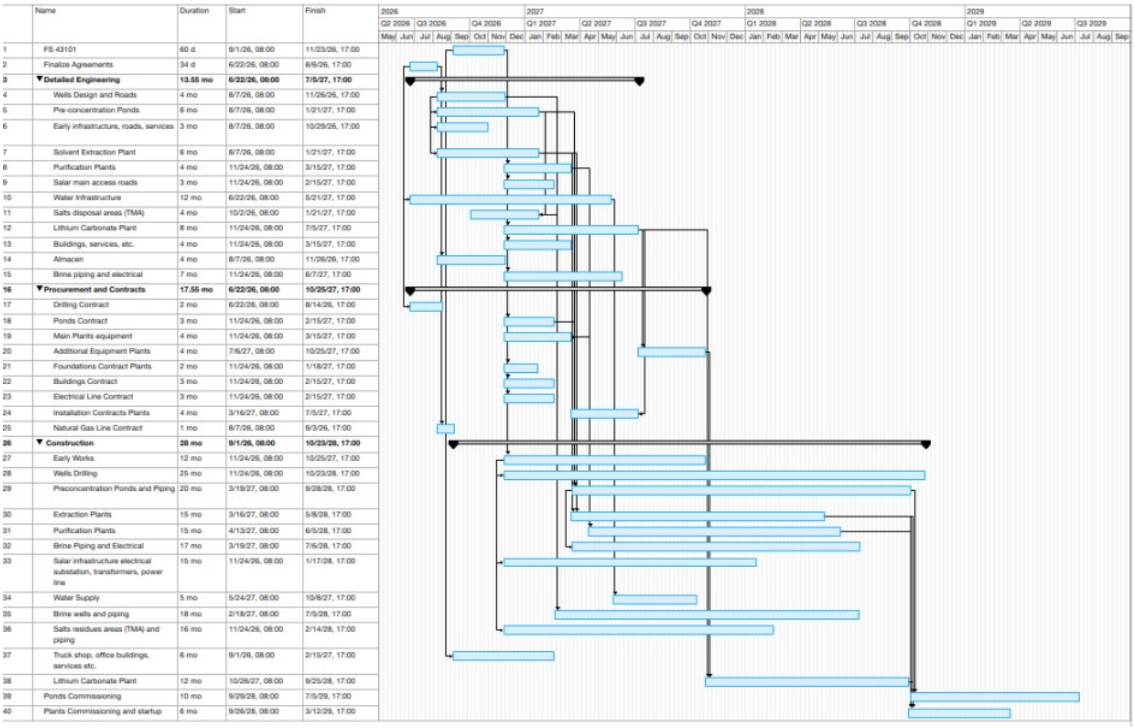
- Start the project implementation phase with the detailed engineering.
- Definition and acquisition of construction and installation contracts.
- Equipment and materials major acquisition.
- Complete Camp construction.
- Beginning construction phase of the preconcentration and concentration ponds, processing plant and facilities.

In 2027, the following activities will be developed:

- Completion of well construction.
- Preconcentration ponds construction.
- Plants Construction.

The Project schedule presented in Figure 21.32 reflects the 45,000 tpa SX development case evaluated in this Scoping Study. Exar is also evaluating a phased development approach utilizing modular adsorption-based DLE technology, which could allow an initial approximately 10,000 tpa portion of the planned Stage 2 capacity to be advanced ahead of the full expansion. Any such alternative development sequence is subject to further engineering, permitting and other project requirements and is not reflected in the Project schedule or economic analysis presented herein.

