



Lithium South Development Corp

Updated Mineral Resource Estimate –
Hombre Muerto North Project
NI 43-101 Technical Report
Catamarca and Salta, Argentina
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1 SUMMARY

1.1 INTRODUCTION

Lithium South Development Corporation (the “Company” or “LIS”) retained Groundwater Insight, Inc. (“GWI”) to prepare this independent technical report (“Technical Report”). It was prepared in accordance with National Instrument 43-101 – Standards of Disclosure for Mineral Projects (NI 43-101, Form 43-101F1, and NI 43-101CP), under the supervision of Dr. Mark King, Ph.D., P.Geo., F.G.C., a Qualified Person (“QP”) who is independent of LIS, as such terms are defined by NI 43-101. Dr. King is President of GWI. In preparing this Technical Report, GWI worked closely with LIS specialists.

Dr. King has overall responsibility for all sections of the current report, excluding:

- The Title Opinion content in Section 4, consistent with the allowable exclusions of NI 43-101; and
- Section 13 and the associated Section 1.12 in the Executive Summary, which are the responsibility of Peter Ehren, QP for Mineral Processing.

This document is an Updated Mineral Resource Estimate Technical Report for the LIS Hombre Muerto North Project (“HMN Project”), in Salta and Catamarca Provinces, Argentina. Three previous technical reports have been issued for the HMN Project (KPC, 2019; Montgomery, 2018; Montgomery, 2017). The potential mineral deposits discussed in this report are related to lithium in brine contained within salar deposits of the Salar del Hombre Muerto (“SHM”).

This Report provides a comprehensive assessment of geological, hydrological, and background information related to the HMN Project. GWI has used this data to generate a Geological Model of the SHM and a detailed Resource Model of the HMN Project area.

All figures in this Report were prepared for this report, unless otherwise indicated. The results and observations presented in this Technical Report are a guide to indicate the potential reward versus risk for the HMN Project and should not be regarded as a final measure of value at this stage of study.

1.2 RELIANCE ON OTHER EXPERTS

The QPs retain overall responsibility for all sections of the Technical Report that are not related to legal matters. For legal matters, the QPs have relied upon, and, to the extent permitted under Item 3 of Form 43-101F1, disclaim responsibility for legal matters, as summarized in the Title Opinion (August 2023) provided by Sr. Jorge Vargas Gei, of the law firm Vargas-Galíndez Abogados, Mendoza, Argentina. The QPs have not researched these Project title and mineral rights, and express no opinion as to the ownership status of the Project properties.

1.3 PROPERTY DESCRIPTION AND LOCATION

The HMN Project is located in Antofagasta de La Sierra Department, Catamarca Province and Los Andes Department, Salta Province, northwestern Argentina. The Project comprises six Mining Concessions with a total area of 3237 ha, situated in the northern part of SHM. These concessions are the primary target for lithium brine exploration and the focus of this Technical Report.

Three additional properties related to the HMN Project are located approximately six km N of the SHM in Salta Province. These properties, known as the Sophia properties, comprise three non-contiguous Mining Concessions with a total area of 2365 ha. They were acquired as a prospective freshwater source for the HMN Project, and as a location for anticipated future plant and processing facilities.

LIS Legal counsel, Sr. Jorge Vargas Gei, states that LIS, through its wholly owned Argentine subsidiary NRG Metals Argentina S.A., has a good and valid, legal, and beneficial title to the Alba Sabrina, Natalia Maria, Tramo, Gaston Enrique, Norma Edith, Viamonte, Sophia I, Sophia II, and Sophia III properties. As of the date of the Title Opinion (August 2023), all properties are in good standing and comply with applicable regulations.

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

The HMN Project straddles the Salta and Catamarca Provinces in the southeastern Puna region of Argentina. It is located approximately 380 SW of the capital city of Salta by road, and the nearest human settlement of La Redonda is approximately 25 km SW of the Tramo Property by road. Local resources within the Puna are minimal, and most supplies used for mining and exploration at SHM are transported in by truck from Salta and San Antonio de Los Cobres. Antofagasta de La Sierra, Catamarca Province is located approximately 100 km S of the HMN Project on Provincial Route 43 and is the closest community with services.

Infrastructure in the Argentine Puna is basic and minimal. Existing infrastructure near the HMN Project supports the mines that are currently operating (Fénix and Tincalayu) and the construction of advanced-stage projects (Sal de Oro, Sal de Vida, Centenario-Ratones, Hombre Muerto West). Infrastructure requirements for the HMN Project will be further evaluated in follow-up assessment work.

The SHM occupies an area of approximately 590 km² in the northern and lowest portion of the Hombre Muerto basin, an approximately 3900 km² N-S elongated endorheic basin. The salar has an approximate average elevation of 4000 masl, and the basin is surrounded by mountains with elevations over 5000 masl. SHM is divided into the Eastern (Subcuenca Oriental) and Western (Subcuenca Occidental) Subbasins by three fault-bounded bedrock remnants: the Hombre Muerto Peninsula in the south, the Farallón Catal in the centre, and Tincalayu Peninsula in the north. The Eastern and Western Subbasins remain hydraulically connected through the salar deposits that infill the low-lying areas between the bedrock remnants.

The Argentine Puna is a cold, high altitude desert with an intense Andean Continental type climate. High altitudes, low temperatures, saline soils, and arid climate conditions have resulted in the development of xerophytic, halophytic, and psammophilous plant communities in the Puna region of South America. Animal species of the Puna have also adapted to the unique and challenging climate conditions.

1.5 HISTORY

Previous exploration by Lithium One (previously Galaxy Resources), including surface sampling and geophysical surveys, was conducted near and over some parts of the Gaston Enrique, Natalia Maria, and Tramo Properties (Montgomery & GAI, 2012). Recent exploration work carried out by LIS (previously NRG Metals Inc.) at the HMN Project, was first reported in the technical reports by Montgomery (2017; 2018) and KPC (2019).

1.6 GEOLOGICAL SETTING AND MINERALIZATION

Salar del Hombre Muerto is situated in the southern zone of the central Andean Puna-Altiplano plateau of South America. It is characterized by low-lying internally drained basins (salars), which are fault-bounded by mountain ranges and volcanic edifices. Salar infill geology within the SHM is regionally variable. The channel occupied by Alba Sabrina, most of the northern sector of the Eastern Subbasin including Tramo, and the southern sector of the Eastern Subbasin are clastic sediment-dominated; while the Western Subbasin and the Natalia Maria area on the eastern margin of Tincalayu Peninsula in the Eastern Subbasin are halite-dominated.

The Alba Sabrina property includes a NE-SW trending channel in the northwestern sector of the SHM, formed by the Tincalayu Peninsula (east side) and Cordon del Gallego Range (west side). This semi-isolated salar channel is clastic-dominated, with no halite intersected by drilling. Here, the bottom of the salar basin is demarcated by unaltered, low permeability Falda Ciénaga Formation quartzite. The basin infill sequence includes the basal Brecciated Quartzite, Upper Middle Sediments, Basalt, and the upper Interlayered Fine and Coarse Sediments units.

The Natalia Maria property is a halite-dominated area of the SHM, on the eastern margin of Tincalayu Peninsula. The western half of the property extends onto the Tincalayu Peninsula where Sijes Formation sediments and Incahausi Formation basalts outcrop. The eastern half of the property is in the salar. Infill units intersected by drilling include Compact Halite, Halite, Basalt, Interbedded Halite and Sediments, and the upper Interlayered Fine and Coarse Sediments units.

Tramo is in the clastic-dominated northeastern sector of the SHM. The property area is dominated by salar deposits, with a small outcrop of Sijes Formation in the southwest corner and alluvial fans on the northern, eastern, and western margins of the property. Infill geology at Tramo is a combination of lithologies that occur on the other Project properties. Basal Conglomerate, Interbedded Halite and Sediments, and Interlayered Fine and Coarse Sediments occur on the eastern side of the property. The western side of the property is dominated by Interbedded Halite and Sediments with an upper layer of Interlayered Fine and Coarse Sediments. This westward increase in halite indicates a transition towards the halite-dominated region of the salar on the eastern margin of Tincalayu Peninsula. The hydrogeological basement has not been intersected by drilling at Tramo.

Brine Resources in the Alba Sabrina, Natalia Maria, and Tramo properties of the HMN Project are defined relative to a 500 mg/L lithium cut-off. Overall, the information at the HMN Project indicates that the lithium grades and the levels of impurities compare favourably against other brine deposits.

1.7 DEPOSIT TYPE

The SHM has two large, hydraulically connected subbasins with aspects of both Evaporite-dominant and Clastic-dominant salar types. The Eastern Subbasin is predominantly clastic-dominated and transitions into a halite-dominated salar along the northwestern margin of the subbasin adjacent to the Tincalayu Peninsula. Tramo is located within the clastic-dominated region of the northern sector of the Eastern Subbasin, and Natalia Maria in the halite-dominated region. The Western Subbasin is halite-dominated with a halite core that transitions into an outer clastic-dominated perimeter at the margins. Alba Sabrina occupies a clastic-dominated NE-SW trending channel located at the northern margin of the Western Subbasin.

1.8 EXPLORATION

Exploration by LIS at the HMN Project was conducted over four field seasons:

- 2016-17 Program: first reported by Montgomery (2017);
- 2018 Program: first reported by Montgomery (2018) and KPC (2019);
- 2021 Program: first reported herein; and
- 2022-23 Program: first reported herein.

Exploration components conducted during the 2016-17 and 2018 programs, and previously documented as listed above include:

- 27 surface brine and water samples, not including QA/QC samples, collected from pits and auger holes;
- 10 CSAMT stations in two lines that transect the Alba Sabrina, Natalia Maria, and Tramo properties;
- 681 m of diamond drilling in two boreholes and construction of two observation wells (on Tramo);
- 47 core samples and 20 sample analyzed for RBR;
- 801 m of rotary drilling in two boreholes and construction of two pumping wells (on Tramo);
- 55 subsurface brine samples, plus 24 QA/QC samples, collected from packers and wells; and
- Two step tests and two 72-hr pumping tests.

Exploration components conducted during the 2021 and 2022-23 exploration programs, first reported herein, include:

- 135 TEM soundings in 36 lines throughout the HMN Project properties;
- 2167.5 m of diamond drilling in 10 boreholes;
- 85 core samples collected for analysis of RBR;
- 45 m of tricone drilling in one borehole;
- 11 observation wells constructed; and
- 65 subsurface brine samples, plus 26 QA/QC samples, collected from packers and wells.

Results from these exploration programs were used to support the modelling and Resource Estimate presented in this Report.

1.9 DRILLING

The two drilling programs completed at the HMN Project are as follows:

- 2018 drilling program: two diamond drillholes and two rotary holes drilled at Tramo; and
- 2022-23 program: 10 diamond drillholes, nine drilled at Alba Sabrina and one drilled at Natalia Maria; and one tricone hole drilled at Natalia Maria.

These drill programs were designed to test for lithium-rich brines within conductive geophysical target horizons and to support Resource estimation at the Alba Sabrina, Natalia Maria, and Tramo properties by:

- Collecting samples for subsurface brine chemistry characterization;

- Characterizing salar geology based on lithology and porosity (Specific Yield) data collected from continuous core samples, downhole geophysics, and other drilling information; and
- Installing observation and pumping wells for hydrogeological characterization.

1.10 SAMPLE PREPARATION, ANALYSIS, AND SECURITY

All 2022-23 Program oversight (e.g., sample collection, drilling, well construction, QA/QC, and secure transport) was performed by LIS personnel, with oversight by Dr. Mark King (QP). The QP considers that the HMN Project dataset and QA/QC procedures are acceptable for evaluation of brine Resources, with no significant and systematic bias.

1.11 DATA VERIFICATION

Dr. Mark King (QP) provided review and input to the design and execution of the HMN Project 2022-23 field exploration Program. The QP and other GWI geologists maintained technical discourse with LIS throughout the exploration program and the QP visited the Project on two occasions:

- 2022: for two days (October 12 and 13) during drilling at the Alba Sabrina property, and
- 2023: for one day (March 22) during drilling at the Natalia Maria property.

Independent QA/QC duplicate sampling was conducted by the QP during both visits to the 2022-23 Program. Overall, the QP duplicate data are in reasonable agreement with the original samples, and the results are considered acceptable.

Dr. Mark King (QP) supervised the compilation of the Project database and worked closely with Aqua Insight Inc. during geological modelling and brine model development related to the updated Resource estimation. Based on these activities, it is the opinion of the QP that an acceptably rigorous set of field and data interpretation methods were used in preparing the HMN Project Mineral Resource Estimate.

1.12 MINERAL PROCESSING

LIS has conducted a complete characterization study for the HMN Project brine to develop the necessary process for producing technical grade lithium carbonate (Li_2CO_3). The brines found at the HMN Project are similar to those within the broader SHM, as well as Salar de Olaroz and Salar de Cauchari. The brines have a relatively low Mg/Li ratio, which make them suitable to undergo removal of magnesium with slaked lime.

In the industrial process, lithium will be concentrated until lithium sulphate saturation is achieved. The resulting brine concentrate will be subsequently treated in a lithium carbonate plant. The adjusted processing sequence will reduce lithium loss as brine entrainments in harvested salts, in magnesium hydroxide, and in calcium sulphate solids. Results to date indicate that lithium recovery of around 70% should be achievable. The basic process will be similar to proven industrial operations such as those at Salar de Olaroz, Salar de Cauchari, and Silver Peak. The final product will be technical grade lithium carbonate.

Through simulations, evaporation tests, and laboratory tests, an effective sequence for brine processing will be developed, which maximizes lithium recovery and minimizes reagent consumption. The resulting processing flowsheet will be used to support future feasibility studies.

1.13 MINERAL RESOURCE ESTIMATE

An updated Mineral Resource Estimate was developed for the HMN Project using the three-dimensional (“3D”) modelling software FEFLOW (DHI-WASY, 2021). The software implementation was managed by Aqua Insight Inc., specialists in FEFLOW applications. Dr. Mark King (QP) provided technical oversight of the modelling and considers the results to be valid and appropriate for Measured, Indicated, and Inferred Mineral Resource Estimates, as defined by the CIM and referenced by NI 43-101.

The Mineral Resource Estimate is presented in Table 1.1, relative to a grade cut-off of 500 mg/L lithium. The updated Mineral Resource Estimate was calculated for the Interlayered Fine and Coarse Sediments, Interbedded Halite and Sediments, Halite, Basalt, Upper Middle Sediments, Conglomerate, and Brecciated Quartzite. The Compact Halite unit, intersected below 190 mbgs at Natalia Maria, is not currently considered as part of the brine resource.

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

Further, all conceptual models (including the FEFLOW models used herein to estimate resources) have a degree of risk and uncertainty that should be considered when evaluating the Project. Additional associated risks for evaluating the transition from Resources to Reserves at this Project include:

- Potential for brine capture from adjacent project sites;
- Potential for brine losses to adjacent project sites; and
- Potential for dilution of brine by freshwater inputs along the lateral and upper boundaries of the salar during recovery pumping.

Dr. Mark King (QP) considers that these will be important criteria for any future production design.

Table 1.1: Summary of the Mineral Resource Estimate relative to a grade cut-off of 500 mg/L lithium (Effective Date: September 5, 2023).

Parameter	Alba Sabrina			Natalia Maria	Tramo	All Sites
	Measured	Indicated	Total	Measured	Measured	Total
Brine Volume (x10³ m³)^{1, 2}						
	217,900	31,700	249,600	12,900	141,600	404,100
Average Concentration (mg/L)³						
Lithium (Li)	696	712	698	1103	769	736
Boron (B)	474	479	475	490	377	441
Calcium (Ca)	536	593	543	538	944	684
Potassium (K)	7118	7226	7132	9991	7080	7205
Sodium (Na)	103,513	102,402	103,372	109,566	98,633	101,910
Magnesium (Mg)	2454	2534	2464	3030	2256	2409
Sulphate (SO ₄)	13,507	13,755	13,538	12,868	9866	12,230
Tonnage²						
Lithium	151,700	22,600	174,200	14,200	108,900	297,400
Lithium Carbonate ⁴	807,400	120,200	927,500	75,800	579,800	1,583,200
Boron	103,300	15,200	118,400	6300	53,400	178,200
Boric Acid ⁵	590,600	86,800	677,400	36,200	305,500	1,019,100
Calcium	116,800	18,800	135,600	7000	133,700	276,200
Calcium Chloride ⁶	323,400	52,000	375,400	19,300	370,200	764,800
Potassium	1,550,800	229,000	1,779,800	129,100	1,002,300	2,911,200
Potash ⁷	2,740,200	404,600	3,144,800	228,100	1,771,100	5,144,000
Sodium	22,552,700	3,244,900	25,797,600	1,415,800	13,964,100	41,177,400
Sodium Chloride ⁸	57,328,800	8,248,600	65,577,400	3,598,900	35,496,700	104,672,900
Magnesium	534,600	80,300	614,900	39,200	319,400	973,500
Sulphate	2,942,800	435,900	3,378,700	166,300	1,396,800	4,941,800
Tonnage Ratios						
Ca/Li	0.77	0.83	0.78	0.49	1.23	0.93
K/Li	10.22	10.14	10.21	9.06	9.20	9.79
Na/Li	148.69	143.75	148.05	99.36	128.20	138.45
Mg/Li	3.52	3.56	3.53	2.75	2.93	3.27
SO ₄ /Li	19.40	19.31	19.39	11.67	12.82	16.62

Notes: ¹ Grade cut-off of 500 mg/L lithium.

² Quantities rounded to the nearest 100; product and sums may not be exact due to rounding.

³ Average concentration quantities rounded to the nearest whole number.

⁴ Lithium carbonate mass calculated as lithium mass multiplied by the equivalency factor (5.323).

⁵ Boric acid mass calculated as boron mass multiplied by the equivalency factor (5.719).

⁶ Calcium chloride mass calculated as calcium mass multiplied by the equivalency factor (2.769).

⁷ Potash mass calculated as potassium mass multiplied by the equivalency factor (1.767).

⁸ Sodium chloride mass calculated as sodium mass multiplied by the equivalency factor (2.542).

1.14 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

The Environmental Baseline Study (“EBS”) for the HMN Project was completed by E&C Consultores (“ECA”) of Salta in March 2022 and filed with the Mining Authority in May 2022 (ECA, 2022). The study covers the Alba Sabrina, Natalia Maria, Tramo, Gaston Enrique, Norma Edith, and Viamonte properties and includes the documentation of flora, fauna, climate, air quality, hydrogeology, soils, a socio-demographic survey,

and ecosystem characterization. A weather station was also established on site for environmental monitoring during the study period.

The results were prepared under the General Environmental Law of the Mining Code 24.585. The report provides an early indication of potential impacts associated with future development at the HMN Project, so that effective mitigation can be achieved through appropriate pro-active management techniques.

LIS, through its wholly owned Argentine subsidiary NRG Metals Argentina S.A., submitted an updated exploration EIR to the Mining Authority in February 2020. An addendum to the drilling program component of the exploration EIR was submitted in July 2021. On March 25, 2022, LIS obtained the EIS through Resolution 0543 issued by the Mining Authority. This EIS grants authorization for ongoing exploration activities within the HMN Project.

LIS has developed a comprehensive Corporate Social Responsibility (“CSR”) policy. This policy articulates a set of action-oriented strategies aligned with international standards of best mining practices. LIS submitted the first Social Performance Report to the Mining Authority in February 2023.

1.15 ADJACENT PROPERTIES

Lithium brine projects within the SHM include:

- Livent: The Fénix Project is currently the only commercial lithium producer in the SHM and has been operational since 1997.
- Allkem: The Sal de Vida Project is under construction in the southeastern subbasin of the SHM.
- POSCO: The Sal de Oro Project surrounds the Gaston Enrique, Natalia Maria, Tramo, and Viamonte properties in the northeastern subbasin of the salar.
- Minera Santa Rita S.R.L.:
 - The Virgen del Valle Lito Project is an advanced stage project located in the southeastern subbasin of the SHM and is surrounded by the Allkem claims and Livent claims.
 - The Providencia Project is on the northern border of the Alba Sabrina property.
- Galan Lithium:
 - The Hombre Muerto West Project is a construction stage project located on the alluvium at the western margin of the salar, adjacent to the Fénix Project.
 - The Candelas Project is south of the Sal de Vida project and extends further south along Río de Los Patos.
- Alpha Lithium: The Hombre Muerto Project is an early-stage exploration project located in the northeastern subbasin of the SHM.
- Edison Lithium Corp: The Edison Lithium claim area is located on the southwestern border of Alba Sabrina.

The current resources and information on the adjacent properties are reported on the corporate websites and SEDAR filings of the holding companies. These data have not been verified by the author and are not reported herein. The information presented may not necessarily be indicative of the geology or mineralization on the HMN Project that is the subject of this Technical Report.

Investors are cautioned that this information is taken from the publicly available sources, has not been independently verified by LIS and it is not known if it conforms to the standards of NI 43-101. Furthermore, proximity to a discovery, mine, or mineral resource, does not indicate that mineralization will occur at the HMN Project, and if mineralization does occur, that it will occur in sufficient quantity or grade that would result in an economic extraction scenario.

1.16 OTHER RELEVANT DATA AND INFORMATION

The information presented in this Technical Report is considered sufficient to characterize and evaluate this exploration Project and to support the updated Mineral Resource Estimate reported herein.

1.17 INTERPRETATIONS AND CONCLUSIONS

The updated Mineral Resource Estimate documented in this report, with an effective date of September 5, 2023, was supervised by Mark King, Ph.D., P.Geo., F.G.C.. The mineral deposits that are the focus of this estimate are related to lithium brine contained within the salar deposits of the Salar del Hombre Muerto (“SHM”).

The updated Mineral Resource Estimate conforms with National Instrument 43-101 (NI 43-101) and the Canadian Institute of Mining, Metallurgy, and Petroleum Definition Standards for Resources and Reserves (CIM Standards). The following interpretations and conclusions are supported by the HMN Project data collected to date:

- Conditions in the SHM, and specifically in the Alba Sabrina, Natalia Maria, and Tramo properties, have led to the accumulation of brine with potentially economic grades of lithium.
- Drilling results demonstrate regional variability in the SHM salar infill materials, and shows that:
 - The channel occupied by the Alba Sabrina property is clastic sediment-dominated;
 - The salar in and around Natalia Maria, along the eastern margin of Tincalayu Peninsula, is halite-dominated; and
 - The northeastern corner of the Eastern Subbasin, in and around Tramo, is clastic sediment-dominated. Halite content of the salar deposits increases to the west, towards the Tincalayu Peninsula, indicating a transition zone between the clastic-dominated salar intersected on the eastern side of Tramo and the halite-dominated salar intersected at Natalia Maria.
- Brine sampling data indicate that lithium grade is highest in the Natalia Maria property, and lowest in the Alba Sabrina property. Lithium grade increases to the east within the Tramo property.
- Brine impurities, including potassium, calcium, magnesium, and sulphate are low in the HMN Project brines. Interpolated ratios of these constituents relative the lithium resource are:
 - Calcium to lithium ratio of 0.93;
 - Potassium to lithium ratio of 9.79;
 - Sodium to lithium ratio of 138.45;
 - Magnesium to lithium ratio of 3.27; and
 - Sulphate to lithium ratio of 16.62;

- The updated Mineral Resource Estimate was calculated for the Interlayered Fine and Coarse Sediments, Interbedded Halite and Sediments, Halite, Basalt, Upper Middle Sediments, Conglomerate, and Brecciated Quartzite. The Compact Halite unit, intersected below 190 mbgs at Natalia Maria, is not currently considered in the resource. Follow-up testing of the Compact Halite unit could indicate that it has a low, but potentially significant permeability.
- The Alba Sabrina, Natalia Maria, and Tramo properties contain an estimated 297,400 tonnes of Measured and Indicated lithium Resources, relative to a 500 mg/L cut-off grade, which equates to 1,583,200 tonnes of LCE.

1.18 RECOMMENDATIONS

The next phase of exploration at the HMN Project is designed to support future Reserve Estimates and to potentially expand the Resource Estimate at depth in Tramo, plus into the Gaston Enrique, Norma Edith, and Viamonte properties. Proposed exploration activities and estimated costs are summarized in Table 1.2. It is considered feasible to complete all field activities and reporting related to Reserve Estimates within one year (2023-24 field season). Activities related to an Updated Resource Estimate could be completed in conjunction with the Reserve activities or in the following 2024-2025 field season.

Some activities, including meteorological, water level, and other environmental monitoring, would be ongoing. The cost of the engineering program required to advance the HMN Project to the Reserves stage is beyond the scope of this Technical Report. Consequently, engineering recommendations are not addressed herein and will be covered in an upcoming updated PEA.

Table 1.2: Cost estimates for the proposed exploration program at the HMN Project.

Item	Unit Cost (US\$ / unit)	Quantity	Estimated Cost (US\$)
Reserve Estimate			
Rotary drilling with pumping well installation (10" and 8")	1600	900 m	1,440,000
Long-term pumping tests	100,000	3	300,000
Slug tests on 2022-23 Program observation wells	20,000	11	220,000
Brine geochemistry analysis	230	30	6900
Preliminary numerical flow and reserve model & updated water balance			200,000
<i>Subtotal – Reserve Estimate</i>			2,166,900
Updated Resource Estimate			
Drilling platforms & access	100,000	5	500,000
Diamond drilling (HQ) with core recovery, packer sampling, and observation well installation	1500	1900 m	2,850,000
Brine geochemistry analysis	230	125	28,750
Core RBR analysis	250	125	31,250
Technical analyses & Resource update			150,000
<i>Subtotal – Resource Estimate</i>			3,560,000
Field Logistics, Support, and Reporting			
Camp logistics and associated program logistical costs			1,000,000
Project supervision & site support			300,000
QP services & reporting			150,000
<i>Subtotal – Field Logistics, Support, and Reporting</i>			1,450,000
Ongoing Monitoring			
Brine level monitoring and datalogger installation			500,000
Meteorological & environmental monitoring			200,000
<i>Subtotal – Ongoing Monitoring</i>			700,000
Subtotal (rounded up to nearest 100,000)			7,900,000
Contingency 5%			395,000
Total (rounded up to nearest 100,000)			8,300,000

2 INTRODUCTION

2.1 AUTHORIZATION AND PURPOSE

Lithium South Development Corporation (the “Company” or “LIS”) retained Groundwater Insight, Inc. (“GWI”) to prepare this independent technical report (“Technical Report”). It was prepared in accordance with National Instrument 43-101 – Standards of Disclosure for Mineral Projects (NI 43-101, Form 43-101F1, and NI 43-101CP), under the supervision of Dr. Mark King, Ph.D., P.Geo., F.G.C., a Qualified Person (“QP”) who is independent of LIS, as such terms are defined by NI 43-101. Dr. King is President of GWI. In preparing this Technical Report, GWI worked closely with LIS specialists.

This document is an Updated Mineral Resource Estimate Technical Report for the LIS Hombre Muerto North Project (“HMN Project”), in Salta and Catamarca Provinces, Argentina. Three previous technical reports have been issued for the HMN Project (KPC, 2019; Montgomery, 2018; Montgomery, 2017). The potential mineral deposits discussed in this report are related to lithium in brine contained within salar deposits of the Salar del Hombre Muerto (“SHM”).

This Report provides a comprehensive assessment of geological, hydrological, and background information related to the HMN Project. GWI has used this data to generate a Geological Model of the SHM and a detailed Resource Model of the HMN Project area.

All figures in this Technical Report were prepared for this report, unless otherwise indicated. The results and observations presented in this Technical Report are a guide to indicate the potential reward versus risk for the HMN Project and should not be regarded as a final measure of value at this stage of study.

2.2 REPORT RESPONSIBILITY

Dr. King has overall responsibility for all sections of the current report, excluding:

- The Title Opinion content in Section 4, consistent with the allowable exclusions of NI 43-101; and
- Section 13 and the associated Section 1.12 in the Executive Summary, which are the responsibility of Peter Ehren, QP for Mineral Processing.

2.3 OVERVIEW OF BRINE EVALUATION FRAMEWORK

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

The exploration activity on the HMN Project is in respect to lithium, a natural solid inorganic material and classified as an industrial mineral. The natural occurrence of lithium within a liquid, i.e., brine, does not preclude the application of the NI 43-101 reporting framework, although certain evaluation approaches are required that will be different to those used for solid phase mineralization.

NI 43-101 provides a rigorous reporting framework for mineral projects hosted in brine while also providing the necessary flexibility to accommodate the characteristics and analytical parameters specific

to brine. Furthermore, reporting on mineral projects hosted in a brine pursuant to NI 43-101 provides the necessary level of protection expected by investors.

The approach used by GWI to evaluate lithium brine projects is based on the framework in the Canadian Institute of Mining Metallurgy and Petroleum (“CIM”) Standards (CIM, 2014), with some enhancements to accommodate the special considerations for brine (e.g., Hains, 2012). The CIM Standards define a Mineral Resource as: “a concentration or occurrence of solid material of economic interest in or on the Earth’s crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction.”

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

The evaluation framework used for this Project is shown on Figure 2.1. The figure identifies the primary enhancements to conventional, solid phase, mineral evaluation, namely: 1) characterization of host formation porosity (for Resources), and 2) characterization of host formation permeability and boundary conditions (for Reserves). Certain components of this framework are enhancements of, or otherwise in addition to, those already contained in the CIM Standards (2014).

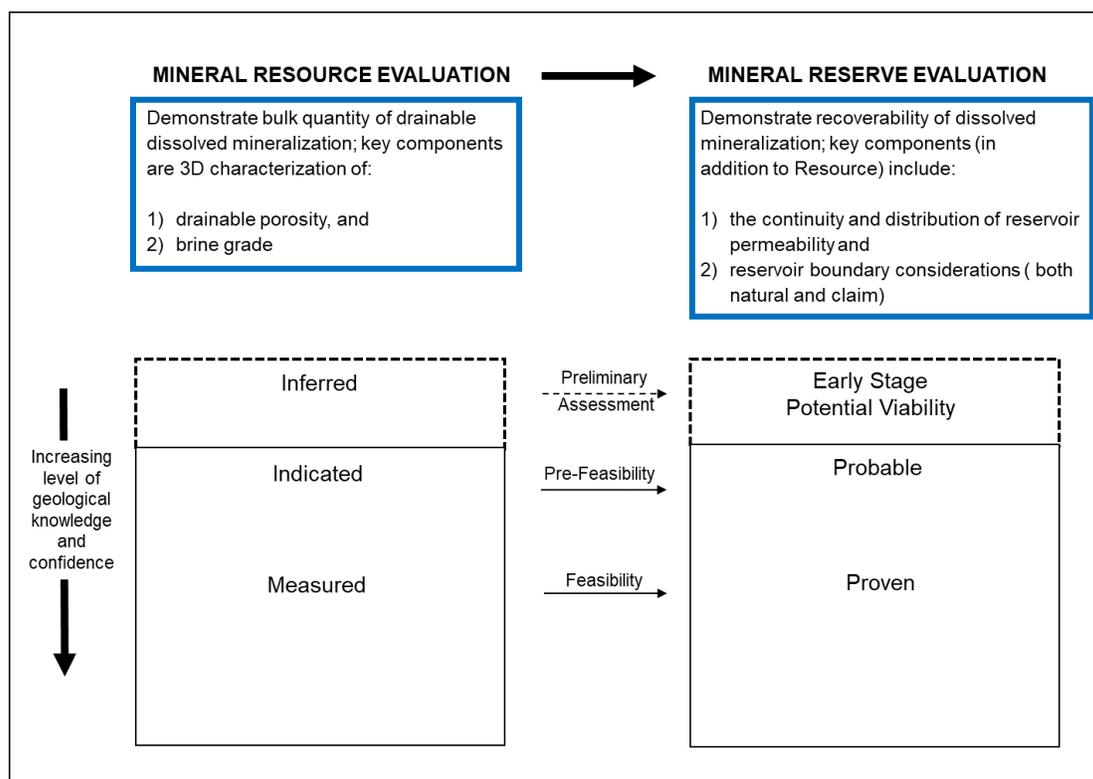


Figure 2.1: Evaluation framework for mineral prospects, with brine specific features outlined in blue.

2.4 IQP PROPERTY INSPECTION AND INTERACTION

Dr. Mark King (QP) visited the HMN Project on two occasions during the 2022-23 field exploration program. During these visits, Dr. King conducted the following activities at the HMN Project and office that are relevant to the current Report:

- October 2022:
 - Visited the Project properties for two days on October 12 and 13, 2022, to view all HMN Project properties and to observe drilling and sampling techniques, to conduct independent brine sampling, and to review core at the Alba Sabrina property.
 - Visited the LIS offices and laboratory in Salta, Argentina on October 11 and 15, 2022 to review processing work and QA/QC procedures with the LIS expert team.
- March 2023:
 - Visited the Project properties for one day on March 22, 2023, to observe drilling and brine sampling, to collected independent brine samples, and to review drill core from the Natalia Maria property.
 - Met with the LIS expert team at the LIS offices in Salta, Argentina on March 26, 2023.

2.5 STATEMENT OF INDEPENDENCE

Dr. King is independent of LIS, as such terms are defined by NI 43-101. Neither Dr. King, nor GWI, have, or have had previously, any material interest in LIS or mineral properties in which LIS has any interest. The relationship of Dr. King (and GWI) with LIS is solely one of professional association between client and independent consultant.

2.6 UNITS AND CURRENCY

Unless otherwise stated, all units used in this report are metric. The concentration of dissolved brine constituents, including lithium, is reported in milligrams per litre (“mg/L”), unless otherwise noted. All currency values in the report are expressed in US dollars (“US\$”).

2.7 USE OF REPORT

This Technical Report was prepared with data and information provided by LIS and third parties, in accordance with National Instrument 43-101 and 43-101F1 pursuant to the agreed contractual terms of the present engagement. Dr. Mark King (QP) represents that reasonable care was exercised in preparing this report, that the report meets or exceeds industry standards, and that it is subject to the terms and conditions of engagement between GWI and LIS.

This Technical Report is considered current as of September 5, 2023.

3 RELIANCE ON OTHER EXPERTS

In preparing certain sections of this report, the QPs have relied upon other experts, including the following:

- LIS geologists were relied upon for supervision of exploration tasks including core logging and lithological interpretations, brine sampling, well construction, and water level monitoring.
- FEFLOW Resource modelling for the updated Resource Estimate was done by Paul Martin, P.Eng. and Martinus Brouwers, M.A.Sc., of Aqua Insight Inc., under the supervision of Dr. Mark King (QP) (Section 14).
- Professionals and consultants at EC & Asociados S.R.L. were relied upon for information pertaining to environmental considerations, specifically:
 - EC & Asociados S.R.L., for flora, fauna, and cultural considerations presented in Sections 5.6, 5.7, 20.1, and 20.4; and
 - Matís Ambasch, Aníbal Villarroel, Matías Rando, and Pablo Andueza, of Arqueo Ambiental Consultores Arqueológicos, for archaeological heritage information presented in Section 20.1.4.

For legal matters, the QPs have relied upon, and, to the extent permitted under Item 3 of Form 43-101F1, disclaim responsibility for legal matters, as summarized in the Title Opinion provided by Sr. Jorge Vargas Gei, of the law firm Vargas-Galíndez Abogados, Mendoza, Argentina. The ownership and claim Title Opinion (August 2023) is summarized in Sections 4.2 and 4.3 of this Technical Report. The QPs have not researched these Project title and mineral rights, and express no opinion as to the ownership status of the Project properties.

4 PROPERTY DESCRIPTION AND LOCATION

4.1 LOCATION AND DESCRIPTION

The HMN Project is located in Antofagasta de La Sierra Department, Catamarca Province and Los Andes Department, Salta Province, northwestern Argentina (Figure 4.1). The Project comprises six concessions with a total area of 3237 ha, situated in the northern part of SHM. These concessions are the primary target for lithium brine exploration and the focus of this Technical Report.

Three additional properties related to the HMN Project are located approximately six km N of the SHM in Salta Province. These properties, known as the Sophia properties, comprise three non-contiguous concessions with a total area of 2365 ha. They were acquired as a prospective freshwater source for the HMN Project, and as a location for anticipated future plant and processing facilities (Section 5.3.6).

4.2 TYPE OF MINERAL TENURE

Sr. Jorge Vargas Gei, of the law firm Vargas-Galíndez Abogados, Mendoza, Argentina provided all information regarding the legal status of the HMN Project properties (Sections 4.2 and 4.3). This information type is not the responsibility of the QPs. Details of the property information are provided in Table 4.1 and property locations are shown on Figure 4.1.

In Argentina, renewable and non-renewable natural resources are the property of each province. Provinces have the authority to grant mining rights to private entities and then regulate any exploration and mining activity. There are two types of mining tenure granted by the provinces under Argentine mining laws:

- Exploration Concessions (“*Cateos*”); and
- Mining Concessions (“*Minas*”).

The HMN Project and associated properties include nine Mining Concessions (5602 ha) (Table 4.1). Mining Concessions grant to LIS, through its wholly owned Argentinian subsidiary NRG Metals Argentina S.A., the right to exploit the mineral resources, including water, hosted within the Alba Sabrina, Natalia Maria, Tramo, Gaston Enrique, Norma Edith, Viamonte, Sophia I, Sophia II, and Sophia III properties. These concessions remain the property of LIS as long as LIS meets the obligations in the National Mining Code, as outlined in Section 4.3.

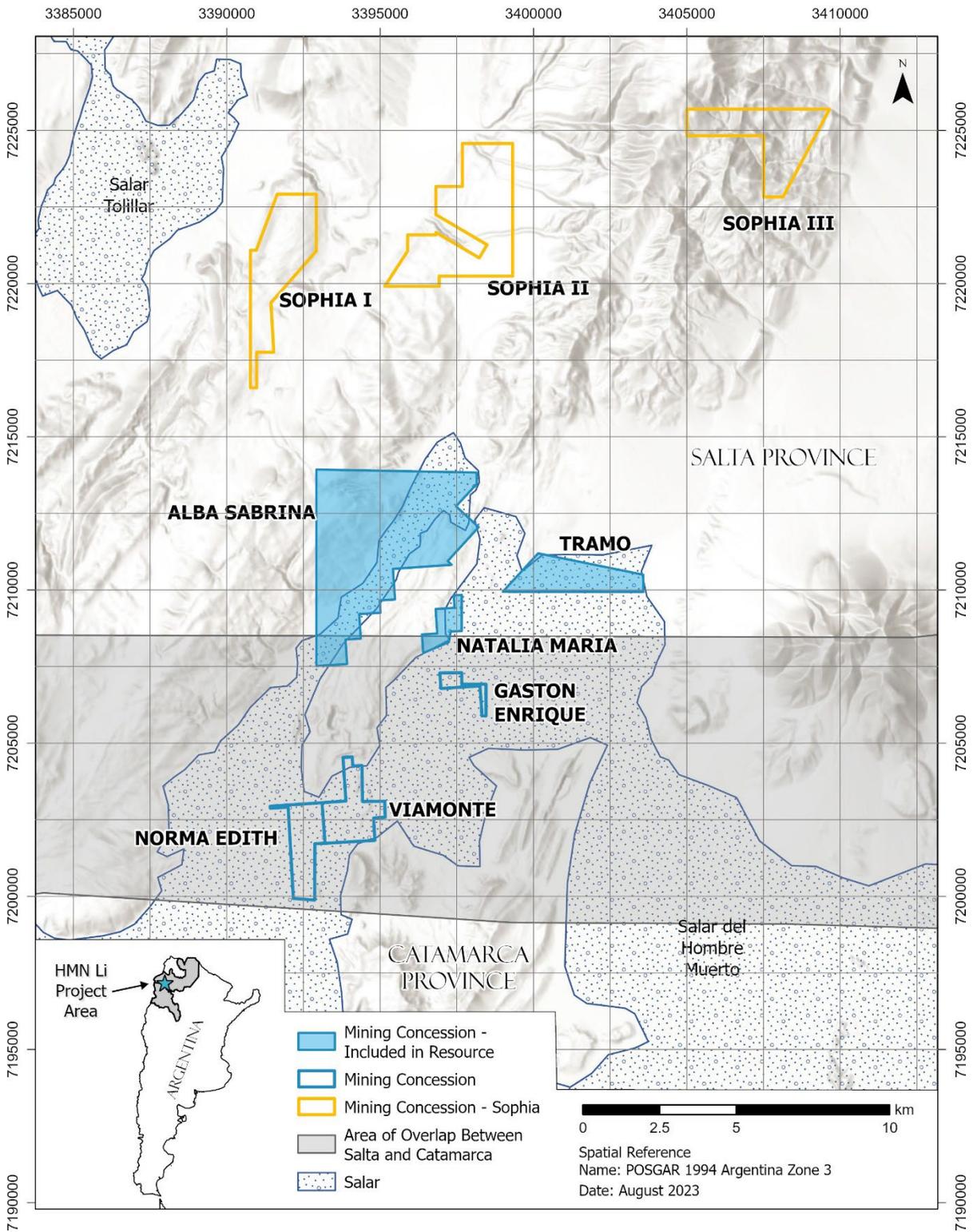


Figure 4.1: Property map for the Lithium South HMN Project.

Table 4.1: Status of concessions in the Lithium South HMN Project and associated properties.

Property Name	File #	Title Holder	Claim Type	Provincial Jurisdiction	Area (ha)	Included in 2023 Resource?
Alba Sabrina	18.823	NRG Metals Argentina S.A.	Mining	Salta/Overlap	2089	Yes
Natalia Maria	18.830		Mining	Salta/Overlap	115	Yes
Tramo	18.993		Mining	Salta	383	Yes
Gaston Enrique	18.824		Mining	Overlap	55	No
Norma Edith	18.829		Mining	Overlap	285	No
Viamonte	13.408		Mining	Overlap	310	No
<i>Area (ha)</i>					3237	
Sophia I	736816	NRG Metals Argentina S.A.	Mining	Salta	677	No
Sophia II	736818		Mining	Salta	1073	No
Sophia III	736819		Mining	Salta	615	No
<i>Area (ha)</i>					2365	
Total Area (ha)					5602	

Portions of the HMN Project properties are located within a zone of overlapping jurisdiction between the provinces of Salta and Catamarca, where the proclaimed northern border of Catamarca overlaps with the proclaimed southern border of Salta. The locations of the properties in relation to the overlap zone are shown on Figure 4.1, and are as follows:

- Tramo, Sophia I, Sophia II, and Sophia III properties are entirely within the province of Salta.
- Alba Sabrina and Natalia Maria properties are predominantly within the province of Salta, and partially in the overlap zone.
- Gaston Enrique, Norma Edith, and Viamonte are entirely within the overlap zone.

In 2015, the Argentine Supreme Court determined that the overlap dispute must be resolved by the National Congress. Currently, while a final resolution is anticipated, the governments of both provinces have entered into a cooperation agreement for the development of mining activity in this zone.

4.3 MINING RIGHTS OPINION

4.3.1 Summary

LIS legal counsel states that:

- NRG Metals Argentina S.A. is an Argentinian subsidiary of LIS, and is wholly owned by LIS.
- NRG Metals Argentina S.A. has a good and valid, legal, and beneficial title to the Alba Sabrina, Natalia Maria, Tramo, Gaston Enrique, Norma Edith, Viamonte, Sophia I, Sophia II, and Sophia III properties.
- The Alba Sabrina, Natalia Maria, Tramo, Gaston Enrique, Norma Edith, and Viamonte properties are subject to the Moreno Option Agreement between NRG Metals Argentina S.A. and Mr. Moreno and Ms. Sala dated May 17, 2017, the Addendum, and the Second Addendum. As of the date of the Title Opinion (August 2023), all payments (US\$5.65 million) have been made and all shares (10 million common shares) issued according to the schedule outlined in the Agreement and associated Addendums.

- Other than the obligations arising out of the Moreno Option Agreement, the Addendum, and the Second Addendum (Section 4.3.2), all properties are free and clear from any liens, charges, or encumbrances, recorded in the relevant registries.
- There are no expiry dates for concessions in Argentina, provided that annual fees are paid. The annual fees for the Alba Sabrina, Natalia Maria, Tramo, Gaston Enrique, Norma Edith, and Viamonte properties are up to date as of the data of the Title Opinion. There are currently no annual fees for the Sophia I, II, and III properties.
- As of the date of the Title Opinion (August 2023), all properties are in good standing and comply with applicable regulations.

4.3.2 Royalties

As per the Moreno Option Agreement, NRG Metals Argentina S.A. exercised the purchase option and signed a deed of transfer of the mining rights to the Alba Sabrina, Natalia Maria, Tramo, Gaston Enrique, Norma Edith, and Viamonte properties on May 12, 2022. Mr. Moreno and Ms. Sala retain a 3% royalty on the production of lithium carbonate and/or from any other product derived from brine operations on the properties included in the Agreement.

Law No. 24.196 of Mining Investments establishes a mining royalty of up to 3% of the mine head value of the extracted ore. Such value is defined as the sales value less certain cost related to mineral processing (refining, logistics, marketing, administration) but, excluding the extraction cost. LIS would be required to pay this royalty to the provincial government of Salta if and when the HMN Project achieves production capacity.

4.4 ENVIRONMENTAL LIABILITIES AND CONSIDERATIONS

An Environmental Baseline Study (“EBS”) was conducted for the Alba Sabrina, Natalia Maria, Tramo, Gaston Enrique, Norma Edith, and Viamonte properties between August 2021 and March 2022 to fulfill requirements under the General Environmental Law, Mining Code No. 24.585. The findings of the EBS are summarized in Section 20.1. The following environmental considerations were documented during the study (ECA, 2022):

- No threatened plant or animal species were detected on any of the HMN Project areas surveyed during the EBS. Furthermore, the sites surveyed do not represent habitat areas of high biodiversity value in the context of the Hombre Muerto basin.
- The HMN Project falls within the La Vicuña Nature Reserve Area (ECA, 2022). Provincial Law 6.709/93 declares the vicuña (*Vicugna vicugna*) as a protected species in several regions within Argentina, including Los Andes Department, Salta Province. Although no vicuñas were observed on the properties, they may transit the area to access peripheral parts of the Hombre Muerto basin. It is necessary to develop strategies to manage future development of the HMN Project so that it does not interfere with vicuña movements.
- Surface water resources are important for plant and animal communities, local livestock production, and human settlements. In particular, the base of the alluvial fan east of Cordón del Gallego on the Alba Sabrina property is an important seasonal water source for wildlife in the area, and natural freshwater runoff to the area should not be diverted.

4.5 PERMITS

A detailed summary of permitting activities related to the HMN Project is provided in Section 20.2.

4.6 CLOSING

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

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

5.1 ACCESSIBILITY

The SHM is commonly accessed from the city of Salta, according to the following directions (Figure 5.1):

- From Salta, drive W on National Route 51 through the town of San Antonio de los Cobres (170 km) and then continue W toward Puestos Cauchari (70 km).
- Turn S at Puestos Cauchari onto Provincial Route 27 and continue S to the town of Estación Salar de Pocitos, for approximately 40 km.
- Turn S onto Provincial Route 17 and continue S for approximately 100 km.
- Turn W onto Cuesta de Napoleón Road and pass through the Sophia II property. SHM is accessed from the NW (Figure 5.1 and Figure 5.2).

5.2 LOCAL RESOURCES

The HMN Project straddles the Salta and Catamarca Provinces in the southeastern Puna region of Argentina. Local resources within the Puna are minimal, and most supplies used for mining and exploration at SHM are transported in by truck from Salta and San Antonio de Los Cobres. Distances to the closest city, townships, and settlements are as follows (Figure 5.1):

- The capital city of Salta (719,000 inhabitants) is located approximately 380 km NE by road and is the closest major city to the Project.
- Antofagasta de La Sierra, Catamarca Province (1300 inhabitants) is the closest township to the Project and is equipped with a hospital, a few small hotels and restaurants, general stores, a school, internet access, cell phone reception, and a landing strip for small planes. It is located approximately 100 km S of the HMN Project on Provincial Route 43.
- The town of San Antonio de Los Cobres, Salta (5500 inhabitants) is located about 210 km NE of the Project by road. The town has shops, restaurants, hotels, hospitals, schools, and government agencies including the Army and the Argentine National Gendarmerie.
- The nearest human settlement, La Redonda, is approximately 25 km SW of the Tramo Property by road. La Redonda is a small community of approximately 20 llama and sheep herders.

Some of the mining camps near the HMN Project include the Tincalayu Mine (Borax Argentina), Fénix Mine (Livent Corp), Sal de Oro Project (Posco Argentina), Sal de Vida Project (Allkem), and Providencia Project (Minera Santa Rita) (Figure 5.2). Most of these camps have medical facilities, and the Livent and Posco projects also have airstrips.

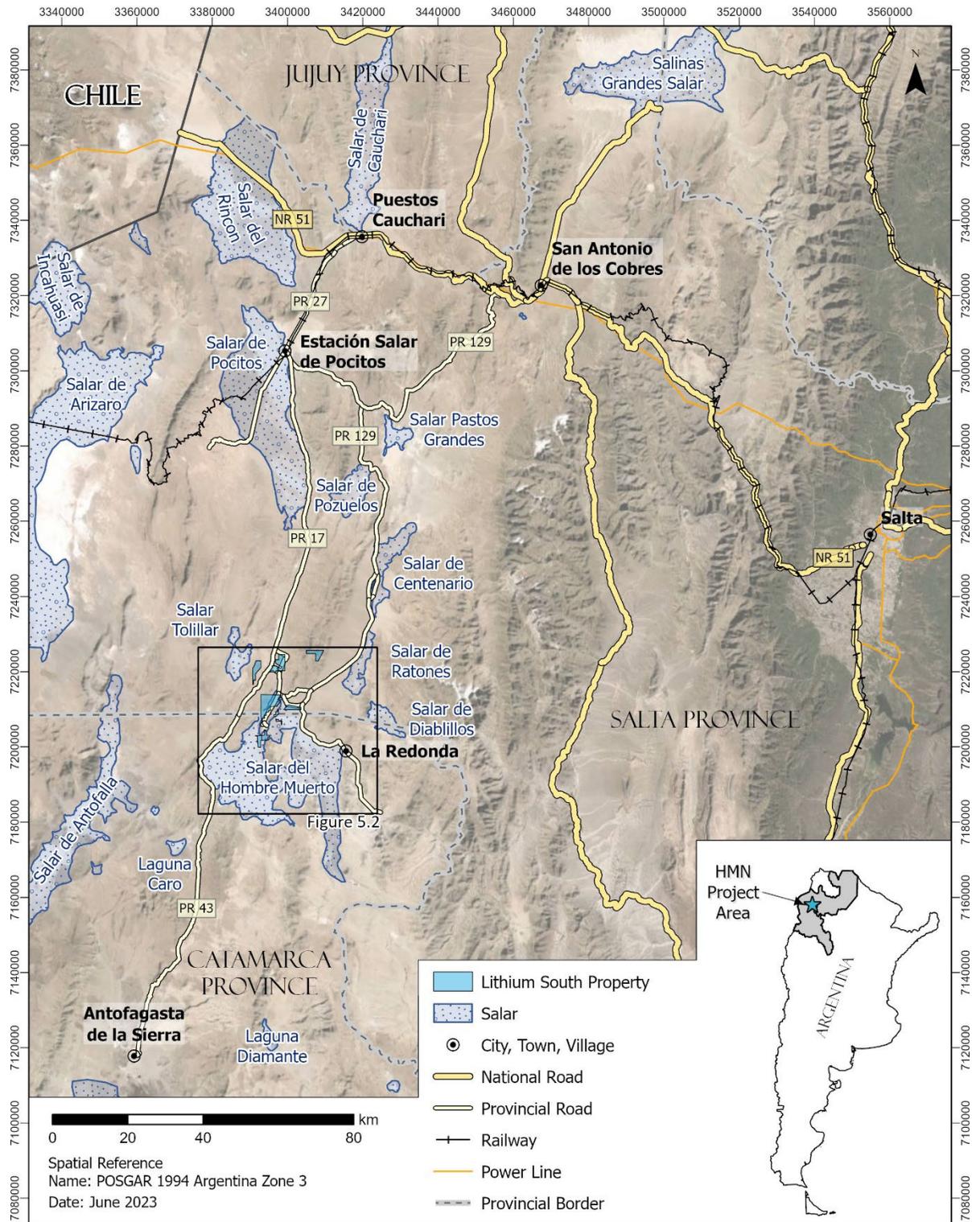


Figure 5.1: Access routes and infrastructure around the HMN Project.

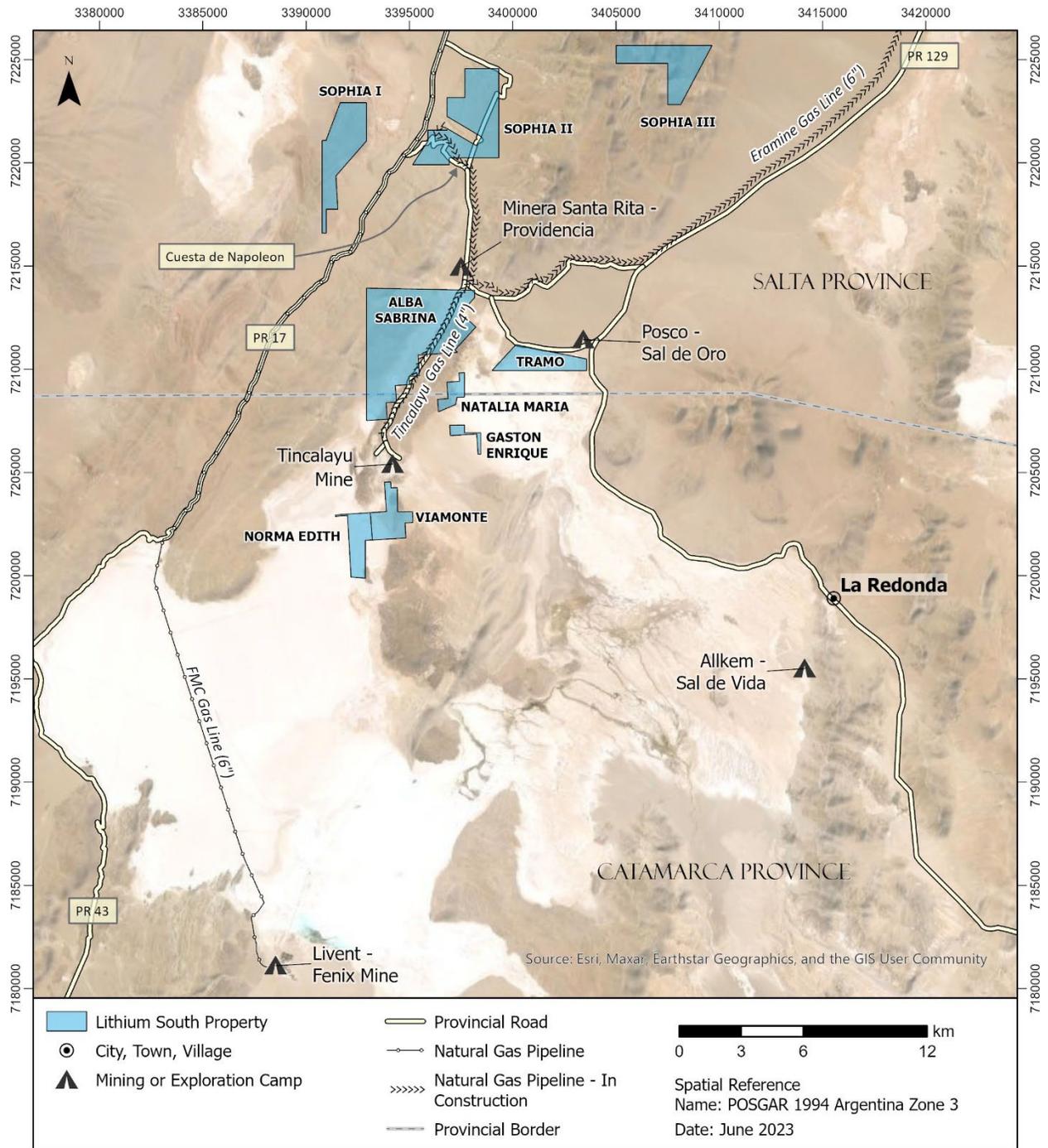


Figure 5.2: Access routes, infrastructure, and camps near the HMN Project.

5.3 INFRASTRUCTURE

5.3.1 Infrastructure Summary

Infrastructure in the Argentine Puna is basic and minimal. Existing infrastructure near the HMN Project supports the mines that are currently operating (Fénix and Tincalayu) and the construction of advanced-stage projects (Sal de Oro, Sal de Vida, Centenario-Ratones, Hombre Muerto West).

Infrastructure requirements for the HMN Project will be further evaluated in follow-up assessment work. Preliminary possibilities and existing infrastructure that may be utilized to support development at the Project are in summarised Sections 5.3.2 through 5.3.7.

5.3.2 Electric Power

The closest major powerline to the HMN Project is approximately 160 km N in Puestos Cauchari (Figure 5.1). The 600-megawatt, 375-kilovolt power line extends between Salta, Argentina and Mejillones, Chile. Smaller communities within the Puna, including Estación Salar de Pocitos and La Redonda, and mining camps are serviced by diesel generators.