FIGURE 21.32 PROJECT SCHEDULE



	Name	Duration	Start	Finish
1	FS 43101	60 d	9/1/26, 08:00	11/23/26, 17:00
2	Finalize Agreements	34 d	6/22/26, 08:00	8/6/26, 17:00
3	**Detailed Engineering**	**13.55 mo**	**6/22/26, 08:00**	**7/5/27, 17:00**
4	Wells Design and Roads	4 mo	8/7/26, 08:00	11/26/26, 17:00
5	Pre-concentration Ponds	6 mo	8/7/26, 08:00	1/21/27, 17:00
6	Early infrastructure, roads, services	3 mo	8/7/26, 08:00	10/29/26, 17:00
7	Solvent Extraction Plant	6 mo	8/7/26, 08:00	1/21/27, 17:00
8	Purification Plants	4 mo	11/24/26, 08:00	3/15/27, 17:00
9	Salar main access roads	3 mo	11/24/26, 08:00	2/15/27, 17:00
10	Water Infrastructure	12 mo	6/22/26, 08:00	5/21/27, 17:00
11	Salts disposal areas (TMA)	4 mo	10/2/26, 08:00	1/21/27, 17:00
12	Lithium Carbonate Plant	8 mo	11/24/26, 08:00	7/5/27, 17:00
13	Buildings, services, etc.	4 mo	11/24/26, 08:00	3/15/27, 17:00
14	Almacen	4 mo	8/7/26, 08:00	11/26/26, 17:00
15	Brine piping and electrical	7 mo	11/24/26, 08:00	6/7/27, 17:00
16	**Procurement and Contracts**	**17.55 mo**	**6/22/26, 08:00**	**10/25/27, 17:00**
17	Drilling Contract	2 mo	6/22/26, 08:00	8/14/26, 17:00
18	Ponds Contract	3 mo	11/24/26, 08:00	2/15/27, 17:00
19	Main Plants equipment	4 mo	11/24/26, 08:00	3/15/27, 17:00
20	Additional Equipment Plants	4 mo	7/6/27, 08:00	10/25/27, 17:00
21	Foundations Contract Plants	2 mo	11/24/26, 08:00	1/18/27, 17:00
22	Buildings Contract	3 mo	11/24/26, 08:00	2/15/27, 17:00
23	Electrical Line Contract	3 mo	11/24/26, 08:00	2/15/27, 17:00
24	Installation Contracts Plants	4 mo	3/16/27, 08:00	7/5/27, 17:00
25	Natural Gas Line Contract	1 mo	8/7/26, 08:00	9/3/26, 17:00
26	**Construction**	**28 mo**	**9/1/26, 08:00**	**10/23/28, 17:00**
27	Early Works	12 mo	11/24/26, 08:00	10/25/27, 17:00
28	Wells Drilling	25 mo	11/24/26, 08:00	10/23/28, 17:00
29	Preconcentration Ponds and Piping	20 mo	3/19/27, 08:00	9/28/28, 17:00
30	Extraction Plants	15 mo	3/16/27, 08:00	5/8/28, 17:00
31	Purification Plants	15 mo	4/13/27, 08:00	6/5/28, 17:00
32	Brine Piping and Electrical	17 mo	3/19/27, 08:00	7/6/28, 17:00
33	Salar infrastructure electrical substation, transformers, power line	15 mo	11/24/26, 08:00	1/17/28, 17:00
34	Water Supply	5 mo	5/24/27, 08:00	10/8/27, 17:00
35	Brine wells and piping	18 mo	2/18/27, 08:00	7/5/28, 17:00
36	Salts residues areas (TMA) and piping	16 mo	11/24/26, 08:00	2/14/28, 17:00
37	Truck shop, office buildings, services etc.	6 mo	9/1/26, 08:00	2/15/27, 17:00
38	Lithium Carbonate Plant	12 mo	10/26/27, 08:00	9/25/28, 17:00
39	Ponds Commissioning	10 mo	9/29/28, 08:00	7/5/29, 17:00
40	Plants Commissioning and startup	6 mo	9/26/28, 08:00	3/12/29, 17:00

21.12 CONCLUSION AND RECOMMENDATIONS

21.12.1 Mining (Well field)

TheExpansion project will have the capacity to produce 45,000 tpa LCE for a nominal life of 40 years.

WSP Golder is comfortable with using 35% to 40% of Measured and Indicated (M+I) Resources for production planning. It is common to apply 35% of aquifer efficiency factor to measured and indicated resources to estimate pumpable resources for mine life planning in the lithium brine industry. The predictive groundwater flow and transport model simulations carried out for Cauchari-Olaroz support that the application of the 35% efficiency factor is reasonable.

It shows that 18% of Measured and Indicated (M+I) Resources will need to be extracted to meet the production schedule for Stages 1 and 2 (expansion) combined. It is the QP's opinion that the production rates and mine life are reasonable and conservative from the extractable resources perspectives.

The mining method will consist of pumping brine from wells drilled within the salar (salt flat), with the depth of each well depending on the depth of the aquifers. A submersible electric pump will be installed in each well to transport the brine through a network of pipelines (brine pipelines) to an intermediate storage station, and from there to the solar evaporation ponds.

The brine extraction well fields will be accessible by interconnected roads. A total of 56 brine production wells is planned. The brine production wells will have a 12-inch diameter stainless steel production casing and be equipped with 380V submersible pumping equipment.

21.12.2 Process Information and Design

Lithium recovery is based on a direct extraction process using brine pre-concentration followed by solvent extraction.

The process flow activities include extraction of brine from production wells, pre-concentration of the brine in solar ponds, solvent extraction of the pre-concentration brine, raffinate treatment, primary purification, secondary purification, calcium and boron polishing with ion exchange, and lithium carbonate precipitation.

An overall recovery of 75% can be achieved with this process design.

21.12.3 Economic Analysis

Project economics resulting from assumed price scenario used in the economic model are presented in Table 21.51. A sensitivity analysis was conducted to illustrate the impact of changes in key variables on the Project's NPV and IRR (Table 21.52).

CAPEX: Capital investment for the 45,000 tpa LCE Project, including equipment, materials, indirect costs and contingencies during the construction period is estimated to be ~US$1 billion. This total excludes interest expense that might be capitalized during the same period but includes owner's cost.

Main CAPEX components are wells and pond construction and the Process plants, representing about 40% of total Project capital expenditures. Pond investment is driven by two variables, namely, evaporation rate, and pond construction unit cost.

OPEX: The operating cost for the 45 ktpa Project is estimated at US$225M annually after full production. This figure includes ponds and plants, chemicals, energy, labour, salt waste removal, maintenance, camp services, and transportation.

Sensitivity Analysis: Sensitivity analysis indicates that the Project is very profitable.
Project strengths are as follows:

- Simple and proven evaporative process.

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WSP Engineering Technology (Beijing) Co., Ltd. Shanghai Branch

22.0 INTERPRETATION AND CONCLUSIONS

22.1 GEOLOGY AND RESOURCES

The 2026 estimated Measured and Indicated Mineral Resources increased by 42% to 28.1 Mt LCE with an average grade of 562 mg/L lithium from 19.9 Mt LCE 2019 values at 592 mg/L. The Inferred Mineral Resource increased to 9.6 Mt LCE at an average grade of 567 mg/L lithium (up from 4.7 Mt LCE at 592 mg/L previously).

Updated Estimate incorporates additional drilling and basin wide hydrological model:

- Expanded resource footprint with new drilling, extending the resource area by approximately 20 km south of previous resource footprint.
- Incorporates production well sampling data and results of a basin-wide hydrological model to support the Stage 2 development plan.

The Mineral Reserve Estimate for lithium incorporates the 2026 Mineral Resource Estimate for lithium using: 1) samples used from the prior, LAR (2019) Mineral Resource Estimate for lithium, and 2) Project database compiled from results of 2019 through 2025 South Cauchari exploration drilling, sampling, and testing campaigns, and additional production drilling and testing through the effective date of December 31, 2025.

To obtain the 2026 Reserve Mineral Estimate, the prior geologic and numerical models and the expanded database were analyzed and updated by Aquatec using Leapfrog® 3-D geologic and resource modeling software developed by Seequent (2018) and MODFLOW-USG developed by Panday and others (2013) coupled with the Groundwater Vistas interface (ESI, 2015).

The 2026 Mineral Reserve Estimate is based on an expanded numerical model domain incorporating the substantial amount of exploration drilling and exploration work completed through the effective date of this report. Aquatec and GWI evaluated the Updated Mineral Reserve Estimate using the following modeling criteria as specified by Exar:

- A 35-year wellfield extraction period operation and 40,000 tonnes of LCE processed during subsequent wellfield operations (Year 0 through Year 35).
- An average lithium concentration for the 35-year extraction period from the simulated wellfield at or above the current engineering estimate for processing of 578 mg/L.
- Brine production from simulated wells derived from Measured and Indicated Mineral Resource volumes.
- In consideration of current uncertainties and limitations in the numerical model, maximize overall wellfield extraction rate and optimize production well locations for predictive assessment of an Updated Mineral Reserve Estimate.

The simulated brine production wellfield for the basis of the 2026 Mineral Reserve Estimate uses a total of 39 production wells for an average production of 40,419 tpa LCE for 35 years from January,1 2026.

The 2026 Mineral Reserve Estimate model is based on initial lithium concentrations incorporated in the HSU model used in the 2026 Mineral Resource Estimate (LAR, 2026), as well as representative aquifer parameters derived from aquifer testing and calibration for steady-state and transient hydraulic conditions.

Overall, the modeled wellfield shows the ability to exceed the minimum 40,000 tpa LCE process and 578 mg/L annual lithium concentration targets. The predicted results for the 35-year production period are as follows:

- Average production rate of 40,419 tpa LCE accounting for processing efficiency (63%) for the 35-year pumping period.
- Average lithium concentration of 578 mg/L for the 35-year pumping period; the maximum concentration of 590 mg/L occurs at the start-up in Year 0 and the minimum concentration of 561 mg/L occurs near the end of the pumping period in Year 35.

Without factoring processing efficiency, the Mineral Reserve Estimate for lithium is summarized as Proven and Probable for a 35-year production period as follows:

- Proven Mineral Reserves (with processing efficiency).
  - The Proven Mineral Reserves for LCE are 400,886 tonnes.
- Probable Mineral Reserves (with processing efficiency).
  - The Probable Mineral Reserves for LCE are 1,013,796 tonnes.
- Total Proven and Probable Mineral Reserves (with processing efficiency).
  - The Total Mineral Reserve for LCE is 1,414,682 tonnes.

The 2026 Mineral Reserves Estimate is based on a target production rate of 40,000 tpa of LCE for Stage 1 operations. The current Estimate intentionally evaluates Mineral Reserves sufficient to support this base production rate, while preserving additional extraction capacity for a potential Stage 2 expansion in the future which could include Cauchari South and a total production of approximately 80,000 tpa LCE.

In contrast, the 2019 Reserves Estimate, considered a maximum production of 48,800 tpa LCE over a 40-year operating period, based on a larger wellfield and production capacity beyond Stage 1.