5.3.3 Natural Gas Pipeline

Natural gas is currently supplied to SHM via the FMC Gas Line, a six-inch diameter pipeline that connects the Puna pipeline at its current terminus near the intersection of Provincial Routes 27 and 17 in Estación Salar de Pocitos to the Fénix Mine (Figure 5.2). The pipeline is approximately two km NW of the Alba Sabrina property, at the closest point.

Two additional pipelines are currently under construction near the HMN Project (Figure 5.2):

- The Eramine Gas Line is a six-inch diameter pipeline designed to supply natural gas to the Eramine Centenario-Ratones Project. This pipeline connects to the FMC Gas Line where the Cuesta de Napoleón Road intersects with Provincial Route 17 and crosses through the Sophia II property and approximately 500 m N of the Alba Sabrina property en route to Salar de Ratones.
- The Tincalayu Gas Line is a four-inch diameter natural gas pipeline that crosses over the Alba Sabrina property. The pipeline will provide natural gas to the Tincalayu Mine from the Puna and Eramine pipelines.

5.3.4 Railway

A 940 km long, narrow-gauge railway that connects Salta, Argentina to Antofagasta on the coast of Chile was completed in 1948 (Figure 5.1). The railway at the closest point is located approximately 100 km N of the HMN Project, in Estación Salar de Pocitos. The railway is currently being reactivated through agreements between regional governments. At the time of this Technical Report, a small section of railway near San Antonio de Los Cobres, Argentina is actively used for tourism.

5.3.5 Roads

The HMN Project can be accessed from Salta year-round by a well-maintained network of roads. Two gravel Provincial Routes, 17 and 129, pass within 10 km of the Project. From the Provincial Routes, the Project is accessed by the unpaved Cuesta de Napoleón mining road, which links Provincial Route 17 and 129, and by dirt roads within the salar.

5.3.6 Water Supply

Fresh water in and around SHM is limited and potable water is trucked in. Water for general use in the northern SHM is obtained from a spring located five km N of the Project and managed by Borax Argentina for use at the Tincalayu Mine. The Sophia I, II, and III properties (Figure 5.2) are currently being evaluated as a potential source for industrial water required for future operations, including brine processing.

5.3.7 Camp and Communications

There are currently no camp facilities onsite at any of the HMN Project properties. The camp operated by Minera Santa Rita, just north of the Alba Sabrina property at the Providencia Project, is currently used to support exploration activities at the Project (Figure 5.2). Communication onsite is by satellite phone, and additional forms of communication and internet are available at the camp.

5.4 PHYSIOGRAPHY

The SHM occupies an area of approximately 590 km² in the northern and lowest portion of the Hombre Muerto basin, an approximately 3900 km² N-S elongated endorheic basin (Figure 5.3). The salar has an approximate average elevation of 4000 masl and the basin is surrounded by mountains with elevations over 5000 masl. Cerro Gallan is a volcanic caldera in the southern end of the Hombre Muerto basin. With an elevation of 6100 masl, it is the highest point in the basin. The highest point in the northern basin is Cerro Ratonés (5790 masl). This andesitic stratovolcano separates the Hombre Muerto basin from the Centenario-Ratonés basin to the northeast.

SHM is divided into the Eastern (Subcuenca Oriental) and Western (Subcuenca Occidental) Subbasins by three fault-bounded bedrock remnants: the Hombre Muerto Peninsula in the south, the Farallón Catal in the centre, and Tincalayu Peninsula in the north (Figure 5.4). The Eastern and Western Subbasins remain hydraulically connected through the salar deposits that infill the low-lying areas between the bedrock remnants (Integral, 2023).

The Farallón Catal is a homoclinal structure that dips to the east and rises approximately 400 m above the salar surface. It has a hilly to strongly hilly relief with slopes ranging between 12 and 30% (ECA, 2022). The northwestern part of the salar is transected by the NE-SW trending Tincalayu Peninsula, forming the channel occupied by Alba Sabrina to the west and the northern sector of the Eastern Subbasin to the east. To the west, the Alba Sabrina channel is bound by the NE-SW trending Cordon del Gallego Range, which reaches elevations of up to 4600 masl. The northern margin of the salar is bordered by large, gently sloping alluvial fans. The location, topography, and geographic features of the HMN Project properties are shown on Figure 5.4.

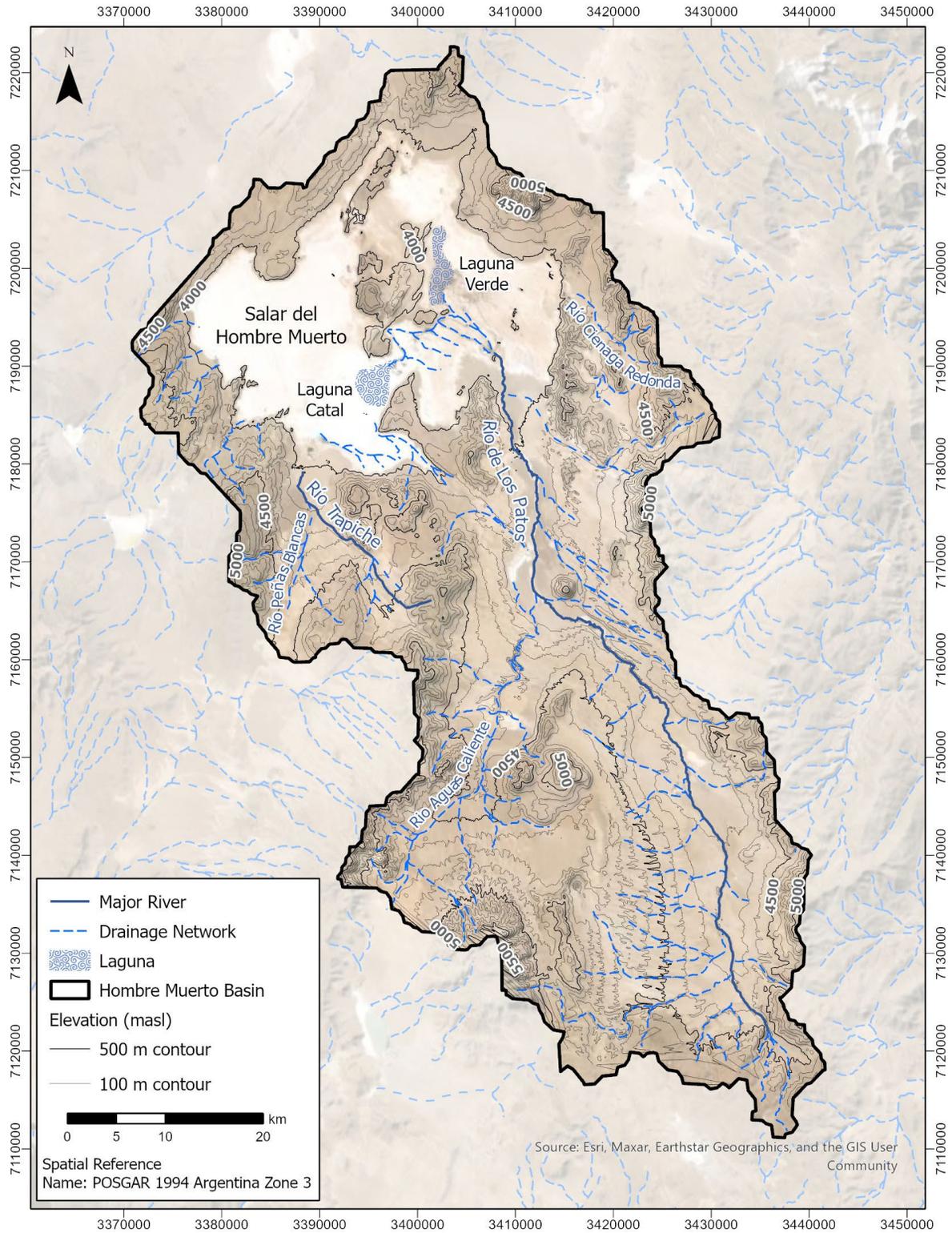


Figure 5.3: Topography of the Hombre Muerto basin.

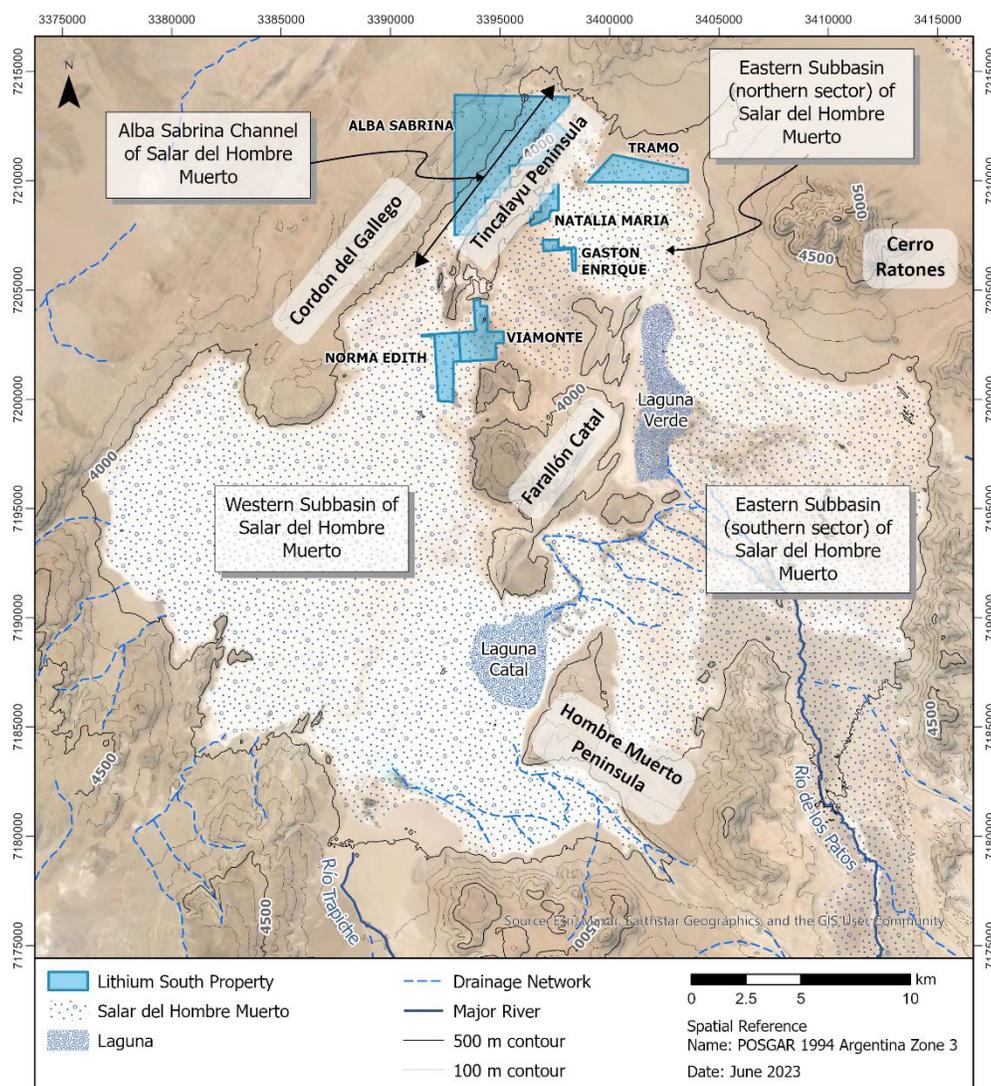


Figure 5.4: Geographical features of SHM.

5.5 CLIMATE

The Argentine Puna is a cold, high altitude desert with an intense Andean Continental type climate. Precipitation, temperature, relative humidity, solar radiation, and wind speed for the SHM are summarized in Table 5.1 based on data from the following sources:

- Santa Rita weather station, Providencia Project: installed as part of the EBS at the HMN Project, and includes data from December 2018 – January 2022 (ECA, 2022).
- Fénix Camp weather station, Fénix Mine: reported data from 1992-2001 (Montgomery & GAI, 2012).

The following general trends are noted:

- Precipitation trends are similar between the climate data sources with annual average values of 99.6 mm and 77.4 mm.

- Annual precipitation can be highly variable but is consistently low. Over the four complete years of record at the Santa Rita weather station (2018 through 2021), minimum and maximum annual precipitation ranged from 5.4 mm to 177.6 mm.
- Most of the precipitation (65% to 90%) occurs in the wet summer months of December, January, February, and March.
- The average annual temperature is approximately 5°C, with a wide range varying from -20 to 27°C, and daily variations of up to 35°C.
- Trends in relative humidity tend to follow those of precipitation. Compared to dry months, the wettest months (typically December through March) have higher humidity by a factor of 1.5 to 2 times. On an average annual basis, relative humidity is 32%.
- Solar radiation is highest between October and March, with the maximum occurring in December.
- Strong predominantly W, WNW, and WSW winds are characteristic of the Puna Region. The average annual wind speed is approximately 10 km/h, and maximum wind speeds of over 80 km/h can occur during the dry winter season. During the summer, warm to cool winds generally occur after midday and winds are usually calm during the night.

Table 5.1: Monthly climatic averages for the SHM.

Climate Parameter	Month												Annual ¹
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Avg. Precip. (mm) ²	11.8	10.0	4.3	0.1	0.3	0.2	0.0	0.1	0.6	0.0	0.0	72.2	99.6
Avg. Precip. (mm) ³	35.6	20.0	7.8	1.1	0.7	1.0	1.2	0.9	1.6	0.0	0.4	7.1	77.4
Daily Temp. Mean (°C) ²	9.8	11.3	9.1	6.2	1.0	-0.9	-0.4	1.2	4.2	6.2	9.0	10.1	5.6
Daily Temp. Mean (°C) ³	11.7	11	9.1	5.6	1.6	-0.8	-1.6	0.4	2.7	5.4	7.4	9.6	5.2
Relative Humidity (%) ²	60.9	45.4	35.0	27.5	30.1	30.1	25.5	23.8	20.6	19.8	21.6	45.6	32.2
Solar Radiation (W/m ²) ²	256	265	233	192	150	147	152	200	243	272	230	276	223
Wind Speed (km/h) ²	11.6	7.0	12.4	11.2	12.7	16.2	14.4	14.2	18.6	15.2	13.9	13.0	13.4
Wind Speed (km/h) ³	8.3	8.8	8.2	9.5	10.1	10.6	11.2	11.1	12.9	12.5	10.7	9.5	10.3

Note: ¹ Annual statistics for precipitation aggregated as sum. All other annual statistics aggregated as average.

Source: ² Santa Rita weather station (ECA, 2022).

³ Fénix Camp weather station (Montgomery and GAI, 2012).

5.6 FLORA

High altitudes, low temperatures, saline soils, and arid climate conditions have resulted in the development of xerophytic, halophytic, and psammophilous plant communities in the Puna region of South America. Common plant groups found within the Puna include *Asteraceae*, *Poaceae*, *Solanaceae*, *Verbenaceae*, and *Fabaceae* (ECA, 2022). Within the Hombre Muerto basin, plant communities are

predominantly found in habitats formed by freshwater inputs including streams and riverbeds, vegas, alluvial fans, and river deltas as well as in higher elevation areas away from the high salinity salar surface (de la Fuente, 2008). Results of the EBS are summarized in Section 20.1.2.

5.7 FAUNA

Animal species of the Puna have also adapted to the unique and challenging climate conditions. Fauna commonly found within the Hombre Muerto basin, some of which were observed during the EBS at the HMN Project, include (ECA, 2022):

- **Mammals:** Native mammals include vicuña, opossum, southern viscacha, highland tuco-tuco, several species of Andean mice, Molina’s hog-nosed skunk, Andean fox, Pampas cat, and puma, among others. Domesticated animals found in the area are semi-feral donkeys, llamas, sheep, mules, and goats.
- **Birds:** Numerous migratory and permanent bird species are found within the Hombre Muerto basin. Forty-two native bird species were identified during the EBS survey, the majority of which were observed in the fresh and brackish water environments of the Rio Patos delta and vegas. Examples of birds commonly found in the SHM include the Sierra finch, grey-faced goldfinch, Aimara dove, Puna warbler, Cory’s Hawk, Andean plover, flamingos, owls, and rheas, among others.
- **Reptiles:** Lizards and spiny toads are found in various habitats throughout the basin.

Animal species observed within the HMN Project properties during the EBS (ECA, 2022) are summarized in Section 20.1.3.

6 HISTORY

6.1 PREVIOUS EXPLORATION AT THE HMN PROJECT

Previous exploration by Lithium One (previously Galaxy Resources), including surface sampling and geophysical surveys, was conducted near and over some parts of the Gaston Enrique, Natalia Maria, and Tramo Properties (Montgomery & GAI, 2012). Recent exploration work carried out by LIS (previously NRG Metals Inc.) at the HMN Project, which is documented in the technical reports by Montgomery (2017; 2018) and KPC (2019), is summarized in Section 9.

6.2 HISTORY OF MINERAL EXPLORATION IN SALAR DEL HOMBRE MUERTO

In the late 1970s and early 1980s, the Dirección General de Fabricaciones Militares facilitated lithium exploration in multiple salars throughout the Argentine Puna. Through mapping, surface sampling, and shallow brine sampling, SHM was selected for evaluation (Alonso, 2020). Livent (previously FMC Corporation), through its subsidiary Minera del Altiplano S.A., acquired exploration and development rights in the western sub-basin of SHM from the Argentine federal government and Catamarca Province in 1994. Pilot lithium production at the Fénix Mine commenced in 1997, followed by commercial lithium production in 1998 (Integral, 2023). Livent is currently the sole commercial lithium producer in SHM.

Additional lithium exploration in the eastern sub-basin of SHM has been ongoing since the early 2000s. The Posco Sal de Oro Project and Allkem Sal de Vida Project have reached an advanced exploration stage and are progressing toward lithium production. Further details are presented in Section 23.

Borate extraction has been conducted at the Tincalayu Mine (Tincalayu Peninsula) since 1954. The mine was originally operated by Rio Tinto, through its subsidiary Borax Argentina (previously Boroquímica SAMICAF). Allkem (previously Orocobre) acquired Borax Argentina in 2012. Since 2007, One Borax S.A., a privately owned company, has mined ulexite from the northeastern border of the HMN Project Tramo property.

7 GEOLOGICAL SETTING AND MINERALIZATION

7.1 REGIONAL GEOLOGY

Salar del Hombre Muerto is situated in the southern zone of the central Andean Puna-Altiplano plateau of South America. The plateau is confined by the reverse-faulted Sierra Pampeanas basement to the east, the magmatic arc of the Cordillera Volcánica Occidental to the west, and the Cordillera Oriental fold-and-thrust belt to the north. It spans approximately 2000 km in length by 300 km in width with an average elevation of 3700 masl. It is characterized by low-lying internally drained basins (salars), which are fault-bounded by mountain ranges and volcanic edifices (Kraemer et al., 1999; Voss, 2002; Carrapa et al., 2005; see Figure 7.1).

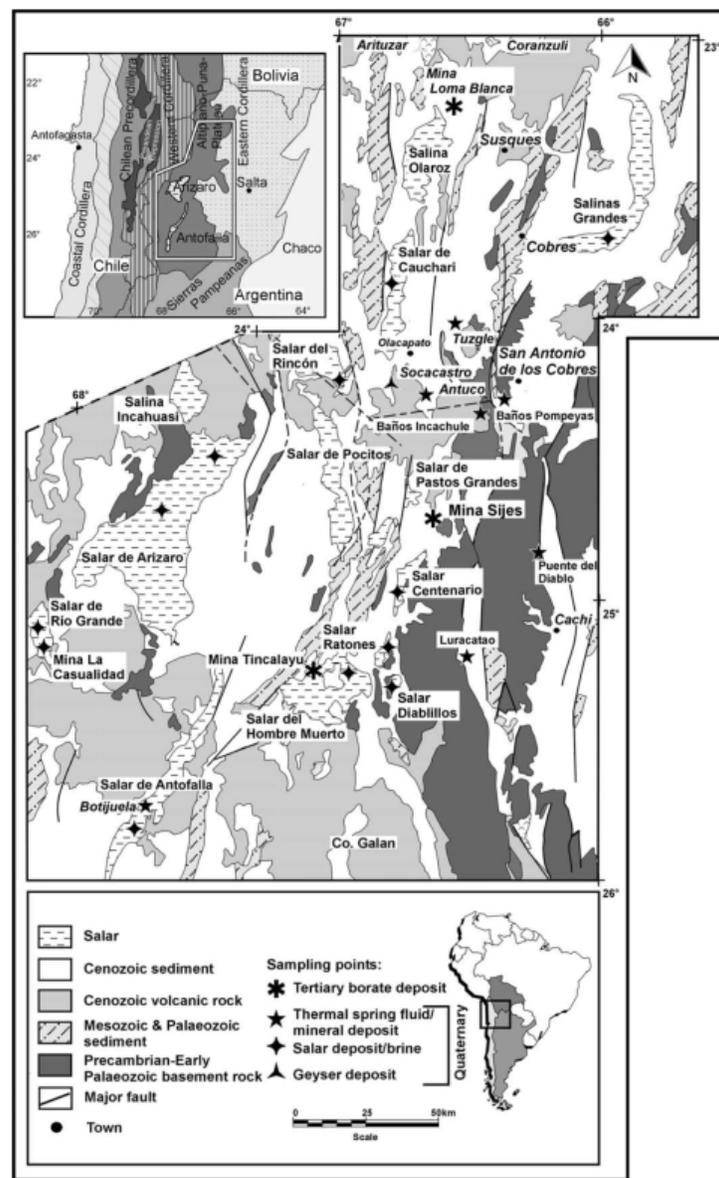


Figure 7.1: Simplified regional geology of the Puna-Altiplano plateau (from Kasemann et al., 2004).

The Puna-Altiplano plateau was formed by a combination of compressional reverse faulting during the Middle to Late Miocene, and extension and crustal thinning from the Pliocene onward (Kraemer et al., 1999; Voss, 2002; Carrapa et al., 2005). Concurrent with these tectonic processes, erosion of uplifted regions led to the deposition of clastic sequences within the basins. This deposition reshaped regional drainage systems, leading to basin compartmentalization and the development of internal drainage systems (Carrapa et al., 2005).

Episodes of volcanic activity from the Miocene to Recent played a significant role in filling the basins and forming stratovolcanoes across the region (Voss, 2002). These geological events occurred within a predominantly arid environment, which facilitated the accumulations of evaporites, sediment, and brine within Puna-Altiplano salars, including SHM.

7.2 GEOLOGY OF THE HOMBRE MUERTO BASIN

A geological map and stratigraphic summary of the units that outcrop within the Hombre Muerto basin are provided on Figure 7.2 and in Table 7.1, respectively. They support the following geological summary of the Hombre Muerto basin and are based on geological studies by Hongn and Seggiaro (2001), among others referenced below. Bracketed numbers following the formation names below refer to associated numbers on Figure 7.2 and Table 7.1.

7.2.1 Pre-Andean Basement

The oldest outcropping units within the Hombre Muerto basin are the Neoproterozoic-aged Pachamama Formation (1) and Río Blanco Metamorphic Complex (2). These metamorphic sequences form the pre-Andean basement, together with the Paleozoic-aged Falda Ciénaga Formation (10) sediments and Oire Eruptive Complex (12, 14) intrusions.

The Pachamama Formation is a Neoproterozoic medium-high grade metamorphic complex that outcrops along the southeastern margin of SHM and as isolated outcrops within the Eastern Subbasin. The Formation is assigned to the pre-Ordovician basement based on an estimated metamorphic peak of 508 Ma in the Hombre Muerto basin outcrops (Luccasen et al., 1996 in Hongn and Seggiaro, 2001). The Pachamama Formation is in tectonic contact with the younger Río Blanco Metamorphic Complex, which outcrops on the eastern perimeter of the Hombre Muerto basin. Both formations are intruded by Oire Eruptive Complex basic and ultrabasic mafic bodies.

The Falda Ciénaga Formation forms the Pre-Andean basement in the northwestern Hombre Muerto basin and Western Subbasin of SHM. The formation outcrops in the Cordon del Gallego Range along the northwestern margin of the salar and in the hills west of Río Trapiche. The outcrops are dominated by an alternating sequence up to 3000 m thick Ordovician marine greywackes and fine sediments with uncommon thin conglomerate beds up to two metres thick and minor intercalations of tuffs and volcanoclastic sandstones. The sequence is affected by very low to low grade metamorphism and was folded and faulted during the Late Ordovician deformation.

Younger Cenozoic-aged sedimentary and volcanic formations overlie the Pre-Andean basement unconformably. These units were deposited during the compressional and extensional regimes related to the Cenozoic stages of the Andean Orogeny, as described below.

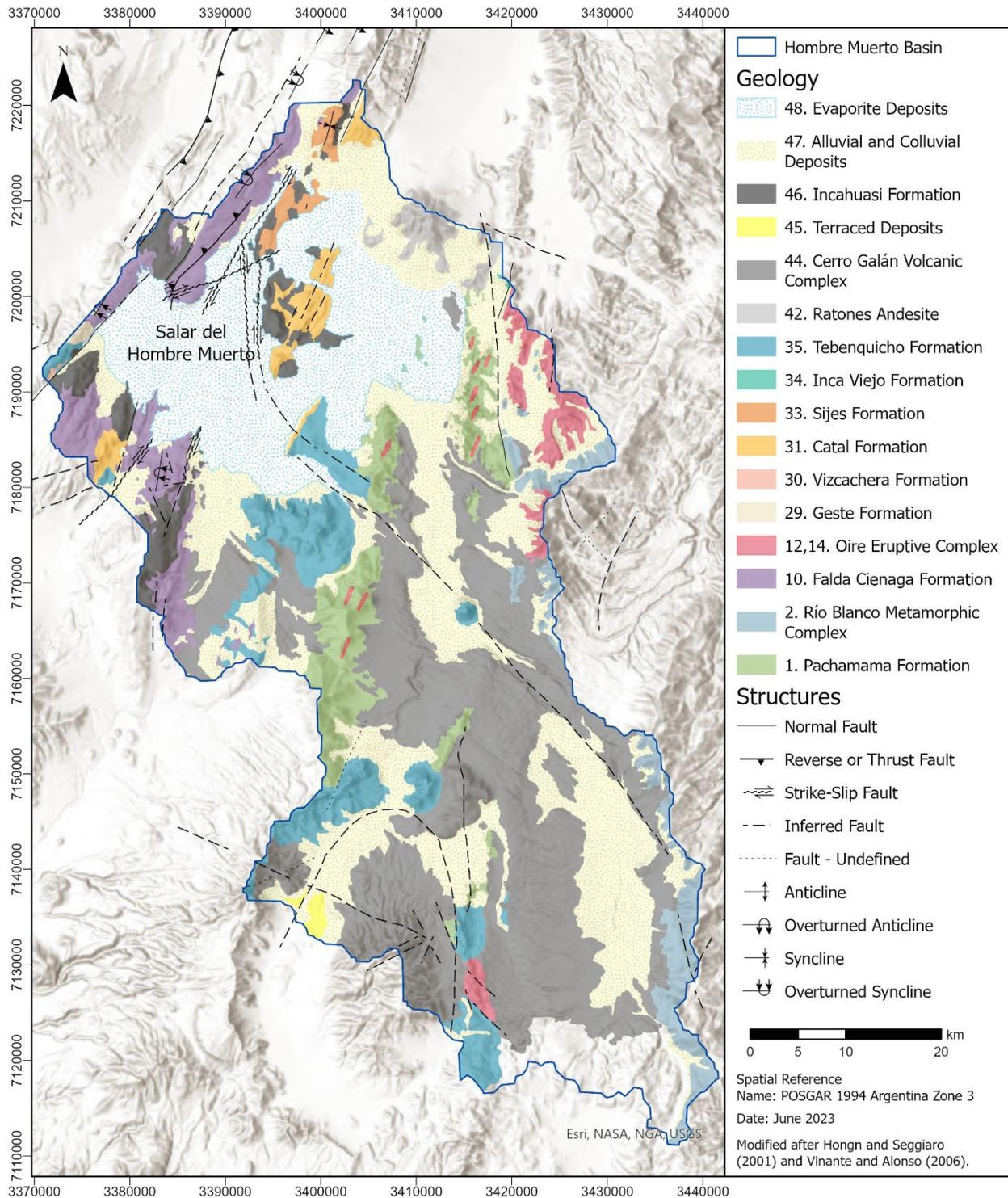


Figure 7.2: Geology of the Hombre Muerto basin; lithological descriptions provided in Table 7.1.