- Mine Life and Treatment of Historical Production
  - The 2026 Mineral Reserves Estimate considers a 35-year period, from January 1, 2026 through December 31, 2060. The Estimate is forward-looking and excludes historical production from year 2018 to 2025 of 280,978 t LCE which includes the current brine inventory.
  - No material change to previous 40-year project life from 2019 Reserve Estimate after adjusting for brine production from 2018-2025 and 2026 Mineral Reserves Estimate of 35-year period from January 1, 2026 to December 31, 2060.

- Despite the exclusion of historical production, modeled lithium at the end of the reserve life remains robust and drawdowns in both salars are not significant, leaving room for an extension of project life or future Stage 2 expansion.

- Process Recovery Assumptions
  - The 2026 Mineral Reserves Estimate uses an updated process recovery assumption of 63.0%, reflecting demonstrated operating performance, while the 2019 Mineral Reserve Estimate applied a theoretical process efficiency of 53.7 %.

- Proven Mineral Reserves
  - The 2026 Proven Mineral Reserve Estimate represents the first 10 years of production, supported by production history and updated resource modeling, increasing certainty compared to the 2019 Reserves Estimates. As a result, Proven Mineral Reserves have increased by 45% in 2026 relative to the 2019 estimations.

- Probable Mineral Reserves
  - The 2026 Probable Mineral Reserve Estimates are reduced by 40%, relative to the 2019 estimate. This decrease is caused by changes in classification methodology and production assumptions, rather than a deterioration in resource quality. Key factors include:
    - Five years of production previously classified at Probable being reclassified as Proven, supported by operational data.
    - Production from 2018 to end of 2025 is not considered in the 2019 Mineral Reserve Estimate.

22.2 BRINE PRODUCTION

The location, design and assumed productivity of the brine extraction wells was determined using a hydrogeologic model supported by data collected from geologic logs, drill cores, chemistry analysis and long-term pumping test data.

22.3 PROCESS INFORMATION AND DESIGN

The implemented process is based on conventional brine extraction and processing methods including pumping brine from the salar, concentrating the brine through evaporation ponds, and taking the brine concentrate through a hydrometallurgical facility to produce high-grade lithium carbonate. Exar and its consultants have successfully tested the brine chemistry of the Cauchari deposit through process simulation using estimation methods and process simulation techniques. This work has been validated by the results of evaporation and process testing at the on-site pilot plant and evaporation ponds, in addition to other testing developed with universities and suppliers.

The facilities are operating in a ramp up period with good success. Production level has reached 85% of design capacity in 2025.

22.4 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

The environmental, permitting, and social or community impact information summarized in this Report is adequate for the current stage of development of the Project and supports the stated Mineral Resource and Mineral Reserve Estimates. Performance since transition to sustained production is consistent with environmental and social impact assessments and their management plans, and no material issues have been identified that would reasonably be expected to affect the current Mineral Reserves and Mineral Resources, or the ongoing operation.

22.5 ECONOMIC ANALYSIS

- Lithium Industry: Market studies indicate that the lithium industry has a promising future. The use of lithium ion batteries for electric vehicles and renewable energy storage applications are driving lithium demand rapidly to unprecedented levels.
- Project Capital Cost: The capital investment for the 40,000 tpa lithium carbonate Cauchari-Olaroz, including equipment, materials, indirect costs and contingencies during the construction period was defined at US$-979 million. Costs have been completed using consulting engineering services for facilities definition and supplier purchase order for all major items. The main cost drivers are the pond construction and process facilities, which represents 55% of total project capital expenditures.
- Operating Costs: The operating cost estimate (+/-15% accuracy) for the 40,000 tpa lithium carbonate facility is US$5,411 per tonne. This figure includes pond and plant chemicals, energy/fuel, labour, salt waste removal, maintenance, camp services and transportation.
- Project Strength: Project fundamentals, such as the full completion of facilities construction, fully invested capital and a controlled operating cost, product demand and improved future price, and economics are all strong.

22.6 OTHER RELEVANT DATA AND INFORMATION

22.6.1 Mining (Well Field)

The Expansion project will have the capacity to produce 45,000 tpa LCE for a nominal life of 40 years.

WSP Golder is comfortable with using 35% to 40% of Measured and Indicated (M+I) Resources for production planning. It is common to apply 35% of aquifer efficiency factor to Measured and Indicated Resources to estimate pumpable resources for mine life planning in the lithium brine industry. The predictive groundwater flow and transport model simulations carried out for Cauchari-Olaroz support that the application of the 35% efficiency factor is reasonable.

It shows that 16.5% of Measured and Indicated (M+I) Resources will need to be extracted to meet the production schedule for Stages 1 and 2 (expansion) combined. It is the QP's opinion that the production rates and mine life are reasonable and conservative from the extractable resources perspectives.

The mining method will consist of pumping brine from wells drilled within the salar (salt flat), with the depth of each well depending on the depth of the aquifers. A submersible electric pump will be installed in each well to transport the brine through a network of pipelines (brine pipelines) to an intermediate storage station, and from there to the solar evaporation ponds.

The brine extraction well fields will be accessible by interconnected roads. A total of 56 brine production wells is planned. The brine production wells will have a 12-inch diameter stainless steel production casing and be equipped with 380V submersible pumping equipment.

22.6.2 Process Information and Design

Lithium recovery is based on a direct extraction process using brine pre-concentration followed by solvent extraction.

The process flow activities include extraction of brine from production wells, pre-concentration of the brine in solar ponds, solvent extraction of the pre-concentration brine, raffinate treatment, primary purification, secondary purification, calcium and boron polishing with ion exchange, and lithium carbonate precipitation.

An overall recovery of 75% can be achieved with this process design.

22.6.3 Economic Analysis

Project economics resulting from assumed price scenario used in the economic model are presented in Table 21.51. A sensitivity analysis was conducted to illustrate the impact of changes in key variables on the Project's NPV and IRR (Table 21.52).

CAPEX: Capital investment for the 45,000 tpa LCE Project, including equipment, materials, indirect costs and contingencies during the construction period is estimated to be ~US$1 billion. This total excludes interest expense that might be capitalized during the same period but includes Operator's cost.

Main CAPEX components are wells and pond construction and the Process plants, representing about 40% of total Project capital expenditures. Pond investment is driven by two variables, namely, evaporation rate, and pond construction unit cost.

OPEX: The operating cost for the 45,000 tpa LCE Project is estimated at US$225M annually after full production. This figure includes ponds and plants, chemicals, energy, labour, salt waste removal, maintenance, camp services, and transportation.

Sensitivity Analysis: Sensitivity analysis indicates that the Project is very profitable.
Project strengths are as follows:

- Simple and proven evaporative process.

22.7 PROJECT RISKS

- Process risk: Problems may arise during detailed design, or later in scaling up to full production capacity. Reagents consumption may be higher than predicted and/or product yields may be lower than current estimates.

- Fluctuation in reagent costs: Soda ash supply is assumed to be imported. There is an existing soda ash manufacturer in Argentina, which currently operates at full capacity. Market pricing for other reagents may also fluctuate. However, the sensitivity analysis demonstrated that the economic performance of the Project is not highly sensitive to operating cost.
- Electricity and gas: Electricity for the Project is supplied via the provincial electrical network and is approximately 3% of the total operating costs. Cost escalation risk for grid power is relatively low and can be mitigated quickly and cost-effectively by exploiting the significant solar energy potential at site, if required. Natural gas is used mainly for camp operations and specific process applications and represents only 2% of the total operating costs. The current natural gas price is US$4.8/MMBTU. As Argentina has become a net gas exporter to Chile and Brazil, due to successful gas production from the Vaca Muerta Formation, the risk for price increased has diminished due to the large availability of this commodity.
- Taxes: The Company operates under Federal Argentinian Mining Law N° 24.196. This law grants Exar a tax freeze, or protection against tax increases for a period of 30 years from the date when Exar files the Feasibility Study with the Federal Mining Authority.
- Inflation, exchange rate, and devaluation: Economic policies of the New Government are projecting a positive control in these important sectors of the economy.
- Location - elevation: The Project site is at a high elevation, approximately 4,000 m above sea level, which can result in difficult work conditions for individuals used to lower elevations. Medical oxygen tanks are readily available for staff travelling to, and working at, the mine site. The ramp up period allowed to identify the needs of the workforce to confront the elevation creating a safe environment.
- Brine composition: Relatively high contents of sulphate and magnesium in the brine make it necessary for a chemical treatment with lime to remove these components. This has been successfully implemented.
- Weather dependence: Weather variation, including higher than normal raining periods and long winter periods have occurred in recent years that those factors could impact in the performance of the evaporation cycle in the ponds.
- Process implementation: The Exar process is specialized to the type of brine in the salar and there is no other industrial operation running the same process configuration. Mitigation factors include implementation of dedicated stages for elimination of impurities and purification of the solution.
- Process system design - supplier expertise: The design and fabrication of process equipment/facilities are unique for the process and high-altitude location, considering the performance at high elevation and high wind environment. Test at different vendors and pilot plant were performed before placing some of the equipment orders. Operation during ramp up allowed to identify the suitability of the design and correction were made as necessary.

23.0 RECOMMENDATIONS

The Qualified Persons involved in the Report make the following recommendations:

23.1 RECOMMENDATIONS

- Based on the conceptual hydrogeologic system and results of the numerical model, considering the production model since 2018 until the end of 2025, the authors believe it is appropriate to estimate that the Proven Mineral Reserve is what the QPs believe is feasible to be pumped to the evaporation ponds and recovered for the next ten years of operations.
- The ongoing work in the full basin numerical model is being developed to support the Stage 2 expansion project of approximately 45,000 tpa additional capacity. This stage will consider the new DLE technology for increasing the lithium recovery and reducing the project construction schedule.
- QA/QC: The QA/QC program, using regular insertions of blanks, duplicates, and standards should be continued. All exploration samples should be analyzed at Alex Stewart when exploration activities resume.
- The QPs recommend investigating process modifications to the carbonation process step in order to reduce the sulphate content in the final product.
- The on-site laboratory should obtain ISO 17025 certification for analytical laboratories.
- Financial Assurances: Establish and maintain the required financial guarantees for closure.
- Stakeholder Engagement: Continue proactive engagement to address environmental and social priorities to identify and address potential Project related issues at an early stage in collaboration with affected parties.