7.2.2 Jurassic – Cretaceous

The initial stages of the Andean Orogeny started in the Jurassic (approximately 140 Ma) with extensive volcanism and formation of a volcanic arc resulting from the eastward subduction of the Nazca Plate beneath the South American Plate (Ramos, 2009). Compression and uplift continued through the Cretaceous as tectonic activity intensified. This period saw the formation of large fold-and-thrust belts and the beginnings of significant mountain building (Charrier et al., 2007).

7.2.3 Paleogene and Neogene (Tertiary) Sedimentary Deposits

Uplift in the Eastern Cordillera of Argentina began approximately 38 Ma, and is associated with the onset of continental sediment accumulation within an extensive foreland basin throughout the Puna (Jordan and Alonso, 1987 in Carrapa et al., 2005). The oldest remnants of continental sediments in the Hombre Muerto basin include small, isolated outcrops of the Geste Formation (29) along the western margin of the basin. The Geste Formation comprises fluvial and alluvial deposits assigned to the Middle Eocene to Oligocene, that overlie the Falda Ciénaga Formation in an angular unconformity.

Significant compressional reverse faulting across the Puna in the Late Oligocene to Early Miocene (20-25 Ma) initiated basin formation, followed by major uplift of the Altiplano-Puna plateau and further basin compartmentalization during the Middle to Late Miocene (10-15 Ma) (e.g., Kramer et al., 1999; Voss, 2002; Carrapa et al., 2005). Sediment deposition during this period of basin formation is represented by the following formations within the Hombre Muerto basin:

- The Vizcachera Formation (30), which rests on the Geste Formation in an unconformity, is a thick sequence of lower Oligocene to Middle Miocene fluvial, aeolian, and saline lake deposits in a small outcrop on the western margin of the basin. Outside of the Hombre Muerto basin, between the Tolillar and Antofalla salars this sequence is up to 3500 m thick.
- The Catal Formation (31) comprises a thick sequence, almost 5000 m, of Miocene red clastic sediments and upper conglomerate and pyroclastic layers deposited in a high-energy continental environment in a prevailing arid climate (Alonso and Gutiérrez, 1986 in Conhidro, 2019). Ignimbrite and volcanoclastic intercalations within the Formation represent the first phase of Cenozoic magmatism (Section 7.2.4). This sequence outcrops on the Farallón Catal, on the eastern slope of Sierra de los Ratonés, and the along northern end of Hombre Muerto Peninsula where it is overlain by Quaternary Alluvial and Colluvial Deposits (Section 7.2.5). The Formation trends NE-SW and dips 25-40° E (Conhidro, 2019).
- The Sijes Formation (33) forms the Tincalayu Peninsula in the northern SHM and hosts the Tincalayu borate mine. The sediments were deposited during the Middle Miocene and include a lower halite layer over 150 m thick, a middle 30 m thick tincal layer, and an upper red silty-clay layer. The beds are faulted and folded and have a general NNE-SSW strike (Montgomery, 2018).

7.2.4 Magmatic Phases

Magmatic activity associated with the formation of the central Andean Puna-Altiplano plateau reached its peak during the Upper Miocene to Pliocene in the Argentine Puna. At this time, the magmatic arc generated by the subduction of the Nazca Plate beneath the South American plate had migrated east to the current position of the Cordillera Occidental and activated numerous volcanic complexes and fissures.

Within the Hombre Muerto basin, the four magmatic phases of Cenozoic volcanism are recorded by the following Formations:

- First Magmatic Phase (11–15 Ma): The first phase occurred during the Middle Miocene prior to crustal extension and thinning and coincides with Eocene to Miocene sedimentation (Section 7.2.3). This phase includes the ignimbrite flows and volcanoclastic interbeds in the Catal Formation (31), Inca Viejo Formation (34), and Tebenquicho Formation (35).
- Second Magmatic Phase (4-7 Ma): Ratonés Andesite (42) lava flows comprise the main part of the Cerro Ratonés stratovolcano on the northeastern margin of SHM.
- Third Magmatic Phase (2-2.4 Ma): The Cerro Galán Volcanic Complex (44) originates from the Cerro Galán caldera, which developed along two N-S trending faults at the southern end of the Hombre Muerto basin. Volcanism culminated approximately 2 Ma with the eruption of 1000 km³ of predominantly pyroclastic ignimbrite flows and formation of the Cerro Galán caldera.
- Fourth Magmatic Phase (0.1-1.1 Ma): The final stage of magmatism occurred during a shift in the orientation of deformation and extension, which produced N-S, NNW-SSE, and NE-SW trending structures with strong strike-slip fault components. Within the Hombre Muerto basin, this phase is represented by the Incahausi Formation (46) basalt flows sourced from monogenetic volcanic fields and fissures. The Formation outcrops on the western margin of the salar, the Farallón Catal, and the Tincalayu Peninsula. Basalt flows also occur as an interlayer within the clastic and halite salar infill deposits east and west of the Tincalayu Peninsula (Section 7.3).

7.2.5 Quaternary Sedimentary Deposits

Quaternary deposits within the Hombre Muerto basin include clastic deposits grouped into the Terraced Deposits (45) and Alluvial and Colluvial Deposits (47), Incahausi Formation (46) basalt flows (Section 7.2.4), and Evaporite Deposits (48).

Terraced Deposits occur as small outcrops of Pleistocene-aged clastic deposits. The younger Alluvial and Colluvial Deposits have a much larger aerial extent and occur within the low-lying areas of the Hombre Muerto basin, around the margins of the SHM, and contribute to the salar infill material in certain sectors of the salar (Section 7.3). These unconsolidated to poorly consolidated deposits also form alluvial fans that encroach onto or incorporate into the margins of the salar.

Evaporite Deposits (48) form the surface of most salars within the Argentine Puna and are compositionally zoned across the SHM. The eastern clastic and carbonate materials grade into gypsum and then to chloride in the west (Vinante & Alonso, 2006). Evaporite Deposits within the basin mostly formed within the last 100,000 years (Godfrey et al., 2003; Lowenstein et al., 1996).

7.3 PROJECT AND SALAR INFILL GEOLOGY

7.3.1 Salar del Hombre Muerto Infill Geology

Salar infill geology within the SHM is regionally variable. The channel occupied by Alba Sabrina, most of the northern sector of the Eastern Subbasin including Tramo, and the southern sector of the Eastern Subbasin are clastic sediment-dominated; while the Western Subbasin and the Natalia Maria area on the eastern margin of Tincalayu Peninsula in the Eastern Subbasin are halite-dominated (Figure 5.4; Figure 7.3). Salar infill geology is also discussed in Section 14.2.

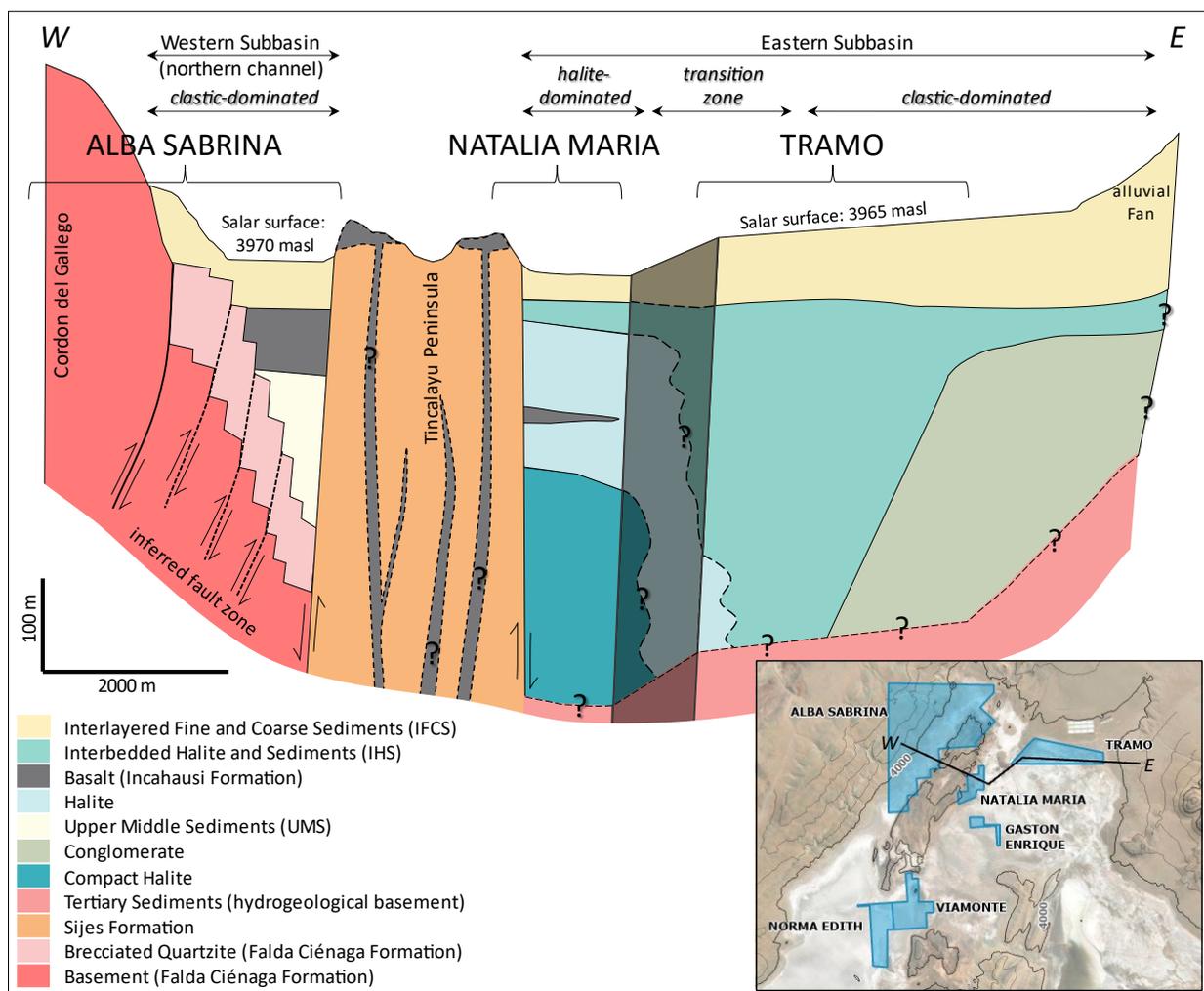


Figure 7.3: Conceptual cross-section showing structural systems and salar infill geology across the Alba Sabrina, Natalia Maria, and Tramo properties, northern SHM.

7.3.2 Alba Sabrina Geology and Infill Geology

The Alba Sabrina property includes a NE-SW trending channel in the northwestern sector of the SHM, formed by the Tincalayu Peninsula (east side) and Cordon del Gallego Range (west side). The western half of the property extends onto the Cordon del Gallego Range, which was formed from up-thrust Falda Ciénaga Formation basement rocks. Falda Ciénaga is the oldest outcropping formation in the property, and comprises a stratified sequence of folded marine sediments that strike NNE-SSW and typically dip W. The eastern side of the property extends onto the Tincalayu Peninsula, which is formed by faulted and folded sandstones and evaporites of the Sijes Formation and dark gray to black Incahausi Formation lava flows.

Through tectonic activity, the younger Quaternary-aged alluvial deposits and salar infill materials are in direct contact with the Falda Ciénaga and Sijes Formation rocks at the margins of the channel. This semi-isolated salar channel is clastic-dominated, with no halite intersected by drilling. Here, the bottom of the salar basin is demarcated by unaltered, low permeability Falda Ciénaga Formation quartzite. The basin

infill sequence is up to 405 m thick along the eastern margin of the channel, adjacent to the Tincalayu Peninsula, and thins to the west.

The Brecciated Quartzite (“BQTZ”) unit comprises the top 50-150 m of the quartzite. It is considered part of the salar infill material, and an exploration target, because the degree of fracturing indicates aquifer potential. The BQTZ is yellowish, greenish, or grey, pervasively fractured to brecciated with clay-rich fracture fill and variable iron staining (Photo 7.1). The unit was intersected in all the 2022-23 boreholes drilled at Alba Sabrina, except for the borehole drilled on the Tincalayu Peninsula (DDH-AS23-08), where it was not expected to occur. It is overlain by Upper Middle Sediment (“UMS”) in the deeper parts of the salar and Interlayered Fine and Coarse Sediments (“IFCS”) along the shallower western margin.



Photo 7.1: Brecciated Quartzite (BQTZ): yellowish brecciated quartzite with clay-rich fracture fill and pervasive iron staining in Alba Sabrina (DDH-AS22-07A, 62.14-68.00 mbgs).

The UMS unit occurs between the BQTZ and Basalt units, where basalt was intersected. The UMS is in direct contact with the IFCS elsewhere. Angular clasts of quartzite often occur towards the basal contact with the BQTZ (Photo 7.2); while the upper contact between the UMS and IFCS is transitional or marked by a thin (≤ 1 m) compact clay-rich horizon.

The unit is up to 170 m thick along the eastern margin and in the centre of the Alba Sabrina channel, where it was intersected in four boreholes; the unit pinches out towards the western margin of the salar, where it was intersected in one borehole (DDH-AS22-07A). Sediments in the UMS are unconsolidated, brown to reddish-brown, medium to coarse grained sand and minor fine-grained sand, with a silty-clay to clay-rich matrix and high to very high (4-5) visual porosity. Coarsening upwards sequences are noted in some locations.



Photo 7.2: Contact of Brecciated Quartzite (BQTZ) and Upper Middle Sediments (UMS) at 188 m in Alba Sabrina (DDH-AS22-03, 182.90-191.50 mbgs).

The Basalt unit directly overlies the UMS and was intersected in two boreholes (DDH-AS22-03 and DDH-AS22-04). The thickest intersection was 110 m, and the flows appear to thin towards the north and west. The lower contact with UMS is characterized by basalt rubble and a potential void up to 10 m thick was intersected in one location.

The unit is characterized by multiple flows that range from highly vesicular, to amygdaloidal, to massive, with minor to pervasive fracturing (Photo 7.3). Vesicles up to one centimetre in size indicate aquifer potential in the vesicular horizons. Elsewhere, aquifer potential is related to secondary porosity facilitated by fracturing within the unit.

The basalt is dark gray with visible olivine and pyroxene within an aphanitic groundmass. Weathering is noted in the upper 2-8 m (Photo 7.4). This unit is considered to correlate with the Incahausi Formation basalts on the adjacent Tincalayu Peninsula, but has undergone some downward displacement, followed by deposition of overlying salar materials.



Photo 7.3: Basalt in Alba Sabrina. A) Vesicular basalt with pervasive fracturing (DDH-AS22-03, 53.50-56.55 mbgs). B) Amygdaloidal basalt with moderate fracturing (DDH-AS22-04, 108.50-109.80 mbgs). C) Massive basalt (DDH-AS22-04, 123.00-124.90 mbgs).



Photo 7.4: Contact between Basalt and overlying Interlayered Fine and Coarse Sediments (IFCS) at 33.2 mbgs in Alba Sabrina (DDH-AS22-03, 30.30-35.65 mbgs).

The IFCS unit overlies the BQTZ on the western margin of the basin, the Basalt in areas with basalt flows (Photo 7.4), and the UMS elsewhere. In areas where the UMS is directly overlain by IFCS, the contact is transitional and is indicated by an overall decrease in visual porosity and an increase in degree of consolidation.

The sediments are characterized by interlayers of brown, black, reddish-brown, grey, and greenish-grey coloured clay, fine- to medium-grained sand, and occasional gravel (Photo 7.5). Clay layers are compact with low visual porosity. The sandy layers often have a silty-clay to clay-rich matrix and rare calcareous cement, and the sediments are poorly to well consolidated with moderate to high visual porosity (Photo 7.4). The coarser sand and gravel layers contain angular volcanic clasts and are less consolidated than the finer-grained layers. In some areas, carbonate-rich concretions and caliche or travertine layers up to 5 m thick occur in the top 30 m of the IFCS (Photo 7.5).



Photo 7.5: Variation in Interlayered Fine and Coarse Sediments (IFCS) observed at Alba Sabrina. A) Interlayered greyish travertine and unconsolidated brown fine to medium grained sand (2.0-17.68 mbgs), and B) brown compact clay (38.0-44.00 mbgs) (DDH-AS22-06).

7.3.3 Natalia Maria Infill Geology

The Natalia Maria property is a halite-dominated area of the SHM, on the eastern margin of Tincalayu Peninsula. The western half of the property extends onto the Tincalayu Peninsula where Sijes Formation sediments and Incahausi Formation basalts outcrop. The eastern half of the property is in the salar. Infill units intersected by drilling include Compact Halite (“CH”), Halite, Basalt, IHS, and an upper 35 m package of IFCS.

The CH unit was intersected at approximately 200 mbgs and extends to the bottom of the borehole (326 mbgs). It is interpreted as the hydrogeological basement for this stage of resource estimation and is not included in the Resource Estimate presented herein. This unit was not encountered at the Alba Sabrina or Tramo property, and its full extent is not known.

The CH unit is a thick unit of massive, compact halite with minor clastic layers (Photo 7.6). The halite is white to light grey with mottled reddish-brown horizons formed by interstitial clay and sand. Visual porosity is very low in the compact halite due to lithostatic compaction by overlying units, and moderate to low in the clastic horizons. Clastic layers are medium to coarse grained brown sand or sandy halite up to 5 m thick, and they increase in frequency towards the top of the intersected unit.



Photo 7.6: Compact Halite (CH) with an approximately 1 m thick medium grained sand interlayer at Natalia Maria (DDH-AS23-01, 294.75-301.0 mbgs).

The CH units grades upwards into the overlying Halite unit, which is characterized by increased clastic layers and increased interstitial clay and sand. A thin, two metre layer of basalt was intersected at 142 mbgs. The basalt is considered to be downward displaced Incahausi Formation, similar to the basalt intersected at Alba Sabrina.

The contact with the overlying IHS is also transitional. This transition is exhibited as an approximately 15 m thick clastic dominated sequence with thinner white to grey halite layers and increased frequency and thickness of clastic layers (Photo 7.7). The clastic layers are brown to blackish, medium to coarse grained sand with halite cement. The overall increase in clastic content is associated with increased (moderate) visual porosity in the IHS, in comparison to the underlying halite-dominated units.

The upper IFCS unit correlates to the shallow sedimentary deposits observed at Alba Sabrina and Tramo. At Natalia Maria, the IFCS fines upwards from brown to blackish medium- to coarse-grained sand, into brown fine- to medium-grained sand (Photo 7.8). The sands are unconsolidated with rare ulexite crystals.



Photo 7.7: Interbedded Halite and Sediments (IHS) in Natalia Maria (DDH-AS23-01, 33.40-41.00 mbgs).



Photo 7.8: Interlayered Fine and Coarse Sediments (IFCS) in Natalia Maria, with ulexite crystal at approximately 15.5 mbgs (DDH-AS23-01, 0.00-23.18 mbgs).

7.3.4 Tramo Geology and Infill Geology

Tramo is in the clastic-dominated northeastern sector of the SHM. The property area is dominated by salar deposits, with a small outcrop of Sijes Formation in the southwest corner and alluvial fans on the northern, eastern, and western margins of the property.

Infill geology at Tramo is a combination of lithologies that occur on the other Project properties. Basal Conglomerate, IHS, and IFCS occur on the eastern side of the property. The western side of the property is dominated by IHS with an upper layer of IFCS (Figure 7.3). This westward increase in halite indicates a transition towards the halite-dominated region of the salar on the eastern margin of Tincalayu Peninsula. The hydrogeological basement has not been intersected by drilling at Tramo.

The basal Conglomerate unit is dominated by polymictic conglomerate layers and uncommon 1-5 m thick layers of consolidated, fine- to medium-grained sandstone with a clayey matrix. The conglomerate is greyish brown to light brown in colour with sub-angular to sub-rounded clasts ranging from 0.2-15 cm in a silt to medium-grained sand matrix (Photo 7.9).



Photo 7.9: Conglomerate at Tramo with a layer of compact fine- to medium-grained sand with a clayey matrix from 284.4-385.5 mbgs (TH18-01, 280.85-267.95 mbgs).

The contact between the Conglomerate and the IHS on the eastern side of Tramo is characterized by a gradational decrease in the size and frequency of lithic clasts. The IHS unit intersected at Tramo is similar to the same unit intersected at Natalia Maria. Brown to light brown fine- to coarse-grained sands are interbedded with whitish-grey crystalline to sandy halite layers up to five metres thick and compact clay layers less than one metre thick (Photo 7.10). The sand layers are poorly consolidated to infrequently compact and friable with a clay to silt matrix. The thickness and frequency of halite layers increases to the west.



Photo 7.10: Interbedded Halite and Sediments (IHS) in A) the eastern part of Tramo (TH18-01, 123.50-134.15 mbgs) and B) the western part of Tramo (TH18-02, 79.50-85.50 mbgs).

The contact between the IHS and the IFCS is marked by the absence of halite layers and crystals in the upper sedimentary sequence. The IFCS sequence at Tramo is typically composed of interlayers of light brown, brown, light grey, black, and green coloured clay, silty clay, and fine- to medium-grained sands with a clay matrix and rare ulexite (Photo 7.11). The clay and silt layers are compact, and the sand layers are poorly consolidated.



Photo 7.11: Interlayered Fine and Coarse Sediments (IFCS) at Tramo, showing layers of light brown and light grey fine-grained sand, and brown silty clay (TH18-01, 0.00-17.22 mbgs).

7.4 HYDROLOGY

7.4.1 Rivers and Streams

The surface water drainage network of the basin is shown on Figure 5.3. Run-off from upslope areas is concentrated in collector creeks and streams that drain into the salar. The total surface water inflow to the salar is estimated at $147 \times 10^6 \text{ m}^3/\text{yr}$ ($4.7 \text{ m}^3/\text{s}$; WMC, 1994); however, it can be much larger during wet years.

Rio de los Patos and its tributary Rio Aguas Caliente drain approximately 79% of the basin. Rio de los Patos is the only perennial water course that flows into the salar. The river flows N from its headwaters at Cerro Gallan, towards the alluvial fan on the southeastern corner of the SHM and into the Eastern Subbasin. As it enters the salar, it forms braided channels that spread out and flow N and W across the salar surface towards Lagunas Catal and Verde.

Flow rates ranging from $0.89 \text{ m}^3/\text{s}$ to $1.42 \text{ m}^3/\text{s}$ were measured at Rio de los Patos during the dry season in May and September 2011 (Montgomery and GAI, 2012), and flow rates up to $5 \text{ m}^3/\text{s}$ were reported by MLA (2020). The highest flow rates occur during the wet season (Section 5.5). An estimated stream flow hydrograph for Rio de los Patos is shown on Figure 7.4.

Rio Trapiche flows N into the alluvial fan at the southern end of the Western Subbasin (Figure 5.3), at the location of the Fénix Mine Camp (Figure 5.2). The river is ephemeral, with water infiltrating into the alluvial fan and recharging the Trapiche Aquifer before reaching the salar. Streamflow is limited by a dam that was built in 1994. An estimated stream flow hydrograph for Rio Trapiche is shown on Figure 7.4. Several other ephemeral streams and rivers within the basin infiltrate in the upslope areas before reaching the margins of the salar (Figure 5.3).

7.4.2 Lagunas

The SHM has two natural, large surface waterbodies. Laguna Catal occupies the area between Hombre Muerto Peninsula and Farallón Catal, and Laguna Verde is in the Eastern Subbasin adjacent to Farallón Catal (Figure 5.4). Brine discharge from the Fénix Mine has also resulted in the formation of an artificial lagoon N of the Fénix Project, with a surface area of 1.5 km² (Integral, 2023).

Both natural lagunas are extensive and shallow water bodies that are predominantly recharged by water from Río de Los Patos. The surface area of the lagunas varies in response to seasonal changes. Aerial photography interpreted by Integral (2023) indicates that the recent surface areas of Laguna Catal and Laguna Verde are approximately 9.0 km² and 3.7 km², respectively.

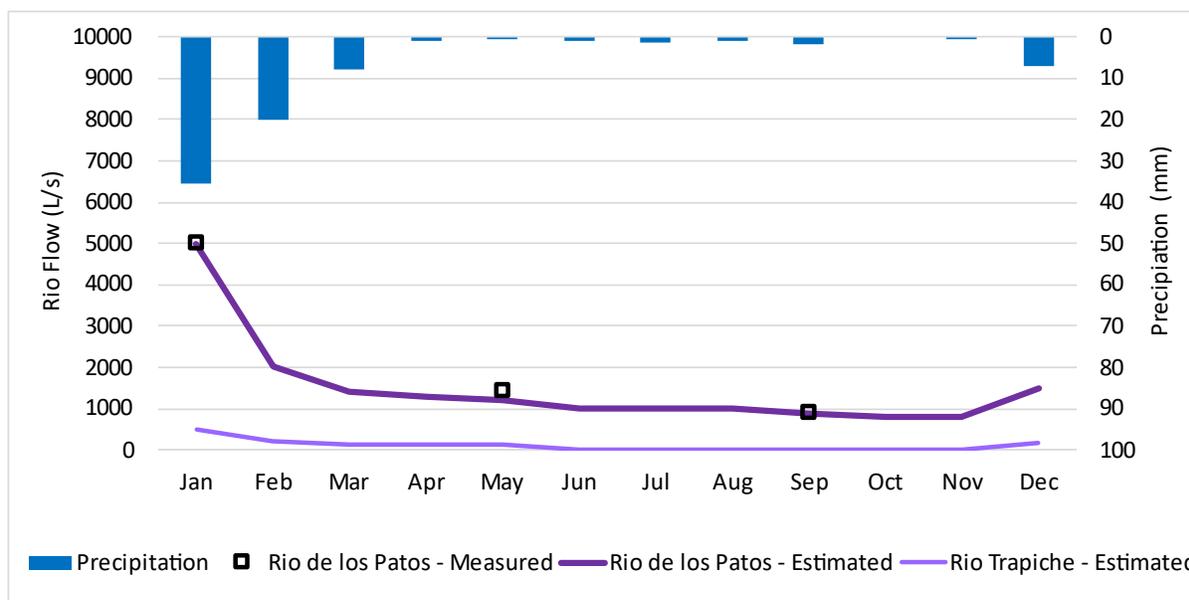


Figure 7.4: Measured and estimated stream flow for Rio de los Patos and Rio Trapiche. 10-year average of monthly total precipitation recorded at the Fénix weather station (Montgomery and GAI, 2012).

7.5 GROUNDWATER

Monitoring of subsurface brine levels is ongoing at the HMN Project. The average brine levels recorded at each well in June 2023 are shown on Figure 7.5. Most of the wells were screened across multiple geological units. Consequently, the brine levels represent a composite value for the screened units.

Average brine levels are higher in Tramo and Natalia Maria in comparison to Alba Sabrina. On both sides of Tincalayu, water moves down the alluvial fans towards the salar. Within the Alba Sabrina channel, there is a slight hydraulic gradient from NE to SW towards the Western Subbasin. On the eastern side of Tincalayu, there is a slight hydraulic gradient from the eastern margin of the salar and Tincalayu towards the western margin of the Tramo property.