The estimated cost for the recommendations is summarized in Table 23.1.

TABLE 23.1
RECOMMENDATIONS BUDGET

Item	Budget (US$)
Mineral Resource and Reserve Update	$200,000
ISO 17025 Accreditation	$20,000
Permitting and Social Community Work	$200,000
Total	**$420,000**

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25.0 RELIANCE ON INFORMATION PROVIDED BY THE REGISTRANT

Although copies of the tenure documents, operating licenses, permits, and work contracts were reviewed, an independent verification of land title and tenure was not performed. Deptford has not verified the legality of any underlying agreement(s) that may exist concerning the licenses or other agreement(s) between third parties but has relied on the client's law firm, Martina de Hoz & Rueda, to have conducted the proper legal due diligence for the claims discussed in Section3.2. This was addressed in a Memorandum dated February 27, 2026.

A draft copy of this Report has been reviewed for factual accuracy by Lithium Argentina and Deptford has relied on LAR's historical and current knowledge of the Property in this regard.

Any statements and opinions expressed in this document are given in good faith and in the belief that such statements and opinions are not false and misleading at the date of this Report.

APPENDIX 1. SUMMARY TABLES OF PUMPING TEST RESULTS FOR EXPLORATION AND PRODUCTION WELLS

TABLE 1
LOCATION AND CONSTRUCTION INFORMATION FOR EXPLORATION WELLS AND PUMPING TESTS

Well Identifier	Coordinates		Land Surface Elevation (m amsl)	Year Constructed	Total Depth of Well (m)	Depth Interval of Well Screen (m, bls)		HSU(s) Penetrated by Screened Interval of Well
	East (m)	North (m)				Top	Bottom	
PB-01	3423907.28	7380861.37	3939.95	2010	204	66	186	Halite with Sand
PB-03A	3425965.69	7383015.18	3940.3	2011	201	58	197	Interbedded Sand and Halite
PB-04	3421378.53	7381604.24	3946.67	2011	305	59	297	Clay/Silt with Sand Interbedded Sand and Halite
PB-06A	3419220.00	7377555.48	3942.00	2011	194	57	191	Interbedded Sand and Halite Lower Sand
PB-I	3422532.00	7385915.00	3962.30	2011	51	18	44	Alluvial Fan (Archibarca)
W17-06	3427261	7392988	3936.49	2018	455	94	437	Alluvial Fan (East)
W18-05	3424500	7382499	3943.12	2018	270	63	265	Alluvial Fan (East) Interbedded Sand and Halite
W18-06	3426650	7385299	3945.91	2018	460	63	440	Interbedded Sand and Halite Halite with Sand
W04-A	3422492	7379474	3937.97	2019	478	73	472	Halite with Sand Interbedded Sand and Halite Halite with Sand Lower Sand Basal Sand
W11-06	3424279	7383792	3945.95	2019	434	114	422	Alluvial Fan (Archibarca) Halite with Sand Interbedded Sand and Halite Lower Sand Basal Sand
W18-23	3423500	7381500	3941.25	2019	484	70	476	Clay/Silt with Sand Interbedded Sand with Halite Halite with Sand Lower Sand Basal Sand

Table 1
Location and Construction Information for Exploration Wells and Pumping Tests

Well Identifier	Coordinates		Land Surface Elevation (m amsl)	Year Constructed	Total Depth of Well (m)	Depth Interval of Well Screen (m, bls)		HSU(s) Penetrated by Screened Interval of Well
	East (m)	North (m)				Top	Bottom	
CW-62	3425680	7388632	NA	2019	90	47	86	Alluvial Fan (East) Clay/Silt with Sand

a) coordinates of wells constructed after 2011 based on DEM; wells constructed in 2010 and 2011 are based on reported differential GPS survey (Posgar 94)
NA = not available