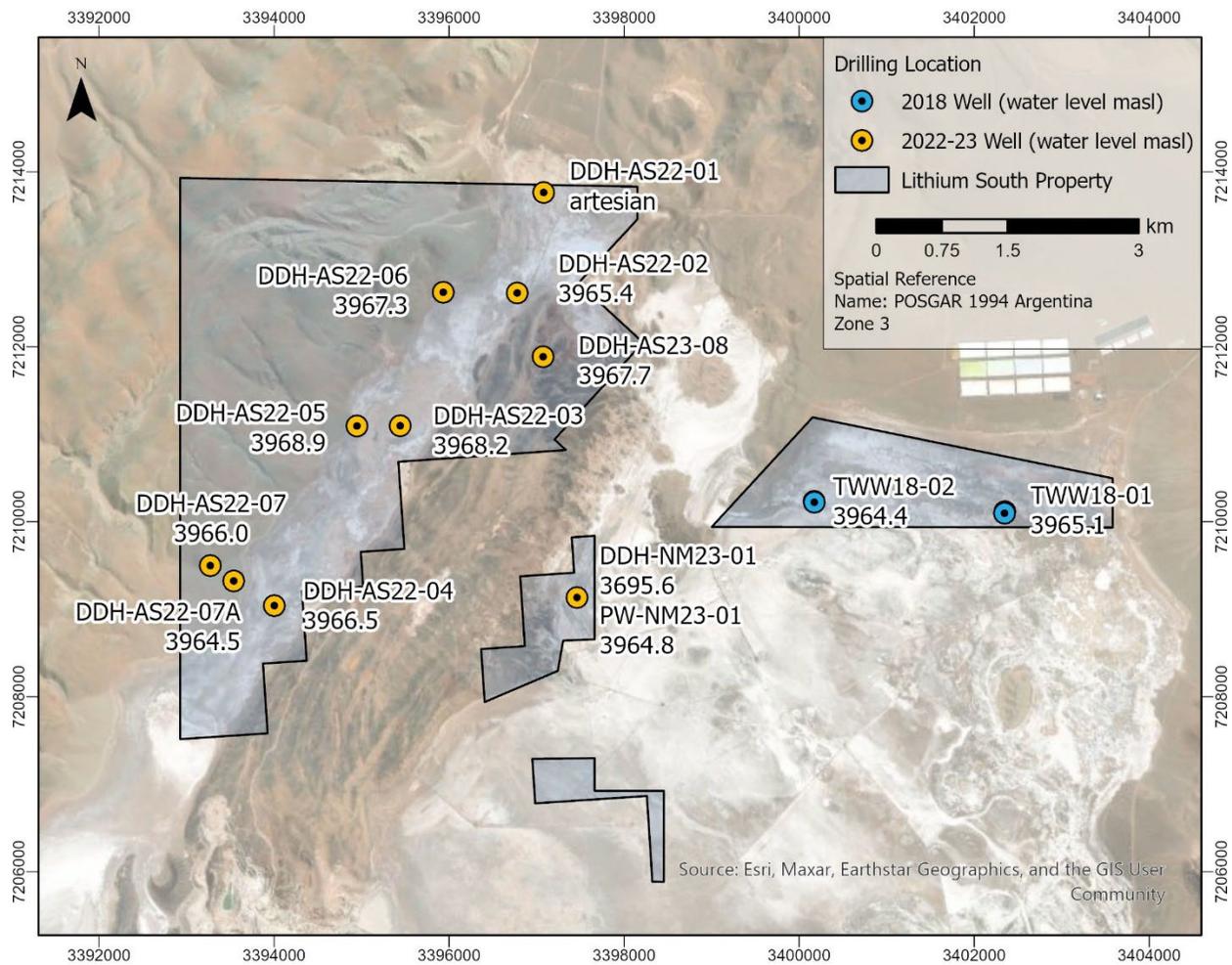


Figure 7.5: Average brine levels recorded in June 2023 at the HMN Project.

7.6 WATER BALANCE

7.6.1 Overview

A preliminary water balance was formulated for natural conditions in the SHM (i.e., no brine production) using FEFLOW software, based on the conceptual model shown on Figure 7.6. Model parameters are based on preliminary estimates. Results of this water balance were not used in the Mineral Resource Estimate presented herein, but they provide a starting point for potential future Reserve Estimates. A qualitative description of the water balance is provided below.

7.6.2 Inputs

- Precipitation: Recharge from direct precipitation onto the salar surface was simulated based on monthly precipitation averages from the Fénix weather station (Table 5.1).
- Groundwater flow into the salar: Later inflow from upslope areas of the surrounding subbasins consists of runoff and lateral groundwater flow (from infiltration) components. These inflows were simulated along the model perimeter according to their alignment with surrounding sub-basins. Inflow rates were

simulated as rate of precipitation over the upslope subbasin area multiplied by a partitioning coefficient to discount detention, storage, and evaporation.

- Surface flow into the salar: River flows from Rio de los Patos and Rio Trapiche are represented as having perennial and ephemeral flows, respectively. Simulated river flow rates used were those shown on Figure 7.4.
- Geothermal waters: Thermal springs are also a source of recharge to the salar and the broader basin (MLA, 2020). Thermal spring inflows are omitted from the conceptual model because: 1) they are assumed to be small relative to the other inputs and 2) they may partially originate from precipitation which is already accounted for.

7.6.3 Outputs

- Evaporation: Under natural conditions, evaporation accounts for all outflow from the salar (i.e., endorheic conditions). Evaporation from the salar varies according to seasonal climatic conditions (potential evaporation), depth to water table, and in relation to brine concentration. Within the context of the salar, evaporation rates are expected to be relatively high along the margins of the salar where subsurface freshwater may be close to the ground surface. It is also high in the areas where the Rio de los Patos and Trapiche Rivers discharge into, and seasonally inundate, the salar with freshwater from upland areas.
 - Potential evaporation (E_0): Monthly average potential evaporation for the salar was based on data for the Cauchari and Olaroz salars, located 150 km N of the SHM and at a similar altitude (3950 masl). Based on these values, Burga et al. (2019) estimated an average annual potential evaporation range of 2554 mm/yr (7 mm/d) to 3060 mm/yr (8.4 mm/d) for the Cauchari-Olaroz Project.
 - Actual evaporation: This is limited by the availability of water and is a function of water table depth. Evaporation is at a maximum when water is at or above ground surface. As the water table declines and depth to water table increases, evaporation decreases until it becomes zero at the extinction depth (Figure 7.6). HMN Project drilling and geophysical data indicates that the water table in the SHM is between one and two mbgs. A 1.5 mbgs extinction depth is assumed for the current water balance and will be further evaluated for any future numerical Reserves modeling.
- Transpiration: Vegetation is scarce in the SHM and is limited to the margins of the salar. Consequently, transpiration is assumed to be negligible, for this preliminary water balance.
- Production pumping: This preliminary water balance is based on natural conditions and does not consider pumping.

7.6.4 Water Balance Results

The preliminary water balance components for the SHM are presented graphically on Figure 7.7 and summarized on an annual basis in Table 7.2. Over multiple years, inflows are balanced by evaporative outflows, as is expected in an endorheic basin. During wetter years, greater inflows are balanced by an increase in evaporation. Conversely, during drier years, lesser inflows are balanced by a reduction in evaporation. Seasonal trends and variations in magnitude of the water balance components are summarized as follows:

- Inflows to the salar are driven by precipitation and consist of direct precipitation to the salar (blue line), lateral subbasin inflows (orange line), perennial Rio del los Patos inflows (dark purple line), and ephemeral Rio Trapiche inflows (light purple line).
- Inflows are greatest during the wet season (December through March), and smallest during the dry seasons (April through November).
- On an annual basis, inflows are balanced by evaporative outflows (green line). Inflow water budget components flow through the groundwater system causing a lag in evaporation. Evaporation is dependent upon water availability, which is greatest during the wet season and least during the dry season. The rate of evaporation peaks when the water is near the ground surface. It gradually decreases and then stops as the water table approaches and then reaches the extinction depth.
- The difference in the timing and magnitude of all inflows and evaporative outflows results in seasonal water balance surpluses and deficits (dashed black line). When inflow rates are greater than evaporative outflow rates the salar is in a state of water surplus. Conversely, when the rate of evaporation is greater than the inflow rates the salar is in a state of water deficit. The annual water balance surplus/deficit curve is primarily influenced by inflows during the wet season and evaporative outflow during the dry season.

Table 7.2: Simulated annual water balance, under natural (non-pumping) conditions, for the SHM.

Annual Water Balance	Salar del Hombre Muerto	
	Average rate (L/s)	Annual rate (mm/yr)
Inflows		
Precipitation	1281	65.3
Lateral Inflows	1949	99.4
Rio de los Patos	1420	72.4
Rio Trapiche	96	4.9
Total Inflows	4764	242
Outflows		
Evaporation	4658	237.4
Pumping	0	0
Total Outflows	4658	237.4

Notes: Sum of inflows balance sum of outflows with an error tolerance of 2%, which is primarily attributed to the evaporative outflows lagging inflows, see Figure 7.7.

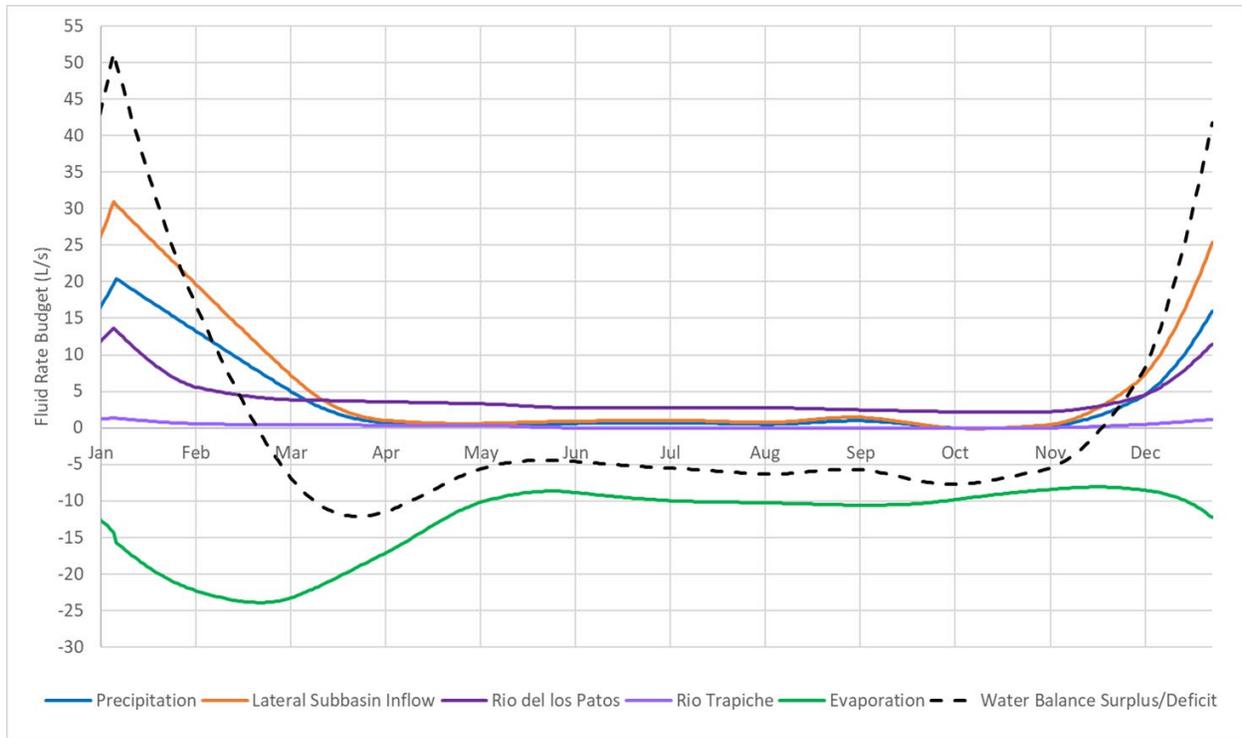


Figure 7.7: Average annual rate budget for water balance components for the SHM.

7.7 MINERALIZATION

Brine Resources in the Alba Sabrina, Natalia Maria, and Tramo properties of the HMN Project are defined relative to a 500 mg/L lithium cut-off (Section 14). Sampling methods and results are presented in Sections 10 and 11, and resource estimation methods are described in Section 14.6.

Table 7.3 compares the chemistry from the HMN Project with other lithium brine projects. As indicated in the table, HMN Project lithium and potassium grades are favourable relative to other projects. Sulphate (SO₄) and magnesium (Mg) are considered brine impurities in that they affect the cost of brine processing. As indicated in the table, both parameters compare favourably with the other brines in the group, in that their ratios are at the low ends of both ranges.

Table 7.3: Comparison of the HMN Project Mineral Resource brine chemistry (500 mg/L lithium cut-off) with other lithium brine deposits.

Company	Salar, Country	Project	mg/L					Density (g/cm ³)	Mg/Li (ratio)	SO ₄ /Li (ratio)
			Li	K	Mg	SO ₄	B			
Lithium South [1]	SHM, Argentina	HMN	736	7205	2409	12,230	441	1.20	3.27	16.62
Alkem [2]	SHM, Argentina	Sal de Vida	775	-	-	-	-	-	-	-
Galan Lithium [3]		HM West	880	7653	-	-	-	-	-	-
Galan Lithium [4]		Candelas	672	5193	-	-	-	-	-	-
SQM [5]	Atacama, Chile		1835	22,626	11,741	20,180	783	1.22	6.40	11.00
Zhabuye Lithium [6]	Zhabuye, China		1258	34,241	13	67,963	3709	1.30	0.01	54.02
Lithium Power [7]	Maricunga, Chile	Stage One	953	6993	-	-	-	1.20	-	-
Zijin [8]	Tres Quebrada, Argentina	3Q	923	8353	1531	453	1348	1.22	1.66	0.49
Western Mining Group [6]	East Taijinaier, China		808	86,654	17,404	178,475	1061	1.26	21.53	22.80
Alkem [9]	Olaroz, Argentina	Olaroz	698	5230	1332	-	974	1.20	1.91	-
Ganfeng / LAC [10]	Cauchari – Olaroz, Argentina		592	4801	1403	16,866	1094	1.22	2.37	28.49
Ganfeng Lithium [11]	Pozuelos, Argentina	PPG	505	3487	2920	8843	-	-	5.78	17.51
	Pastos Grandes, Argentina		464	4736	3081	9827	-	-	6.64	21.18
Tibet Summit [12]	Diablillos, Argentina	Sal de Los Angeles	501	5512	-	-	556	-	-	-
Comibol [13]	Uyuni, Bolivia		424	8719	7872	10,294	242	1.21	18.57	24.29
RioTinto [14]	Rincon, Argentina	Rincon Li	395	7513	3419	12,209	-	1.22	8.66	30.91
Ganfeng Lithium [15]	Llullaillaco, Argentina	Mariana	314	9710	4360	15,600	603	1.22	13.89	49.68
CITIC Guoan [6]	West Taijinaier, China		257	101,219	8447	183,581	380	1.23	32.81	713.05
Notes:			<p>[1] Results documented in this Technical Report; Measured + Indicated Resources (500 mg/L cut-off)</p> <p>[2] Montgomery et al., 2022</p> <p>[3] Galan, 2023: Measured + Indicated + Inferred Resources (no cut-off)</p> <p>[4] Galan, 2019: Indicated Resource (500 mg/L cut-off)</p> <p>[5] SQM, 2009</p> <p>[6] Data from Dr. Haizhou Ma, Institute of Salt Lakes, China</p> <p>[7] AWC & Worley, 2022: Measured + Indicated Resources (no cut-off)</p> <p>[8] GWI and Worley, 2021: Measured + Indicated Resources (800 mg/L cut-off)</p> <p>[9] Hydrominex, 2022: average brine grades used to calculate resource</p> <p>[10] Burga <i>et al.</i>, 2020: Measured + Indicated Resources (500 mg/L cut-off)</p> <p>[11] GDH Group Engineering, 2019: Measured + Indicated Resources (Pastos Grandes: 100 mg/L cut-off; Pozuelos: 330 mg/L cut-off)</p> <p>[12] AWC & Reidel, 2017: Measured + Indicated Resources</p> <p>[13] Data from Roskill, 2009</p> <p>[14] SRK, 2016. Measured Resource (200 mg/L cut-off)</p> <p>[15] Golder & Geos, 2021: Measured + Indicated + Inferred Resources (230 mg/L cut-off)</p>							

8 DEPOSIT TYPES

A simple, general conceptual model for accumulation of lithium brines is shown on Figure 8.1. Brine deposits containing economically important quantities of lithium can form in salars where the following favourable conditions are coincident:

- The salar catchment is “closed,” which means the outflow of water from the catchment (by processes other than evaporation) is negligible, in terms of the catchment water balance.
- A significant portion of the catchment area contains bedrock of suitable composition (i.e., containing lithium that can be leached from their original source).
- Geothermal waters have contacted the bedrock through fault systems and have become moderately concentrated in lithium (and other solutes).
- The moderately concentrated waters have accumulated in the low-lying area of the closed catchment.
- The prevailing climate is suitable to promote high rates of evaporation from the accumulated water (i.e., dry air, high winds, and minimal precipitation), leading to the formation of brine within the salar.
- Given the preponderance of lithium-bearing salars that are defined by fault-bounded dropped basins, this also appears to be an important condition. The process of basin lowering may provide a more prolonged period and a more focused zone for brine accumulation. The bounding faults may also be a direct source of lithium-enriched geothermal waters to the salar.

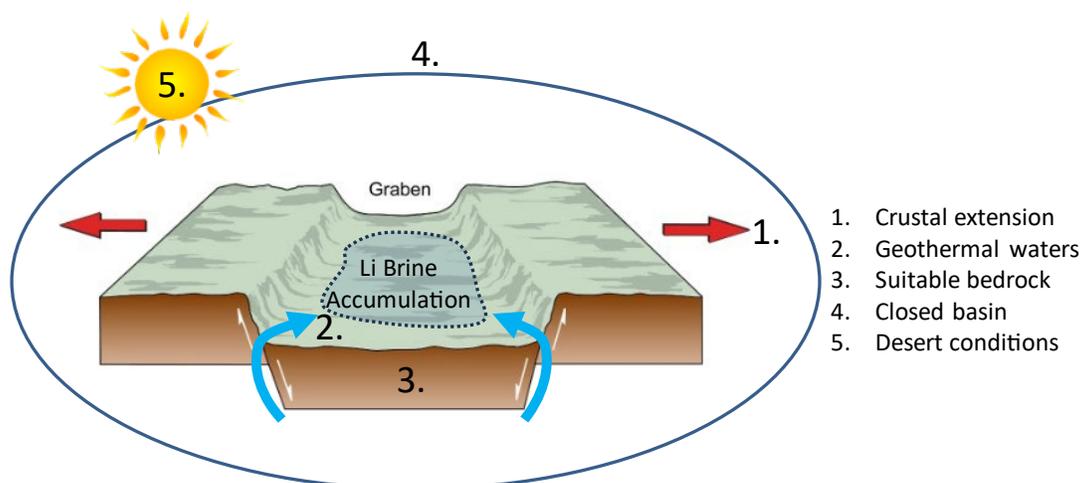


Figure 8.1: Conceptual model for accumulation of lithium brine in salars and playas.

The SHM meets these conditions. The salar catchment is closed with no apparent natural outflows. Volcanic rocks of the Cerro Galan caldera and Cerro Ratones, and geothermal activity within the basin are potential sources of lithium to the salar (Godfrey et al., 2013). There is clear evidence that evaporation has led to the accumulation of evaporites and lithium brines in the near-surface of the salar and at depth. The salar has a complex structural history and is characterized by a number of down-dropped, fault-bounded subbasins.

In terms of infill materials, salars that contain brine deposits are of two principal lithologic types: clastic-dominant and evaporite-dominant. The formation of one or the other may depend on the energy of the system during deposition. Evaporite formation may be favoured during relatively dry periods of low

inflow, and deposition of clastic materials during higher inflow periods. Similarly, deposition of clastic materials may be favoured around the margins of the salar basin, while the more quiescent central zone may be dominated by evaporites. Consequently, both types of deposits may occur at different levels and zones of a given salar, depending on the prevailing conditions of deposition.

Evaporite-dominant salars contain mostly halite deposits, which can reach hundreds of metres in thickness. In the shallower zones, the porosity and permeability of halite may be amenable to economic extraction of brines. In the deeper zones of evaporite-dominant salars, permeability may decrease due to evaporite cementation and recrystallization. Salar de Atacama (Chile) is a classic example of an evaporite-dominant salar.

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

The SHM has two large, hydraulically connected subbasins with aspects of both salar types. A conceptual cross section of the salar is shown on Figure 7.3. The Eastern Subbasin is predominantly clastic-dominated and transitions into a halite-dominated salar along the northwestern margin of the subbasin adjacent to the Tincalayu Peninsula. Tramo is located within the clastic-dominated region of the northern sector of the Eastern Subbasin, and Natalia Maria in the halite-dominated region.

The Western Subbasin is halite-dominated with a halite core up to 900 m thick that transitions into an outer clastic-dominated perimeter at the margins (Integral, 2023). Alba Sabrina occupies a clastic-dominated NE-SW trending channel located at the northern margin of the Western Subbasin. The salar infill geology is further described in Section 7.3 and a conceptual model of the deposit types within the HMN Project properties is shown on Figure 7.3.

9 EXPLORATION

9.1 OVERVIEW

Exploration by LIS at the HMN Project was conducted over four field seasons:

- 2016-17 Program: first reported by Montgomery (2017);
- 2018 Program: first reported by Montgomery (2018) and KPC (2019);
- 2021 Program: first reported herein; and
- 2022-23 Program: first reported herein.

Previously reported exploration work is summarized in Table 9.1; and exploration work conducted in 2022-23 is summarized in Table 9.2

Table 9.1: Summary of the previously reported exploration work at the HMN Project.

Exploration Component	Property ¹	Purpose	Description
Surface sampling (2016-17 and 2018)	AS, GE, NE, NM, T, V	To map shallow brine distribution and to compare dry- vs. rainy-season shallow brine chemistry; and to confirm previous sampling results	<ul style="list-style-type: none"> • 27 total samples collected, excluding QA/QC samples, as follows: <ul style="list-style-type: none"> ○ 10 samples collected from pits and auger holes during the dry season (Oct 2016) ○ 10 samples collected during the rainy season (Jan-Feb 2017) at AS, NM, and Tramo ○ 7 samples collected at AS, NM, and Tramo (Jan 2018)
Geophysics CSAMT survey (2016-17)	AS, NM, T	To map subsurface resistivity trends for use in siting boreholes	<ul style="list-style-type: none"> • 10 stations in two lines; one line oriented NE-SW transecting AS, one line oriented E-W transecting AS, NM, and Tramo
Diamond drilling (2018)	T	To collect core and discrete-level brine samples; to install observation wells and monitor pumping tests	<ul style="list-style-type: none"> • 681 m of drilling in 2 boreholes • Construction of 2 observation wells • 47 core samples collected, 20 analyzed for S_y² • 35 depth discrete brine samples collected from 2 boreholes, excluding QA/QC samples
Rotary drilling (2018)	T	To install pumping wells and conduct pumping tests	<ul style="list-style-type: none"> • 801 m of drilling in 2 boreholes • Construction of 2 pumping wells
Pumping test program (2018)	T	To measure hydraulic parameters and brine chemistry	<ul style="list-style-type: none"> • 2 step tests completed in 2 pumping wells • 2 x 72-hr constant rate tests completed in 2 pumping wells • 20 composite brine samples collected, excluding QA/QC
<p>¹ AS = Alba Sabrina; GE = Gaston Enrique; NE = Norma Edith; NM = Natalia María; T = Tramo; V = Viamonte</p> <p>² Specific yield</p>			

Table 9.2: Summary of the 2022-23 exploration work at the HMN Project.

Exploration Component	Property ¹	Purpose	Description
TEM survey (2021)	AS, GE, NE, NM, V	To map subsurface resistivity trends for use in siting boreholes	<ul style="list-style-type: none"> • 135 soundings, 500 m spacing • 36 survey lines • Readings at 2 frequencies: 25 Hz, 2.5 Hz
Diamond drilling program (2022-23)	AS, NM	To collect core and discrete-level brine samples; to install observation wells; to collect composite brine samples from wells	<ul style="list-style-type: none"> • 2167.5 m of drilling in 10 boreholes • Construction of 10 observation wells • 85 core samples collected from 8 boreholes and analyzed for S_y² • 51 depth discrete brine samples collected from 9 boreholes, excluding QA/QC samples • 13 composite brine samples collected from 11 observation wells, excluding QA/QC samples
Tricone drilling program (2022-23)	NM	To install observation wells; to collect composite brine samples from wells	<ul style="list-style-type: none"> • 45 m of drilling in 1 borehole • Construction of 1 observation well • 1 composite brine sample collected
¹ AS = Alba Sabrina; GE = Gaston Enrique; NE = Norma Edith; NM = Natalia María; T = Tramo; V = Viamonte ² Specific yield			

9.2 2016-17 AND 2018 SURFACE BRINE SAMPLING PROGRAM

Surface brine samples were collected from hand dug pits or auger holes at the HMN Project during the 2016-17 and 2018 field programs, which were first reported by Montgomery (2017) and Montgomery (2018), respectively. Sample locations are shown on Figure 9.1, sampling methods are described in Section 11, and detailed results are described by Montgomery (2018). The objectives and results of the sampling programs are as follows:

- The first set of 10 brine samples was completed during the dry season in October 2016, for a general indication of lithium concentrations at the HMN Project.
- The second set of 10 brine samples were collected during the rainy season in January and February 2017 to study the impact of precipitation dilution on near-surface brines. Sampling was limited to Alba Sabrina, Natalia Maria, and Tramo because heavy rains and flooding prevented sampling in the other project areas.
- Based on the 2016-17 sampling program, shallow brines are impacted by precipitation dilution, with dry and rainy season lithium averages of 445 mg/L and 242 mg/L, respectively, at Alba Sabrina, and 802 mg/L and 538 mg/L, respectively, at Tramo. However, it is noted that precipitation dilution is generally limited to the upper several metres of the aquifer.
- An additional seven brine samples were collected in January 2018, to confirm previous sampling results. Samples confirm elevated lithium in shallow brines at Alba Sabrina and Tramo. Higher average lithium in the 2018 samples in comparison to the 2016-17 samples collected from Tramo, 974 mg/L and 538 mg/L, respectively, is attributed to lower precipitation in 2018.

Surface sample results were not used in the updated Mineral Resource Estimate.

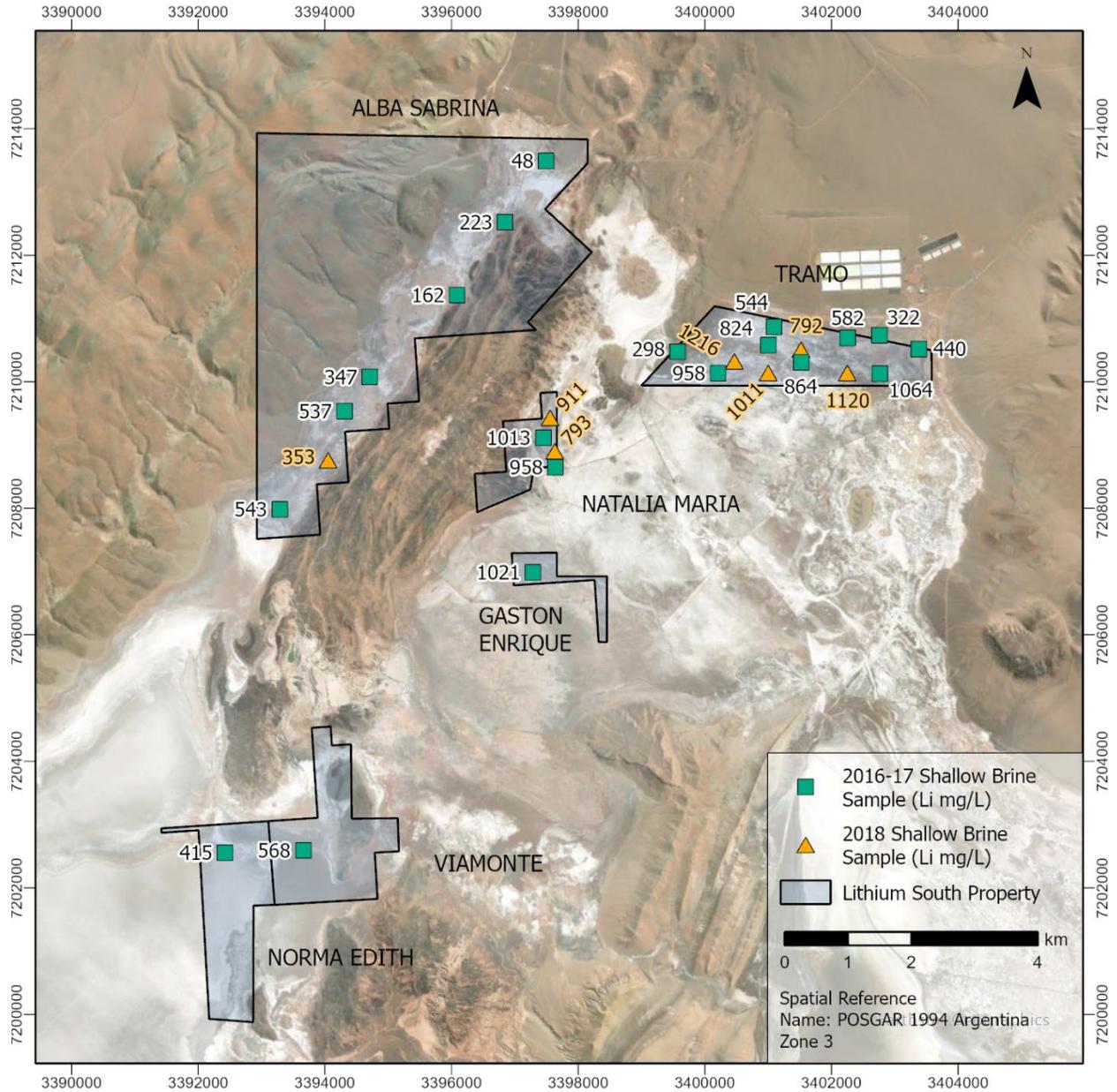


Figure 9.1: Surface or shallow brine samples collected at the HMN Project, with lithium results in mg/L.