Table 2
Hydraulic Results of Pumping Tests at Exploration Wells

Pumped Well Identifier	Month-Year of Test	Pumping Period (days)	Pre-pumping Water Level (m, bls)	Average Pumping Rate (L/s)	Drawdown (m)	Specific Capacity (L/s/m)	Data Source
PB-01	Mar-2011	8	4.80	4	41.27	0.097	LAR 2012
PB-03A	Aug-2011	27	6.36	12	31.78	0.38	LAR 2012
PB-03A	Oct-2016	12	7.79	13	64.57	0.20	SQM 2016
PB-04	May-2011	31	13.50	20	50.40	0.40	LAR 2012
PB-04	Sep-2016	15	10.94	25	55.28	0.45	SQM 2016
PB-06A	Oct-2011	11	5.21	22	40.34	0.55	LAR 2012
PB-06A	Oct-2016	10	4.19	21	35.15	0.60	SQM 2016
PB-I	Sep-2011	4	18.99	23	3.84	6.0	LAR 2012
W17-06	Oct-2018	7	7.46	50	21.22	2.4	EXAR 2018
W18-05	Oct-2018	11	NA	31	42.47	0.73	Andina 2018
W18-06	Jan-2019	9	5.50	17	40.74	0.42	EXAR 2019
W04-A	May-2019	3	11.65	25	30.00	0.83	EXAR 2019
W11-06	Jan-2019	5	13.84	30	32.82	0.91	EXAR 2019
W18-23	May-2019	4	13.43	25	25.35	0.99	EXAR 2019
CW-62	Apr-2019	4	4.62	16.5	48.71	0.34	EXAR 2019

NA = not available

Table 3
Summary of Computed Aquifer Parameters for Exploration Wells

Pumped Well Identifier	Observation Well Identifier	Distance from Pumped Well (m)	Average T (m^2/d)	Estimated Aquifer Thickness[a] (m)	Average K_r (m/d)	Ratio K_z/K_r	Average S	Ss (m^{-1})	Average S_y	Representative HSU(s)
PB-01[b]	PP-1B PP-1C	71.3 29.8	10	132	0.08	0.002	3.0E-05	2.2E-07	---	Halite with Sand
PB-03A	PB-03	24.0	60	131	0.46	---	2.6E-05	2.0E-07	---	Interbedded Sand and Halite
PB-04	DDH-12A	23.8	65	238	0.27	---	1.0E-04	4.2E-07	---	Clay/Silt with Sand Interbedded Sand and Halite
PB-06A	PE-15 PE-17	909 1118	125	121	1.0	---	3.0E-03	2.4E-05	---	Interbedded Sand and Halite Lower Sand
PB-I	PP-I	15	1,730	26	67	---	4.0E-02	1.0E-04	---	Alluvial Fan (Archibarca)
W17-06[c]	ML-006 DL-006	40.9 25.2	650	373	1.7	0.3	2.5E-03	7.0E-06	0.18[d]	Alluvial Fan (East)
W18-05	PE-14 DDH-11	1340 1690	90	202	0.45	---	4.0e-04	2.0E-06	---	Alluvial Fan (East) Interbedded Sand and Halite
W18-06	---	---	70	258	0.3	---	---	---	---	Interbedded Sand and Halite, Halite with Sand
W04-A	---	---	170	399	0.43	---	---	---	---	Halite with Sand Interbedded Sand and Halite Halite with Sand Lower Sand Basal Sand
W11-06	---	---	200	308	0.65	---	---	---	---	Alluvial Fan (Archibarca) Halite with Sand Interbedded Sand and Halite Lower Sand Basal Sand
W18-23	---	---	170	406	0.42	---	---	---	---	Clay/Silt with Sand Interbedded Sand with Halite Halite with Sand Lower Sand Basal Sand
CW-62	CM-62	8	220	65	3.5	0.1	3.5E-03	5.4E-05	0.2[d]	Alluvial Fan (East) Clay/Silt with Sand

a) thickness from top of tested unit to bottom of perforated interval of pumped well
b) 28-hour response prior to boundary effect
c) 3-day response prior to boundary effect
d) estimated; longer duration of pumping is required to confirm estimate

CONSENT OF ALEXANDER CUSHING

November 6, 2026

VIA EDGAR

United States Securities and Exchange Commission

Re: Current Report on Form 6-K of Lithium Argentina AG (the "Company")

I, Alexander Cushing, hereby consent to the use of my name in connection with reference to my involvement in the preparation of the following technical report (the "**Technical Report**"):

- Technical Report titled "*2026 Cauchari-Olaroz S-K 1300 Technical Report, Jujuy, Argentina*" with an effective date as of September 15, 2026;

and to the use of any extracts from, or summary of, the Technical Report in, or incorporated into, the Current Report on Form 6-K of the Company being filed with the United States Securities and Exchange Commission, and any amendment thereto (the "**Form 6-K**"), and the use of any information derived, summarized, quoted or referenced from the Technical Report, or portions thereof, that was 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 6-K.

I certify that I have read the Form 6-K and the documents incorporated by reference therein and that it fairly and accurately represents the information in the Technical Report for which I am responsible.

/s/ Alexander Cushing
Alexander Cushing, PhD, MFin, P.Eng.

CONSENT OF DAVID BURGA

November 6, 2026

VIA EDGAR

United States Securities and Exchange Commission

Re: Current Report on Form 6-K of Lithium Argentina AG (the "Company")

I, David Burga, hereby consent to the use of my name in connection with reference to my involvement in the preparation of the following technical report (the "**Technical Report**"):

- Technical Report titled "*2026 Cauchari-Olaroz S-K 1300 Technical Report, Jujuy, Argentina*" with an effective date as of September 15, 2026;

and to the use of any extracts from, or summary of, the Technical Report in, or incorporated into, the Current Report on Form 6-K of the Company being filed with the United States Securities and Exchange Commission, and any amendment thereto (the "**Form 6-K**"), and the use of any information derived, summarized, quoted or referenced from the Technical Report, or portions thereof, that was 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 6-K.

I certify that I have read the Form 6-K and the documents incorporated by reference therein and that it fairly and accurately represents the information in the Technical Report for which I am responsible.

/s/ David Burga
David Burga, P.Geo.

CONSENT OF JAMES WANG

November 6, 2026

VIA EDGAR

United States Securities and Exchange Commission

Re: Current Report on Form 6-K of Lithium Argentina AG (the "Company")

I, James Wang, hereby consent to the use of my name in connection with reference to my involvement in the preparation of the following technical report (the "**Technical Report**"):

- Technical Report titled "*2026 Cauchari-Olaroz S-K 1300 Technical Report, Jujuy, Argentina,*" with an effective date as of September 15, 2026;

and to the use of any extracts from, or summary of, the Technical Report in, or incorporated into, the Current Report on Form 6-K of the Company being filed with the United States Securities and Exchange Commission, and any amendment thereto (the "**Form 6-K**"), and the use of any information derived, summarized, quoted or referenced from the Technical Report, or portions thereof, that was 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 6-K.

I certify that I have read the Form 6-K and the documents incorporated by reference therein and that it fairly and accurately represents the information in the Technical Report for which I am responsible.

/s/ James Wang
James Wang, P.E.

CONSENT OF JONATHAN GIBSON

November 6, 2026

VIA EDGAR

United States Securities and Exchange Commission

Re: Current Report on Form 6-K of Lithium Argentina AG (the "Company")

I, Jonathan Gibson, hereby consent to the use of my name in connection with reference to my involvement in the preparation of the following technical report (the "**Technical Report**"):

- Technical Report titled "*2026 Cauchari-Olaroz S-K 1300 Technical Report, Jujuy, Argentina*" with an effective date as of September 15, 2026;

and to the use of any extracts from, or summary of, the Technical Report in, or incorporated into, the Current Report on Form 6-K of the Company being filed with the United States Securities and Exchange Commission, and any amendment thereto (the "**Form 6-K**"), and the use of any information derived, summarized, quoted or referenced from the Technical Report, or portions thereof, that was 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 6-K.

I certify that I have read the Form 6-K and the documents incorporated by reference therein and that it fairly and accurately represents the information in the Technical Report for which I am responsible.

/s/ Jonathan Gibson
Jonathan Gibson, P.Eng.

CONSENT OF MAREK DWORZANOWSKI

November 6, 2026

VIA EDGAR

United States Securities and Exchange Commission

Re: Current Report on Form 6-K of Lithium Argentina AG (the "Company")

I, Marek Dworzanowski, hereby consent to the use of my name in connection with reference to my involvement in the preparation of the following technical report (the "**Technical Report**"):

- Technical Report titled "*2026 Cauchari-Olaroz S-K 1300 Technical Report, Jujuy, Argentina*" with an effective date as of September 15, 2026;

and to the use of any extracts from, or summary of, the Technical Report in, or incorporated into, the Current Report on Form 6-K of the Company being filed with the United States Securities and Exchange Commission, and any amendment thereto (the "**Form 6-K**"), and the use of any information derived, summarized, quoted or referenced from the Technical Report, or portions thereof, that was 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 6-K.

I certify that I have read the Form 6-K and the documents incorporated by reference therein and that it fairly and accurately represents the information in the Technical Report for which I am responsible.

/s/ Marek Dworzanowski
Marek Dworzanowski, C.Eng., Pr.Eng.

CONSENT OF MARK KING

November 6, 2026

VIA EDGAR

United States Securities and Exchange Commission

Re: Current Report on Form 6-K of Lithium Argentina AG (the "Company")

I, Mark King, hereby consent to the use of my name in connection with reference to my involvement in the preparation of the following technical report (the "**Technical Report**"):

- Technical Report titled "*2026 Cauchari-Olaroz S-K 1300 Technical Report, Jujuy, Argentina*" with an effective date as of September 15, 2026;

and to the use of any extracts from, or summary of, the Technical Report in, or incorporated into, the Current Report on Form 6-K of the Company being filed with the United States Securities and Exchange Commission, and any amendment thereto (the "**Form 6-K**"), and the use of any information derived, summarized, quoted or referenced from the Technical Report, or portions thereof, that was 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 6-K.

I certify that I have read the Form 6-K and the documents incorporated by reference therein and that it fairly and accurately represents the information in the Technical Report for which I am responsible.

/s/ Mark King
Dr. Mark King, PhD, P.Geo., FGC