9.3 2018 CSAMT GEOPHYSICAL SURVEY

A controlled source audio-frequency magnetotellurics (“CSAMT”) geophysical survey was completed in January 2017 by Geophysical and Exploration Consultants S.A., of Mendoza, Argentina, under the supervision of senior geophysicist Sascha Bolling. Data was collected at 10 CSAMT stations along two profiles (Figure 9.2) and results were first reported by Montgomery (2018).

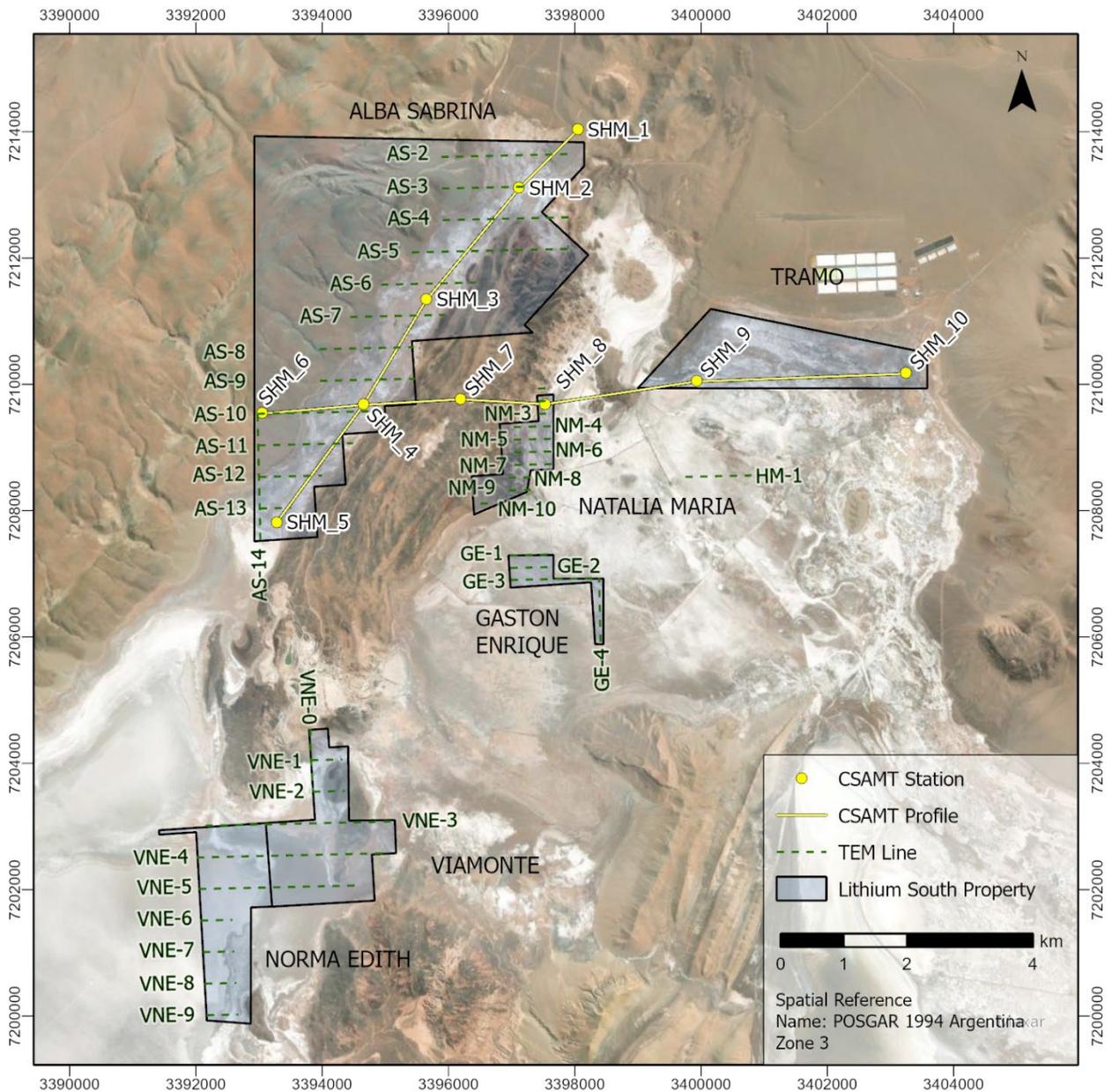


Figure 9.2: CSAMT and TEM survey locations at the HMN Project.

The Alba Sabrina line is 7800 m long and includes five CSAMT stations (SHM_1 through SHM_5) that transect the Property from NE to SW (Figure 9.3). The following resistivity (“R”) trends are observed (Figure 9.3):

- A near-surface, low-R to moderate-R horizon (<0.1-10 ohm-m) up to 60 m thick indicates brine close to surface. This low-R horizon increases to over 250 m thick towards the SW end of the survey, between SHM_4 and SHM_5.
- A deeper low-R layer occurs from approximately 200 – 300 mbgs at station SHM_3, and shallows towards the SW end of the survey and joins the shallower, low-R horizon described above.
- Higher-R horizons at the NE end of the survey are interpreted as fresh water or brine layers diluted by freshwater inflows into the basin.
- The anomaly is open to the SW and at depth between SHM_4 and SHM_5.
- Drilling along the NE-SW Alba Sabrina line confirms brine within the low-R horizons as well as within the moderate-R horizons.

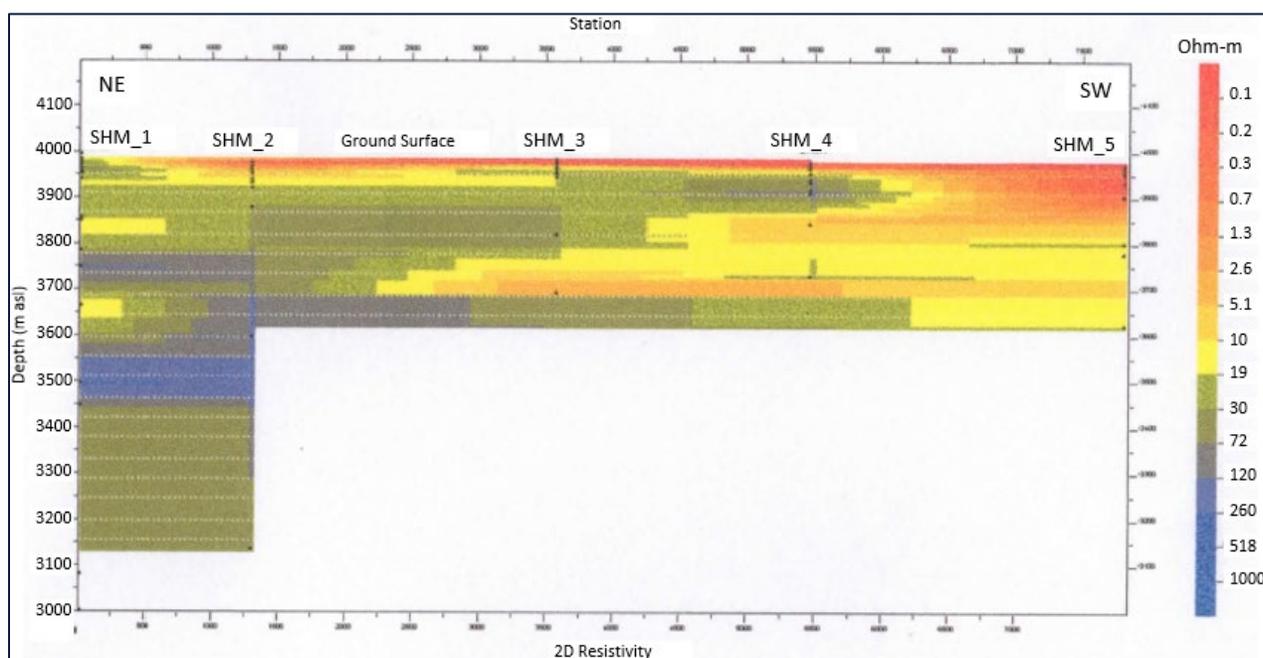


Figure 9.3: NE-SW CSAMT profile across Alba Sabrina, stations SHM_1 through SHM_5.

CSAMT stations SHM_6 through SHM_10 are oriented along a 9600 m W-E trending line that transects the Alba Sabrina, Natalia Maria, and Tramo Properties (Figure 9.4). Resistivity trends identified along this transect include:

- A 6000 m long, low-R horizon (<0.1-1 ohm-m) up to 250 m thick is observed between SHM_8 at Natalia Maria, and SHM_10 on the eastern border of Tramo.
- The low-R anomaly is open at depth in the central part of the survey line, between Natalia Maria and the central part of Tramo.

- Low-R horizons at Tincalayu Peninsula, located between Alba Sabrina and Natalia Maria at station SHM_7, indicate potential for brine within the Sijes Formation.

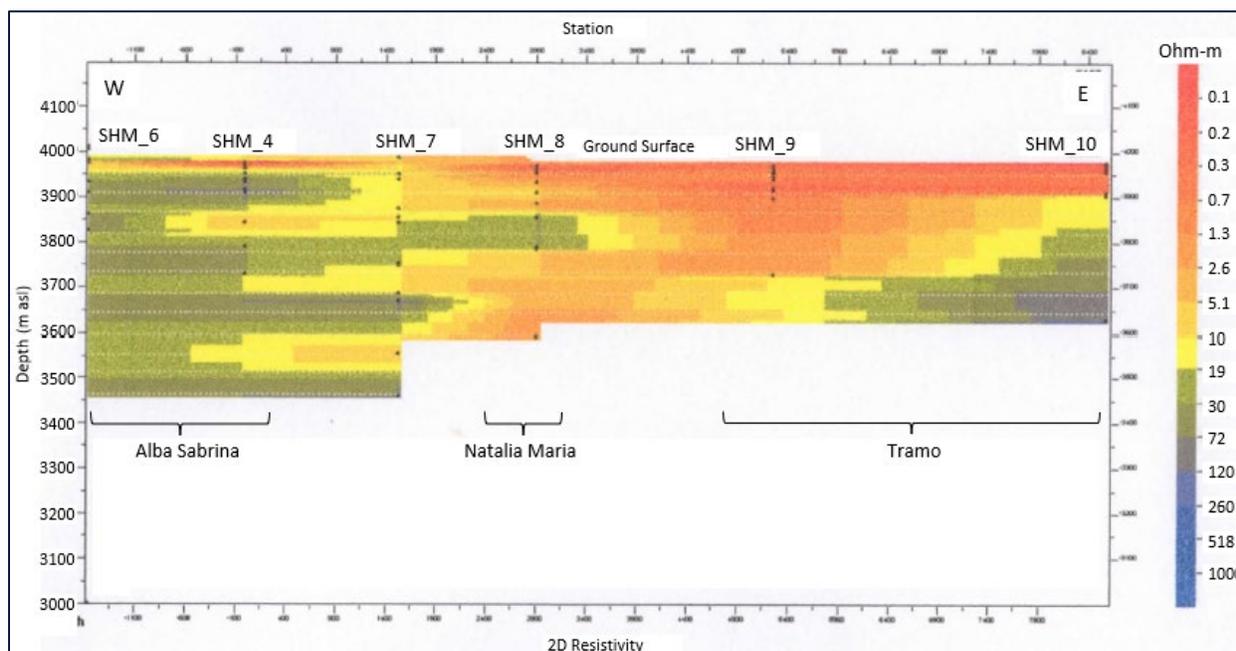


Figure 9.4: W-E CSAMT profile showing approximate locations of Alba Sabrina, Natalia Maria, and Tramo; stations SHM_4 and SHM_6 through SHM_7.

9.4 2021 TEM GEOPHYSICAL SURVEY

9.4.1 TEM Overview

The Transient Electromagnetic (“TEM”) survey was completed by Quantec Geosciences in August and September 2021, to investigate subsurface resistivity trends and support borehole planning. A total of 133 TEM soundings were surveyed along 36 profiles across the Alba Sabrina, Gaston Enrique, Natalia Maria, Norma Edith, and Viamonte properties (Figure 9.2).

A Geonics TEM58 Digital Protem receiver, Geonics TEM-37 transmitter, and Geonics 3D-3 surface coil antenna were used for the surveys. Data were collected using a moving-loop method in which the receiver was positioned at the centre of a square, single-turn transmit loop. Transmit loop dimensions were fixed at 200 x 200 m, and soundings were collected every 200 m to 500 m at two frequencies (25 Hz and 2.5 Hz). Geophysical data were modelled by Quantec Geosciences using a 1-dimensional discrete layer methodology to generate various resistivity versus depth products, including as 36 smooth-layer and discrete-layer inverted profiles.

9.4.2 Alba Sabrina TEM Results

Thirteen TEM profiles were generated with soundings for the Alba Sabrina property: 12 W-E profiles and one S-N profile (Figure 9.2). Forty-nine soundings were recorded on a 500 m x 500 m grid. Example smooth-layer profiles are shown on Figure 9.5. Resistivity trends are similar to those observed in the CSAMT profiles, and are summarized as follows:

- A thin, high-R horizon occurs at the northern end, along the western margin, and on some parts of the eastern margin (e.g., AS-2, -6 through -11) of the survey area. This horizon is noted in the CSAMT survey (Section 9.3) and is similarly interpreted as fresh water or brine layers diluted by freshwater inflows into the basin.
- The underlying low-R to very low-R horizon ($R < 4$ ohm-m and < 1 ohm-m, respectively) is unconfined at depth by the TEM survey in the E and central parts of the survey area.
- Drilling at Alba Sabrina confirms brine within the low-R layers and freshwater dilution in the near surface brines on the western margin of the salar (Section 10.5).

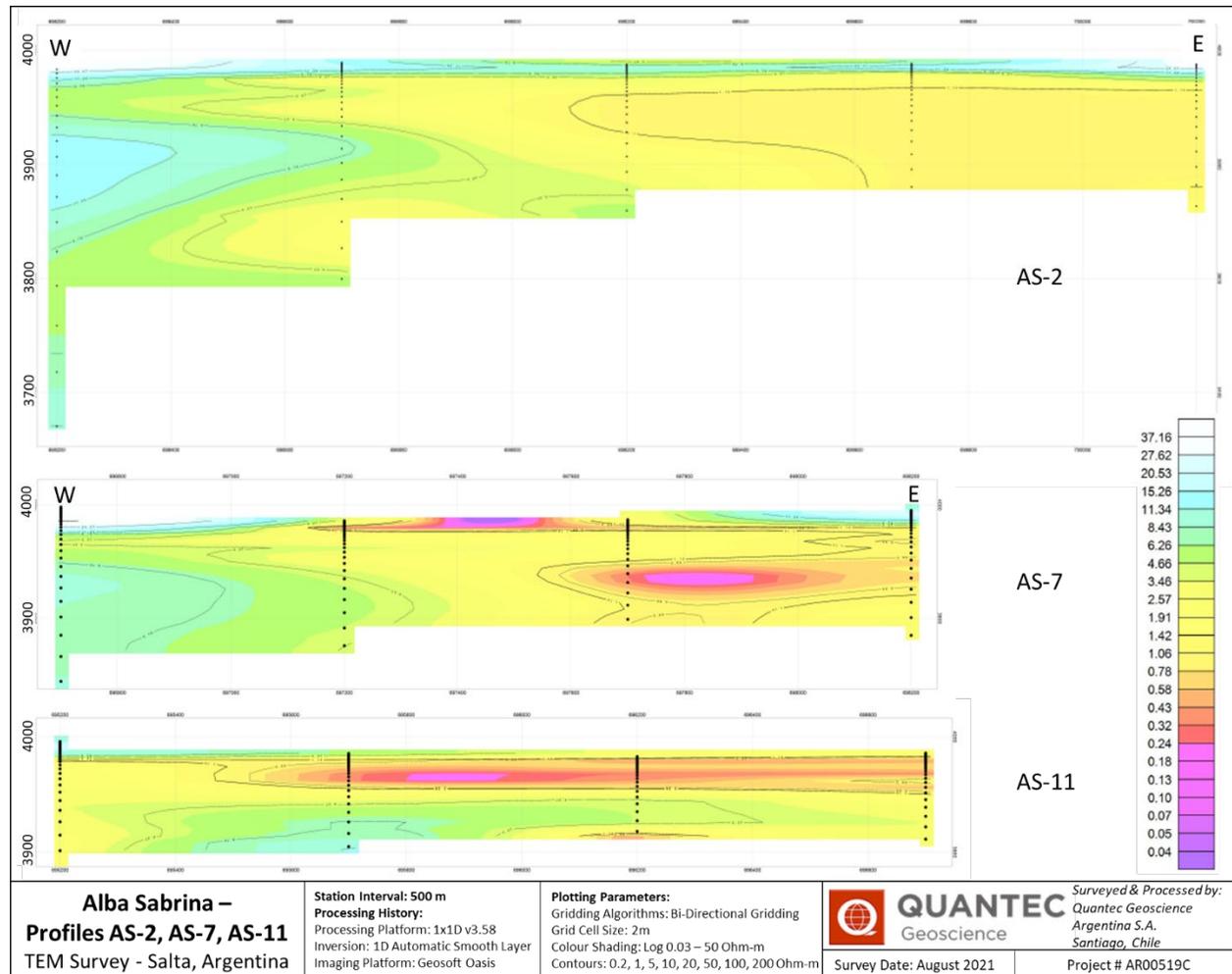


Figure 9.5: Alba Sabrina W-E smooth-layer inverted TEM profiles AS-2, AS-7, and AS-11; locations shown on Figure 9.2.

9.4.3 Natalia Maria TEM Results

The TEM survey at Natalia Maria includes 30 soundings on a 200 m x 200 m grid that covers the salar area and extends onto the eastern margin of Tincalayu Peninsula. An example profile is shown on Figure 9.6, and resistivity trends observed in the 10 W-E profiles are as follows:

- A surficial, low-R horizon ($R < 4$ ohm-m) is present across the survey area.
- The low-R horizon is thinnest (< 20 m) on the eastern side of the Natalia Maria property, where it is underlain by a high-R layer. The high-R layer is unconfined at depth. Survey lines NM-1, NM-3, and NM-5 (NM-5 shown on Figure 9.6) indicate that this layer may thin E of the Natalia Maria property and that a lower-R horizon may occur at depth.
- The low-R horizon thickens to approximately 80 m on the western margin of the survey, towards the Tincalayu Peninsula.
- Drilling on profile NM-5 confirms upper brine saturated sediments underlain by interbedded halite and sediments, and basal low permeability massive halite at approximately 190 mbgs.

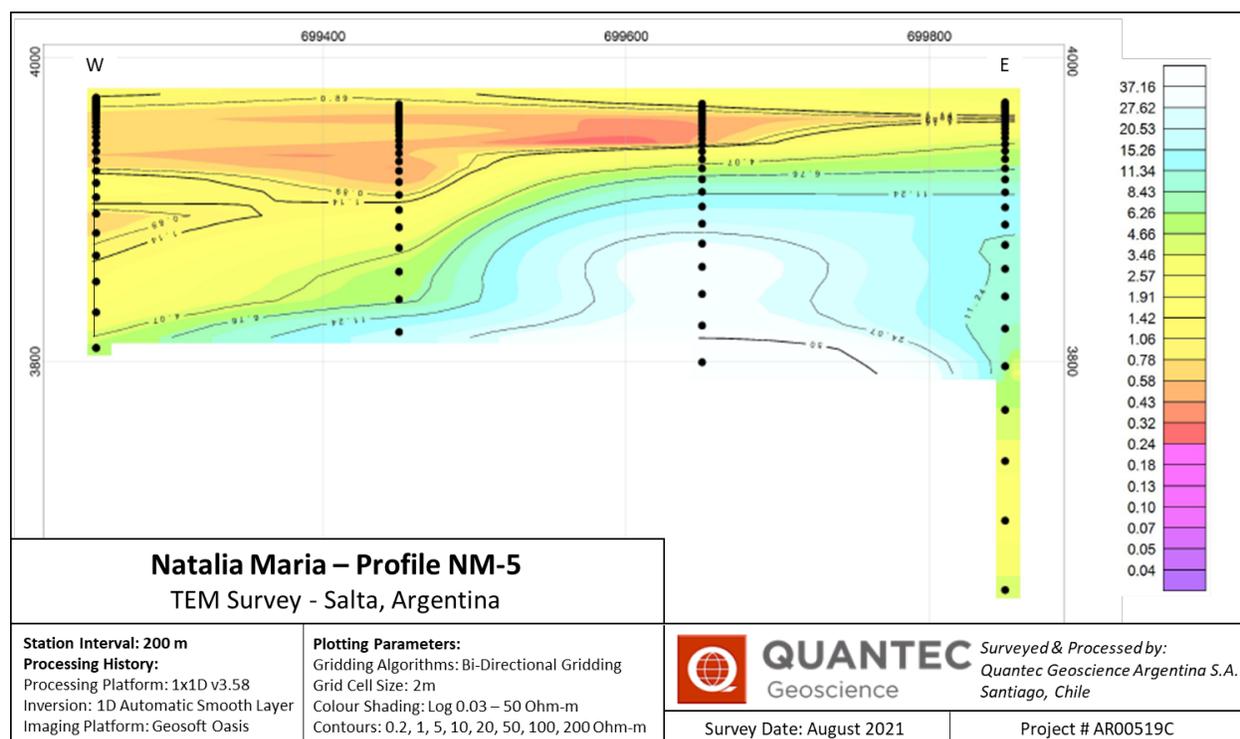


Figure 9.6: Natalia Maria example W-E smooth-layer inverted TEM profile, NM-5; location shown on Figure 9.2.

9.4.4 Gaston Enrique TEM Results

Three W-E profiles and one N-S profile were modelled for Gaston Enrique, based on 21 soundings arranged in a 200 m x 200 m grid across the property. The TEM profiles highlight the following resistivity trends, as shown in the example smooth-layer inverted TEM profile on Figure 9.7:

- A thin, 25 – 50 m, low-R surface layer occurs across the property.
- The underlying moderate- to high-R layer (>4 ohm-m) varies from 250 m thick on the western side of the survey, to 150 m thick eastern margin of the survey. This layer also thickens and deepens slightly to the N.
- The lower low-R layer shallows towards the centre of the survey area from approximately 350 mbgs in the NW to approximately 180 mbgs in the centre of the property. The low-R horizon is unconfined

at depth in the TEM surveys and is the main target horizon for future exploration drilling at Gaston Enrique.

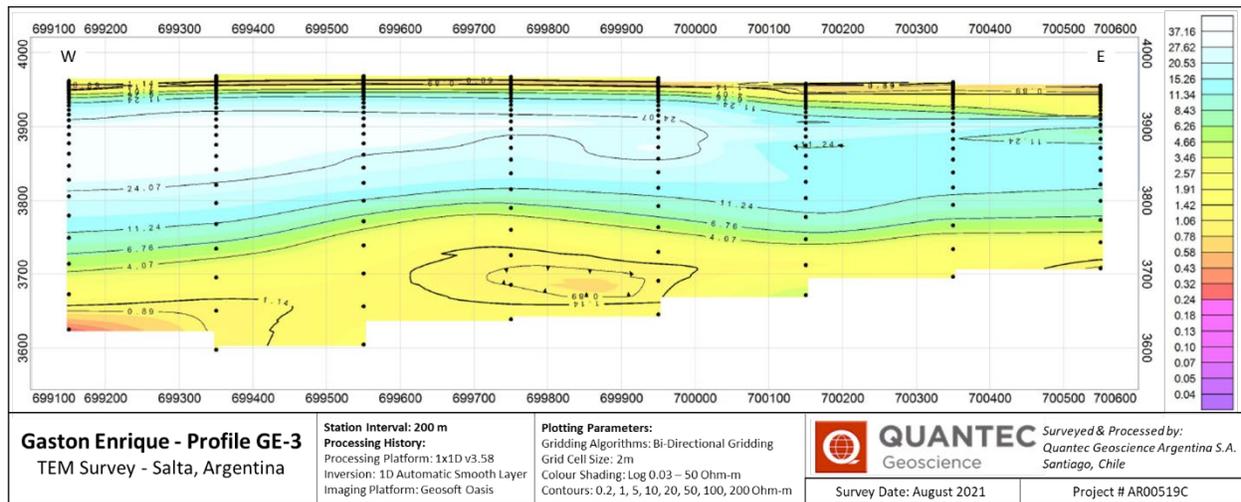


Figure 9.7: Gaston Enrique example W-E smooth-layer inverted TEM profile, GE-3; location shown on Figure 9.2.

9.4.5 Norma Edith and Viamonte TEM Results

The Norma Edith and Viamonte TEM survey comprised 33 soundings on an approximately 500 m x 500 m grid. Nine W-E lines and one S-N line were modelled for the properties. Example smooth-layer profiles are shown on Figure 9.8, and the following resistivity trends are observed at Norma Edith and Viamonte:

- A very thin low-R to moderate-R layer extends across the surface of survey area.
- The western side of the survey area, within the Norma Edith Property, is characterized by a thick high-R horizon that extends from near surface to approximately 400 mbgs. This is underlain by a moderate-R horizon. Both the low-R and moderate-R layers extend to the southern margin of the survey area, along the Norma Edith property.
- The eastern portion of the survey area, the Viamonte property, is characterized by a thick, low-R to very low-R layer that is the main target for future exploration drilling within the Norma Edith and Viamonte properties. This horizon extends to the northern end of the survey area and is unconfined in the VNE-0 through VNE-3 profiles.

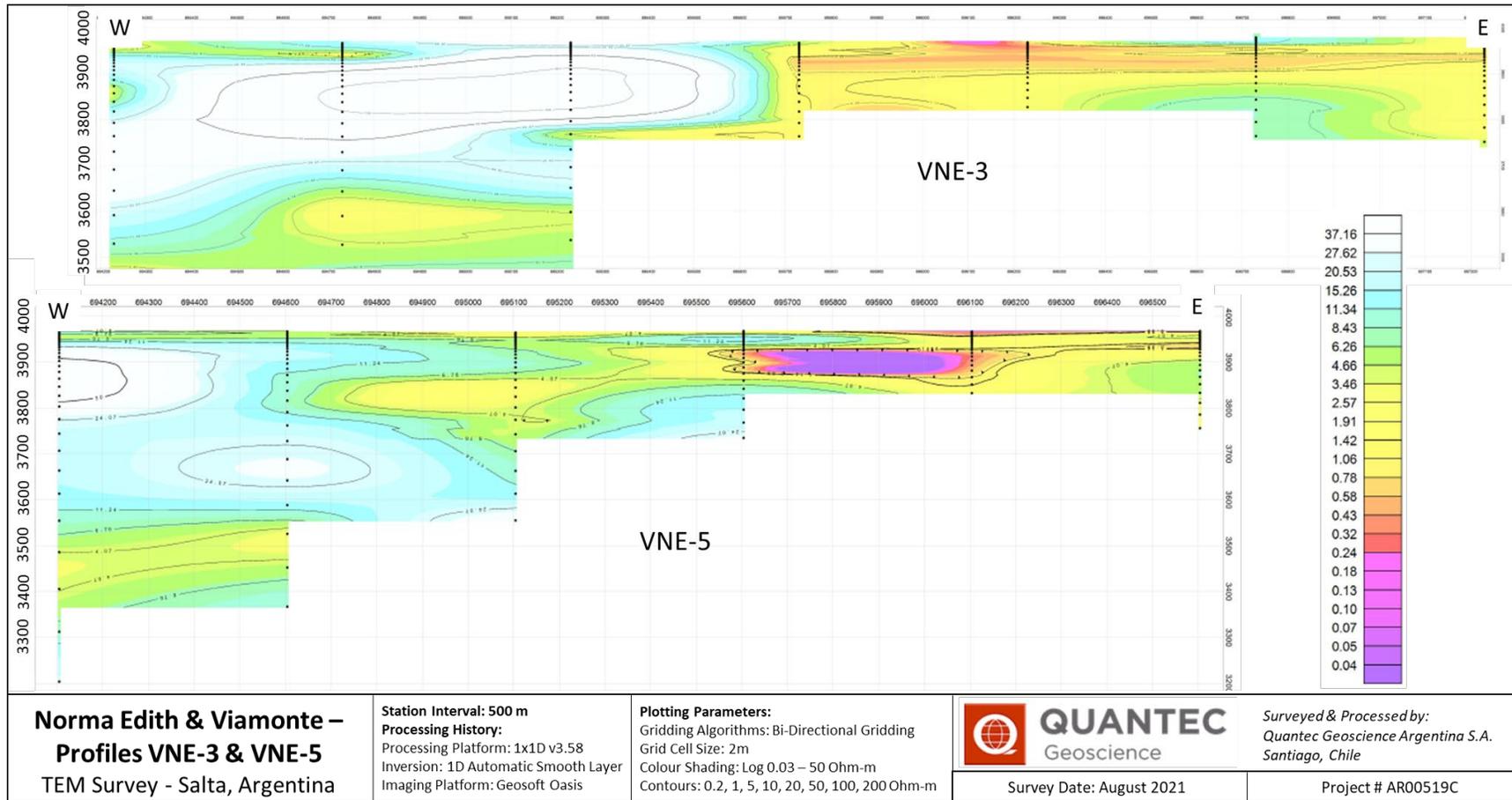


Figure 9.8: Norma Edith and Viamonte example W-E smooth-layer inverted TEM profiles, VNE-3 and VNE-5; locations shown on Figure 9.2.

9.5 2018 PUMPING TESTS

Pumping tests were conducted by Wichi Toledo S.R.L., Salta, Argentina, at two pumping wells in 2018:

- TWW18-01: results first reported by Montgomery (2018); and
- TWW18-02: results first reported by KPC (2019).

The locations of the pumping tests are shown on Figure 9.9, an example pumping test set-up is shown in Photo 9.1, the results are summarized in Table 9.3, and drawdown and recovery graphs are shown in Appendix A.

Pumping tests were performed as follows:

- A step test was conducted at three progressively higher flow rates to determine an effective pumping rate for the constant rate test.
- After completing the step test and allowing the brine levels to recover, a 72-hr constant flow test was performed (Photo 9.1).
- Piezometric levels were measured with a graduated sounder during the tests, in the pumping well and correlated observation well.
- Data were interpreted by Montgomery & Associates using Aqtesolv software (HydroSOLVE, 2008) and verified manually. Using methodology developed by Theis (1935), transmissivity was calculated from drawdown data using the logarithmic graphical method. Water level recovery measurements were analyzed using the semi-logarithmic graphical recovery method.
- Logarithmic drawdown and semi-logarithmic recovery graphs for the pumping and observation wells were generated with computed aquifer transmissivity (Appendix A).



Photo 9.1: 72-hr constant-rate pumping test set-up at TWW18-01.

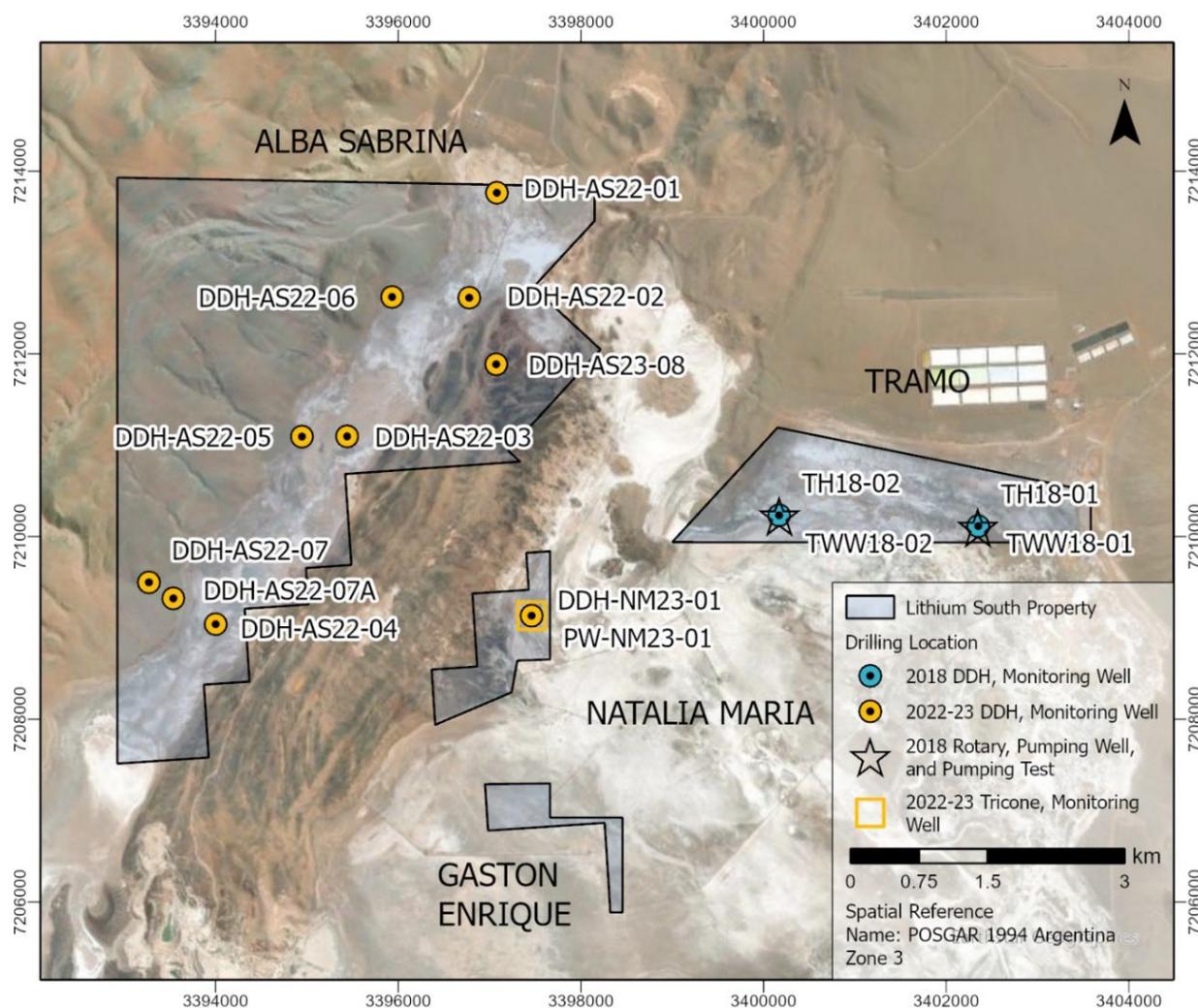


Figure 9.9: Location of boreholes, installed wells, and pumping tests at the HMN Project.

Table 9.3: Summary of the Tramo property pumping test results from the 2018 field season.

Parameter	TWW18-01		TWW18-02	
	Step	Constant	Step	Constant
Test Interval (mbgs)	0 - 401		0 - 372	
Tested Geological Units ¹	IFCS, IHS, Conglomerate		IFCS, IHS	
Test Type	Step	Constant	Step	Constant
Number of Pumping Rates	3	1	3	1
Duration (hr)	2 / pumping rate	72	2 / pumping rate	72
Average Pumping Rate (m ³ /hr)	9.4		11	
	17.2	25	19.2	20.1
	24.2		26.3	
Drawdown after 24-hrs of pumping (m)		12.97		35.79
Specific Capacity (L/s/m) ²		1.9		0.6
Transmissivity (m ² /d) from pumping well (Theis (1935) Recovery Method)		55		120
Transmissivity (m ² /d) from monitoring well (Theis (1935) Drawdown Method)		61		100

¹ IFCS: Interlayered Fine and Coarse Sediments; IHS: Interbedded Halite and Sediments

² Litres per second per metre

9.6 DATA PROCESSING

Borehole log information, laboratory data, and well configurations were compiled and processed in a Microsoft Excel database. All relevant spatial site information and mapping is compiled in ESRI ArcGIS Pro and Manifold System GIS. Project topographic data, Google Earth, and ESRI satellite imagery were used to identify topographic and hydrologic features.

10 DRILLING

10.1 OVERVIEW

The two drilling programs completed at the HMN Project, summarised in Table 9.1 and Table 9.2, are as follows:

- 2018 drilling program: two diamond drillholes (“DDH”) and two rotary holes drilled at Tramo; and
- 2022-23 program: 10 DDHs, nine drilled at Alba Sabrina and one drilled at Natalia Maria; and one tricone hole drilled at Natalia Maria.

These drill programs were designed to test for lithium-rich brines within conductive geophysical target horizons and to support Resource estimation at the Alba Sabrina, Natalia Maria, and Tramo properties by:

- Collecting samples for subsurface brine chemistry characterization;
- Characterizing salar geology based on lithology and porosity (S_v) data collected from continuous core samples, downhole geophysics, and other drilling information; and
- Installing observation and pumping wells for hydrogeological characterization.

The location and chronology of boreholes are shown on Figure 9.9. Borehole and well specifications, samples, and packer sampling intervals are summarised in Appendix B. Brine sampling results are presented in Section 10.5, and sampling methods are presented in Section 11.2.

10.2 DIAMOND DRILLING

10.2.1 Diamond Drilling Methods

The following methods were used during the 2018 and 2022-23 diamond drilling field campaigns:

- Vertical coreholes were drilled in HQ and/or PQ diameter to the target depth or to the maximum depth that the equipment was able to achieve;
- Core recovered during drilling was transferred into core boxes and photographed;
- Drill logs were prepared to record recovery percentage, lithology, and visual porosity; porosity samples were collected, and the core was stored and labelled.
- Depth-discrete brine samples were collected during drilling or upon completion of drilling (Section 11.2.3).
- Downhole geophysics was performed at select boreholes (Appendix B).
- Upon completion of drilling, an observation well was installed at each DDH location, and composite brine samples were collected from the developed wells (Section 11.2.5).

10.2.2 2018 Diamond Drilling

Results of the 2018 DDH program were first reported by Montgomery (2018). Two vertical DDHs, TH18-01 and TH18-02, were drilled on the Tramo Property in April and July 2018 by AVG Falcon, of Salta, Argentina. Drilling was completed with a HYDX-6 drill rig using triple tube PQ3 and HQ3 drilling methods. Downhole geophysical surveys were conducted by Aminco S.R.L. (Appendix B).

Observation wells were installed at each location using 2-inch schedule 80 PVC and 2-inch slotted PVC (0.75 mm slot size). Wells were completed with surface steel casing, a surface sanitary cement seal, and lockable cap.

10.2.3 2022-23 Diamond Drilling

Ten vertical DDHs were drilled by GYC Andalgala Perforaciones S.R.L., Catamarca, Argentina, between August 2022 and April 2023 (Photo 10.1). Wireline drilling methods were used, and HQ-diameter core was recovered from each DDH. Tricone drilling was used at DDH-AS22-04, from 260-308 m, and equipment was reduced to NQ-diameter to achieve the target depth of 411 mbgs. A range of biodegradable additives were used during drilling, including: Bentoget, Poliget, Get trol, Softcore, Cytemp, EcoLube, gom xántica, Viscosan, and Bioxan.



Photo 10.1: Diamond drilling at DDH-AS22-04, August 10, 2022.

Core recovery, lithology, and visual porosity logs were prepared onsite by LIS personnel. Porosity samples were collected during and after drilling, at depths identified by GWI. Downhole geophysical surveys were completed at nine of the boreholes (Appendix B). The conductivity survey at DDH-AS22-07 was implemented by Zelandez Services Argentina S.R.L., Salta, Argentina, and all other downhole surveys were conducted by Mercoaguas, Salta, Argentina. Observation wells were installed with 2-inch PVC screen and casing, as specified in Appendix B.

10.3 2022-23 TRICONE DRILLING

One tricone borehole, PW-NM23-01, was drilled at Natalia Maria by GYC Andalgala Perforaciones S.R.L., Catamarca, Argentina, in March 2023. Drill cuttings were described by LIS personnel. The purpose of this borehole was to install a shallow observation well in the IFCS unit, adjacent to the deeper observation

well DDH-NM23-01. The observation well was installed with 2-inch PVC screen and casing, as specified in Appendix B.

10.4 2018 ROTARY DRILLING

The 2018 rotary drilling program was first described by Montgomery (2018). Wichi Toledo S.R.L. drilled both rotary boreholes using conventional mud rotary methods, circulating drilling fluids prepared from polymer mixed with locally sourced brine. Pumping wells were installed with PVC screen and casing. Gravel pack and fill materials were installed in the annular space surrounding the well screen, and clean salty water was used to clean the well for 24-hours. Borehole and well specifications are summarized in Table 10.1.

Table 10.1: Drilling and well construction specifications for the 2018 rotary boreholes and pumping wells installed at the Tramo Property, HMN Project.

Drilling and Well Specifications	TWW18-01		TWW18-02	
	From (mbgs)	To (mbgs)	From (mbgs)	To (mbgs)
12 ¾ inch diameter drilling	0	174	0	190
8.5-inch diameter drilling	174	401	190	400
Reamed to 17.5 inches	0	401	0	372
10-inch PVC Casing ¹	0	174	0	132
8-inch PVC Casing ¹	174	401	132	372

¹ Intervals of PVC casing and screened PVC, screen slot size = 0.75 mm

Unwashed and washed drill cuttings were logged and stored in labelled plastic cuttings boxes (Photo 10.2). Downhole geophysical surveys were conducted by Mercoaguas (Appendix B). Both rotary boreholes were completed as pumping wells, as specified in Appendix B. Pumping test are summarized in Section 9.5, and brine sampling from each pumping well is described in Section 11.2.4.

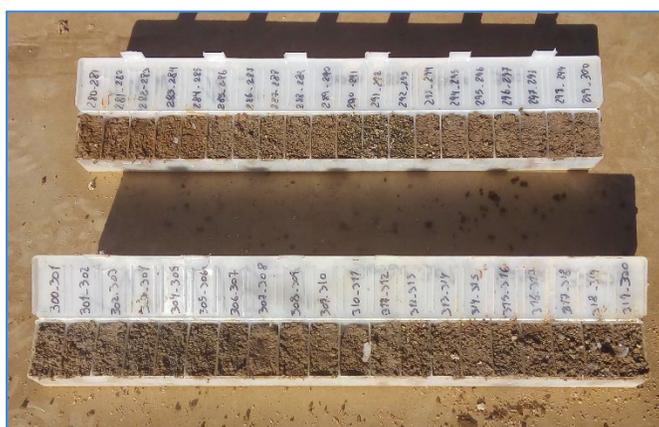


Photo 10.2: Example rotary chip trays used for logging, 320-360 mbgs, TWW18-01.

10.5 SUBSURFACE BRINE CHEMISTRY

Subsurface brine samples were collected during the 2018 and 2022-23 drilling programs and 2018 pumping tests, as described in Section 11.2. Sample locations and average lithium grade at each location are shown on Figure 10.1, and a summary of the results is shown by borehole in Table 10.2. Overall, there is good agreement between depth discrete samples and samples collected from developed long-screen wells at the same borehole or platform location.

One packer sample, sample HMN-135 collected at Alba Sabrina from borehole DDH-AS22-03, was excluded from the borehole averages and from the data set used for brine grade interpolation (Section 14.4). Sample HMN-135 has a lithium concentration of 320 mg/L and a depth interval of 200 to 260 mbsg. This concentration is considered erroneously low in relation to neighbouring samples, both laterally and vertically (see Figures 10.1 and 10.2). The low lithium grade is attributed to contamination from drilling fluids and shallow, fresher water caused by an incomplete seal in the packer assembly during sampling.

The following spatial trends in lithium (“Li”) brine grade are noted in the discrete-level packer samples:

- The Natalia Maria property has the highest overall Li grade, with Li results ranging from 1071 to 1246 mg/L and averaging 1103 mg/L.
- Lithium grades at Tramo increase towards the east, averaging 638 and 898 mg/L in boreholes TH18-02 and TH18-01, respectively. The overall average for the property is 769 mg/L.
- Alba Sabrina has the lowest overall brine grade of 698 mg/L Li.
- Below average Li values are in the shallowest samples collected from DDH-AS22-05, DDH-AS22-06, and DDH-AS22-07. These values indicate dilution by freshwater inflow into the salar through the alluvial fans at the western margin of the salar.
- On a salar-wide basis, a depth-dependent trend is not apparent in Li grades (see Figure 10.1 and Figure 10.2).

General spatial trends for potassium (“K”), boron (“B”), magnesium to lithium ratio (“Mg/Li”), and calcium to lithium ratio (“Ca/Li”), and the relationships between these brine constituents are shown on Figure 10.3 through Figure 10.6. These trends indicate that each property has unique brine chemistry characteristics.

The highest average concentrations of K and B occur at Natalia Maria. Alba Sabrina has the highest average Mg/Li ratio (3.53), whereas Tramo has the highest average Ca/Li ratio (1.23). Mg/Li and Ca/Li ratios are very low, averaging 3.27 and 0.93, respectively. Brine chemistry trends are further discussed in Section 14.6.

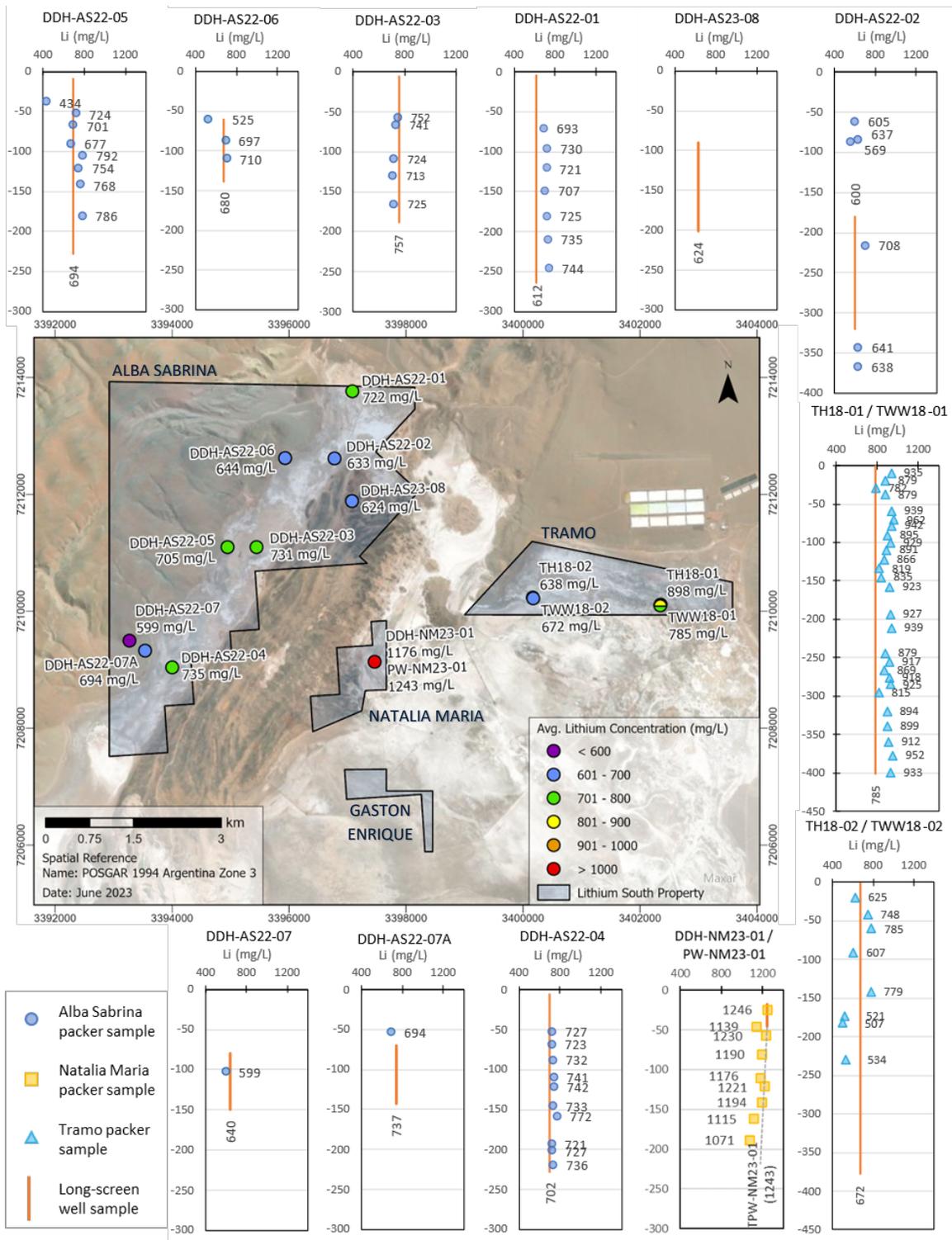


Figure 10.1: Distribution of lithium in the 2018 and 2022-23 brine samples.

Map values at boreholes labelled with “DDH” and “TH” are calculated from packer samples averaged over the drill hole (blue circle on graphs), except for DDH-AS23-08. Values at boreholes labelled with “PW”, “TWW”, and DDH-AS23-08 are averages of samples collected from developed wells (orange lines on graphs represent screen length and placement).

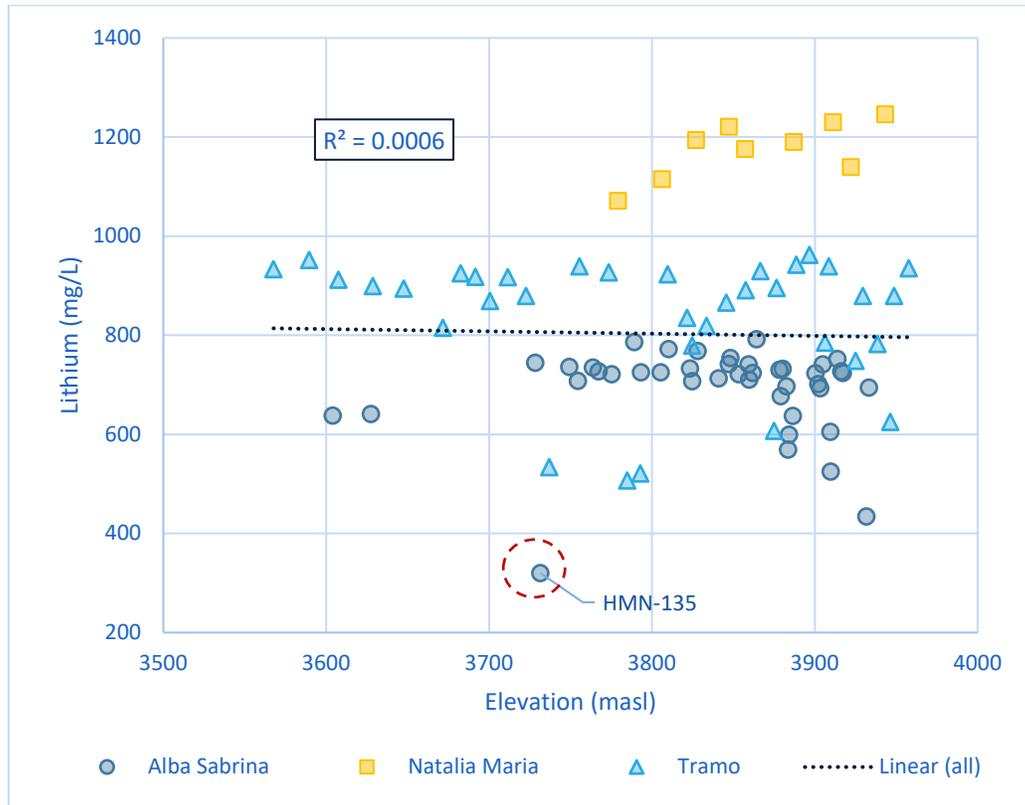


Figure 10.2: Elevation vs. lithium graph of depth discrete brine samples collected during the 2018 and 2022-23 drilling programs, showing no apparent trend in lithium grade with depth. Sample HMN-135 excluded from Resource and R² value (circled).

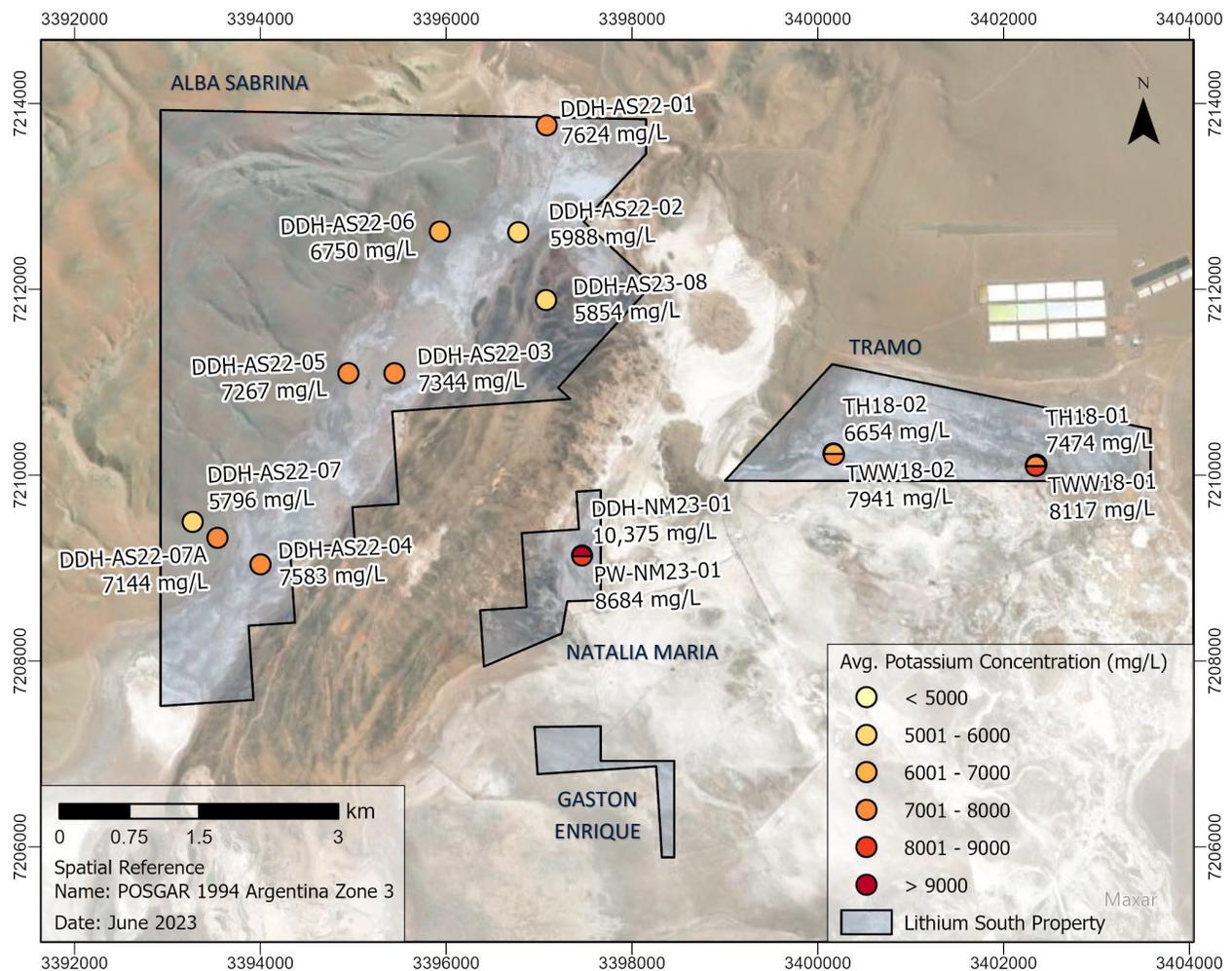
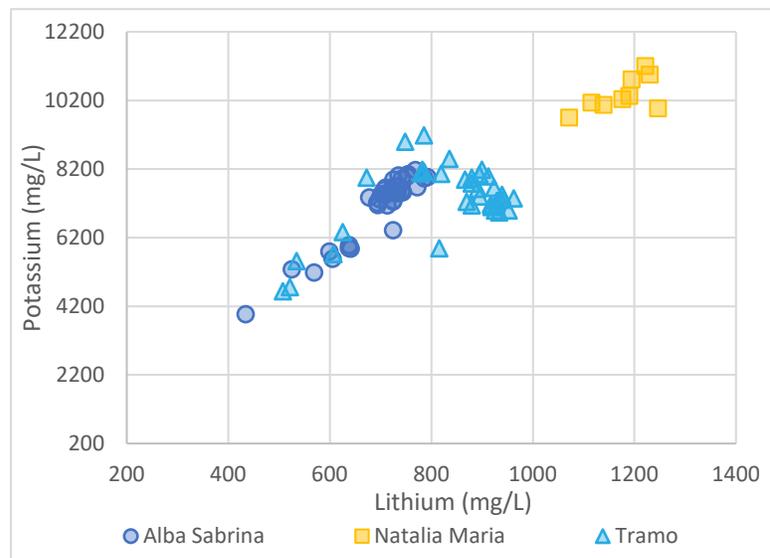


Figure 10.3: (above) Distribution of potassium in the 2018 and 2022-23 boreholes. Values at boreholes labelled with “DDH” and “TH” are calculated from packer samples averaged over the drill hole, except for DDH-AS23-08. Values at boreholes labelled with “PW”, “TWW”, and DDH-AS23-08 are averages of samples collected from developed wells. (right) Lithium versus potassium for the same brine samples.



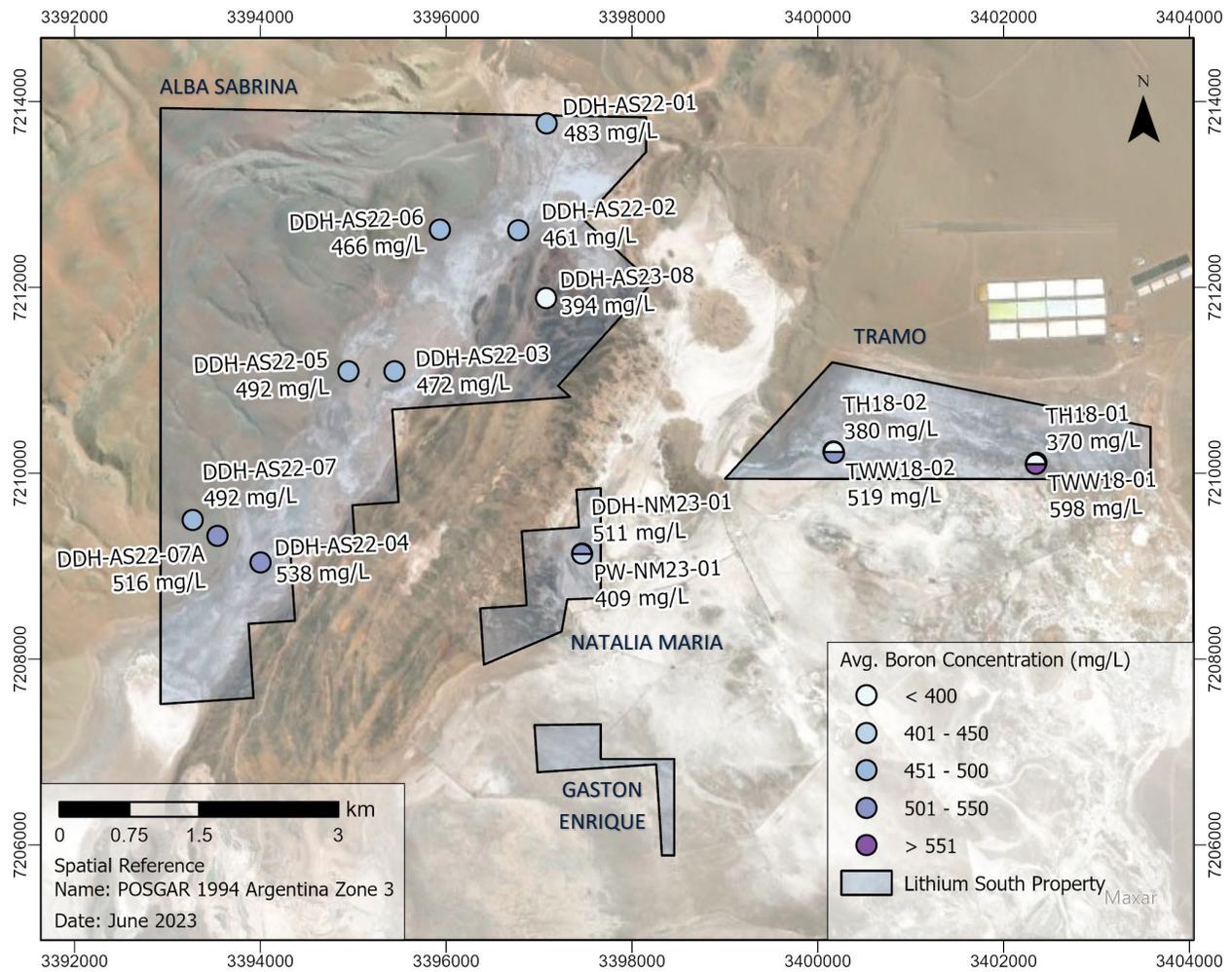
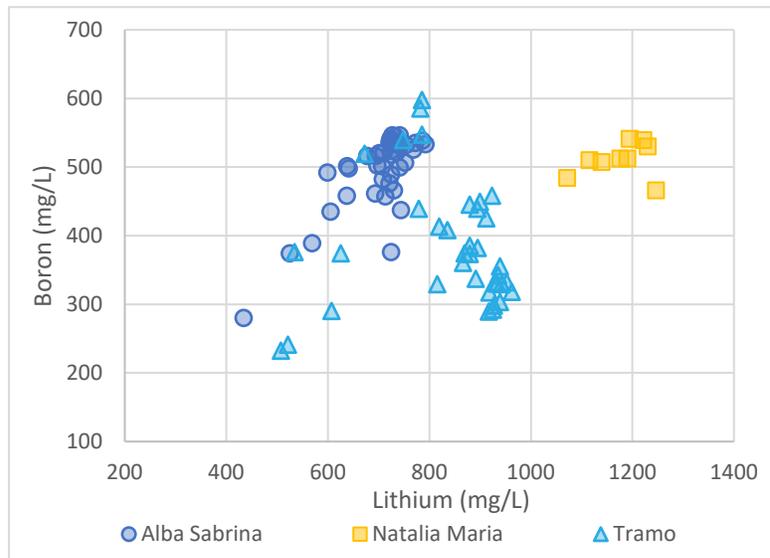


Figure 10.4: (above) Distribution of boron in the 2018 and 2022-23 boreholes. Values at boreholes labelled with “DDH” and “TH” are calculated from packer samples averaged over the drill hole, except for DDH-AS23-08. Values at boreholes labelled with “PW”, “TWW”, and DDH-AS23-08 are averages of samples collected from developed wells. (right) Lithium versus boron for the same brine samples.



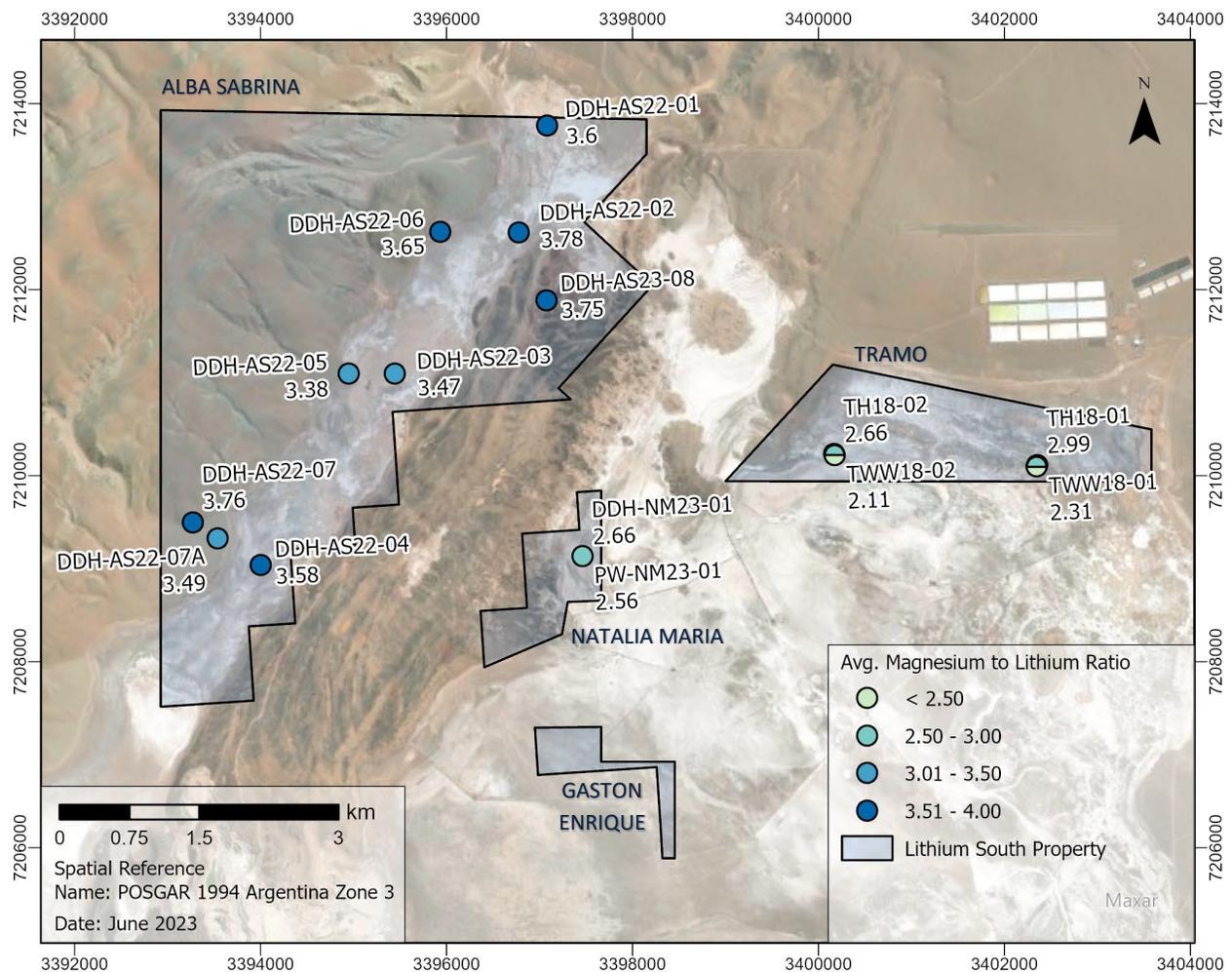
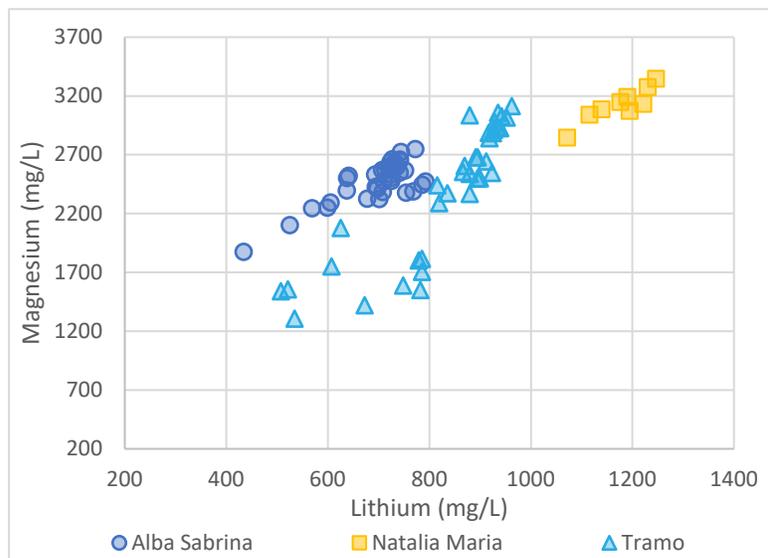


Figure 10.5: (above) Distribution of the magnesium to lithium ratio in the 2018 and 2022-23 boreholes. Values at boreholes labelled with “DDH” and “TH” are calculated from packer samples averaged over the drill hole, except for DDH-AS23-08. Values at boreholes labelled with “PW”, “TWW”, and DDH-AS23-08 are averages of samples collected from developed wells. (right) Lithium versus magnesium for the same brine samples.



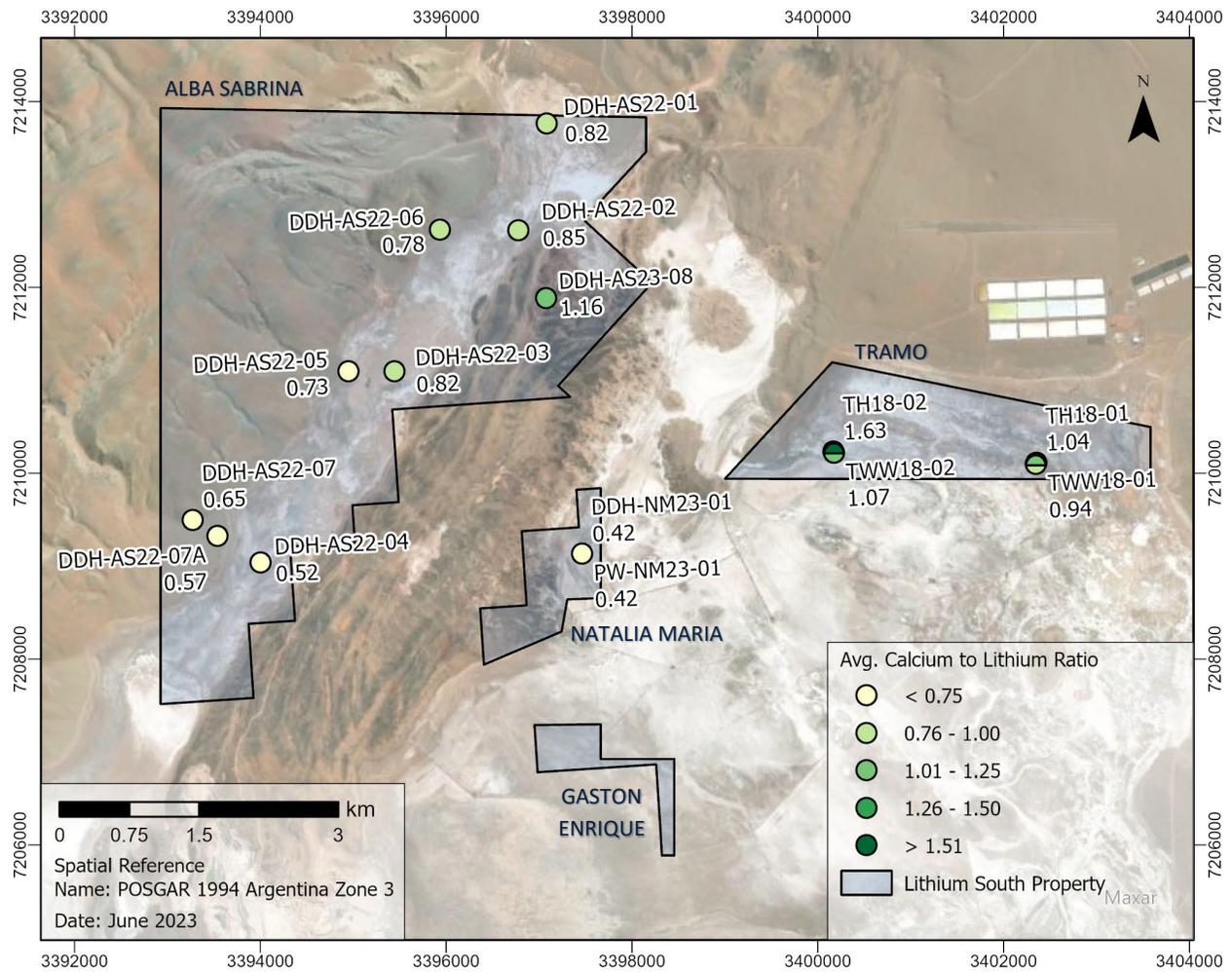
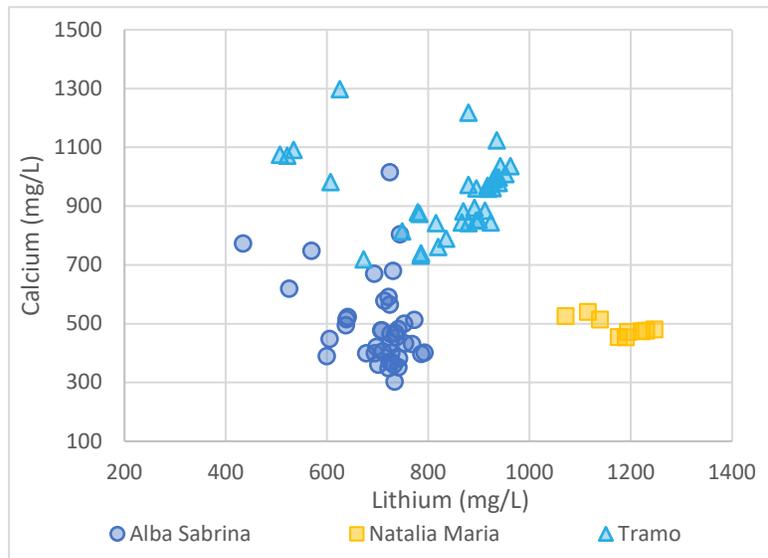


Figure 10.6: (above) Distribution of the calcium to lithium ratio in the 2018 and 2022-23 boreholes. Values at boreholes labelled with “DDH” and “TH” are calculated from packer samples averaged over the drill hole, except for DDH-AS23-08. Values at boreholes labelled with “PW”, “TWW”, and DDH-AS23-08 are averages of samples collected from developed wells. (right) Lithium versus calcium for the same brine samples.



10.6 CHARACTERISATION OF SPECIFIC YIELD (S_v)

Core samples from the 2018 and the 2022-23 drilling programs were submitted to GeoSystems Analysis Inc. (“GSA”) in Tucson, Arizona, USA to estimate S_v using the Rapid Brine Release (“RBR”) extraction method (Section 11.3). The cores were also analyzed for bulk density, total porosity, and field water capacity (Section 11.3). These hydraulic parameters are described as follows:

- Specific Yield (“ S_v ”) – The ratio between the volume of water that can be drained by gravity from a given rock, sediment, or soil and the total bulk volume of that material.
- Bulk density – The dry weight of rock, sediment, or soil per unit volume of that sample.
- Total porosity (“ P_t ”) – The total volume of pore or void space present within a unit volume of rock, sediment, or soil, measured as a percentage. This parameter provides a measure of the material’s capacity to hold and transmit fluids.
- Field water capacity – The water content retained within the rock, sediment, or soil after excess water has been drained. It represents the amount of water that the rock, sediment, or soil can retain after drainage.

A total of 79 core samples were analyzed from 11 DDHs during the 2018 and 2023-22 drilling programs (Table 10.2; Appendix B). Example 2022-23 core samples submitted for analysis are shown on Figure 10.7. Results from the 20 Tramo property core samples analyzed in 2018 were first reported by Montgomery (2018) and are presented in Table 10.2 and Table 10.3 in the context of the updated geological units.

Table 10.2: Summary of core samples collected for RBR analysis, 2018 and 2022-23 porosity samples.

Borehole ¹	Number of Samples Collected	Number of Samples Analyzed	Core Size	Number of Samples Analyzed by Geological Unit ²							
				IFCS	IHS	B	H	UMS	Cgl	CH	BQTZ
DDH-AS22-01	13	7	HQ	6				1			
DDH-AS22-02	14	11	HQ NQ ³	6				5			
DDH-AS22-03	15	14	HQ	3		4		6			1
DDH-AS22-04	15	7	HQ	2		2		2			1
DDH-AS22-05	6	3	HQ	2							1
DDH-AS22-06	6	5	HQ	4							1
DDH-AS22-07	2	1	HQ								1
DDH-AS22-07A	3	1	HQ	1							
DDH-NM23-01	11	10	HQ	2	1		5			2	
TH18-01 ⁴	37	10	HQ	3	2				5		
TH18-02 ⁴	10	10	HQ	3	7						
<i>Total</i>	132	79		32	10	6	5	14	5	2	5

¹ AS = Alba Sabrina; NM = Natalia María; T = Tramo

² IFCS = Interlayered Fine and Coarse Sediments; IHS = Interbedded Halite and Sediments; B = Basalt; H = Halite; UMS = Upper Middle Sediments; Cgl = Conglomerate; CH = Compact Halite; BQTZ = Brecciated Quartzite

³ The three core samples collected from the Brecciated Quartzite unit intersected in DDH-AS22-02 are NQ diameter.

⁴ Previously reported by Montgomery (2018).

	<p>Interlayered Fine and Coarse Sediments (IFCS) – Alba Sabrina</p> <p>$S_y = 0.277$</p> <p>$(S_y^* = 0.150)$</p>		<p>Interlayered Fine and Coarse Sediments (IFCS) – Natalia Maria and Tramo</p> <p>$S_y = 0.051$</p> <p>$(S_y^* = 0.051)$</p>
	<p>Interbedded Halite and Sediments (IHS)</p> <p>$S_y = 0.159$</p> <p>$(S_y^* = 0.150)$</p>		<p>Basalt</p> <p>$S_y = 0.063$</p> <p>$(S_y^* = 0.063)$</p>
	<p>Halite</p> <p>$S_y = 0.072$</p> <p>$(S_y^* = 0.072)$</p>		<p>Upper Middle Sediments (UMS)</p> <p>$S_y = 0.332$</p> <p>$(S_y^* = 0.150)$</p>
	<p>Compact Halite (CH)</p> <p>$S_y = 0.088$</p> <p>$(S_y^* = 0.088)$</p>		<p>Brecciated Quartzite (BQTZ)</p> <p>$S_y = 0.030$</p> <p>$(S_y^* = 0.030)$</p>

Figure 10.7: Example core samples collected and analyzed during the 2022-23 drilling program, and S_y results for each sample.

S_y = value estimated by laboratory, depth corrected if applicable.

S_y^* = conservative value applied to calculate average for geological unit.

RBR (S_y) results are summarized by geological unit in Table 10.3. The following observations are noted:

- Twenty-four of the 2022-23 samples analyzed had anomalously high porosity and S_y results, due to the unconsolidated nature of the core samples.

- The S_y values were highly variable across the IFCS unit (0.028 – 0.386). Sediments identified as IFCS had a higher overall visual porosity and lower degree of consolidation in Alba Sabrina in comparison to those in Natalia Maria and Tramo.
- Core samples collected from the CH unit had a higher average S_y (0.100; two samples) than that for the Halite unit (0.068; five samples), despite low visual porosity and poor packer sample recovery from the CH unit.
- Results for the BQTZ unit are based on five samples. Several other core samples collected from the unit were not analyzed because they were fractured or brecciated, as opposed to whole core pieces.

The following adjustments were made based on these trends:

- S_y values are potentially affected by limitations in sampling unconsolidated materials: Prior to calculating the average S_y for each geological unit, any S_y values greater than 0.15 were lowered to 0.15. This approach added a degree of conservatism. The resulting average values are consistent with published values for analogous projects.
- IFCS: The average S_y for IFCS at Alba Sabrina was based on the core samples collected from Alba Sabrina; S_y for the IFCS east of Tincalayu was calculated based on Natalia Maria and Tramo results.
- CH: This unit was assigned an S_y value of zero and is not included in the current Resource Estimate, based on low visual porosity and poor recovery of brine during packer sampling within the unit. Future hydraulic testing may support the existence of secondary porosity (fracturing) within this unit.
- BQTZ: The average value for BQTZ is considered acceptable for this stage of Resource Estimation. Additional hydraulic testing is recommended, to better estimate the impact of secondary porosity on recoverable brine.

Mean S_y values based on these adjustments were used to estimate the recoverable brine stored in each geological unit found within the Alba Sabrina, Natalia Maria, and Tramo Properties (Table 10.3; Section 14.2.3). Sampling procedures and analytical methods are discussed in Section 11.3.

Table 10.3: Univariate statistics for RBR results, and final S_y values used for resource calculations.

Unit	Count	Minimum S_y	Maximum S_y	Mean S_y	Standard Deviation	Final S_y
<i>Interlayered Fine and Coarse Sediments (IFCS) - All</i>	32	0.028	0.386	0.147	0.101	-
Interlayered Fine and Coarse Sediments (IFCS) – Alba Sabrina	24	0.028	0.386	0.160	0.102	0.111
Interlayered Fine and Coarse Sediments (IFCS) – Natalia Maria & Tramo	8	0.051	0.126	0.089	0.029	0.089
Interbedded Halite and Sediments (IHS)	10	0.026	0.246	0.106	0.063	0.096
Basalt	6	0.005	0.113	0.053	0.045	0.053
Halite	5	0.061	0.072	0.068	0.016	0.068
Upper Middle Sediments (UMS)	14	0.068	0.332	0.192	0.089	0.131
Conglomerate	5	0.038	0.143	0.087	0.050	0.087
Compact Halite (CH)	2	0.088	0.111	0.100	0.016	0
Brecciated Quartzite	5	0.030	0.185	0.093	0.060	0.086
<i>Total</i>	79					

11 SAMPLE PREPARATION, ANALYSIS, AND SECURITY

11.1 OVERVIEW

The following sections describe the sample collection and analytical methods used for the 2016-17, 2018, and 2022-23 Programs. Sample preparation was not required for the brine samples or for the core samples collected during these Programs. No samples were collected during the 2021 Program.

All 2022-23 Program oversight (e.g., sample collection, drilling, well construction, QA/QC, and secure transport) was performed by LIS personnel, with oversight by Dr. Mark King (QP). The QP considers that the HMN Project dataset and QA/QC procedures are acceptable for evaluation of brine Resources, with no significant and systematic bias.

11.2 BRINE SAMPLE COLLECTION AND ANALYSIS

11.2.1 Overview of Brine Sample Collection and Field Parameters

All brine samples were collected in clean sample bottles that were sealed and labelled. Field parameters, including temperature, electrical conductivity, pH, and density, were measured and recorded for each sample. Samples were stored on site in coolers until delivery to Alex Stewart International Laboratory (“ASI”) by LIS personnel. The chain-of-custody protocol for the 2022-23 Program is outlined in Section 11.6.

11.2.2 Surface Brine Sampling Methods

Surface brine sampling methods for the 2016-17 and 2018 Programs were originally described by Montgomery (2017; 2018). In summary, samples were collected from shallow, two- to three-metre-deep hand-augured pits using a bailer. Brine samples were poured into a clean collecting container, solids were allowed to settle, and brine samples were decanted into one litre bottles.

11.2.3 Packer Brine Sampling Methods

Packer systems were used to collect brine samples from discrete formation levels in the 2018 and 2022-23 DDHs. Samples were obtained during drilling, and sampling was conducted as follows:

- 2018 (Montgomery, 2018): Brine was purged from the packer interval until minimal to no traces of drilling mud were observed in the sample.
- 2022-23 Program:
 - Simple and double packers were operated by GYC Andalgala Perforaciones S.R.L., under the technical direction of the LIS project geologist.
 - Brine was purged until at least three packer interval volumes were removed, while purge volumes, pumping rates, and clarity were recorded.
 - Brine samples were collected into clean 500 mL containers.

11.2.4 Pumping Test Brine Sampling Methods

Brine samples were collected directly from the discharge pipe at regular intervals during the 2018 pumping tests at TWW18-01 and TWW18-02, as described by Montgomery (2018) and KPC (2019).

11.2.5 Observation Well Brine Sampling Methods

Brine samples were collected from each of the 2022-23 Program boreholes after the completion and development of each observation well. Each well, except for DDH-AS22-01, was cleaned and developed by air lift prior to sampling. Brine samples were collected into 500 mL containers directly from the pump discharge pipe. Observation well DDH-AS22-01 is under artesian conditions, and samples were collected into 500 mL containers from the well head. Field parameters were recorded, and samples were stored as per LIS chain of custody protocol.

11.2.6 Brine Analysis

All brine samples were submitted to ASI in Mendoza, Argentina for analysis. ASI is an independent commercial ISO 9001-2008-certified laboratory and was selected for assaying all brine samples from the HMN Project. ASI used the analytical methodologies listed in Table 11.1.

Table 11.1: ASI laboratory methods used for analysis of the HMN Project brine samples.

Method	Constituent	Detection Limit (mg/L)	2016-17 and 2018 Programs	2022-23 Program
ICP-OES (inductively-coupled plasma—optical (atomic) emission spectrometry)	Boron (B)	0.05	All samples	-
		1	-	All samples
	Barium (Ba)	0.01	All samples	All samples
	Calcium (Ca)	0.025	-	-
		2	All samples	All samples
	Iron (Fe)	0.01	All samples	-
		0.3	-	All samples
	Potassium (K)	0.25	All samples	-
		2	-	All samples
	Lithium (Li)	0.05	All samples	-
		1	-	All samples
	Magnesium (Mg)	0.05	All samples	-
		1	-	All samples
	Manganese (Mn)	0.05	All samples	-
0.01		-	All samples	
Sodium (Na)	0.1	All samples	-	
	2	-	All samples	
Strontium (Sr)	0.005	All samples	-	
	0.5	-	All samples	
Argentometric	Chloride (Cl ⁻)	5	Select samples	All samples
Gravimetric	Sulphate (SO ₄)	10	Select samples	All samples
	Total Dissolved Solids (TDS)		Select samples	All samples
Pycnometer	Density		Select samples	All samples
Volumetric (acid/base titration)	Alkalinity (as CaCO ₃)		Select samples	All samples
	HCO ₃		Select samples	All samples
Potentiometric	Conductivity		All samples	-

11.3 POROSITY SAMPLING METHODS AND RBR ANALYSIS

11.3.1 Porosity Sampling Methods

Porosity samples were collected from HQ and NQ core retrieved during the 2018 and 2022-23 Programs. Core samples ranged from 15 to 40 cm long, and full diameter core was selected when possible. The samples were placed in acrylic sleeves with plastic caps, labelled, sealed with tape, weighed, and securely packed for shipment (Photo 11.1).

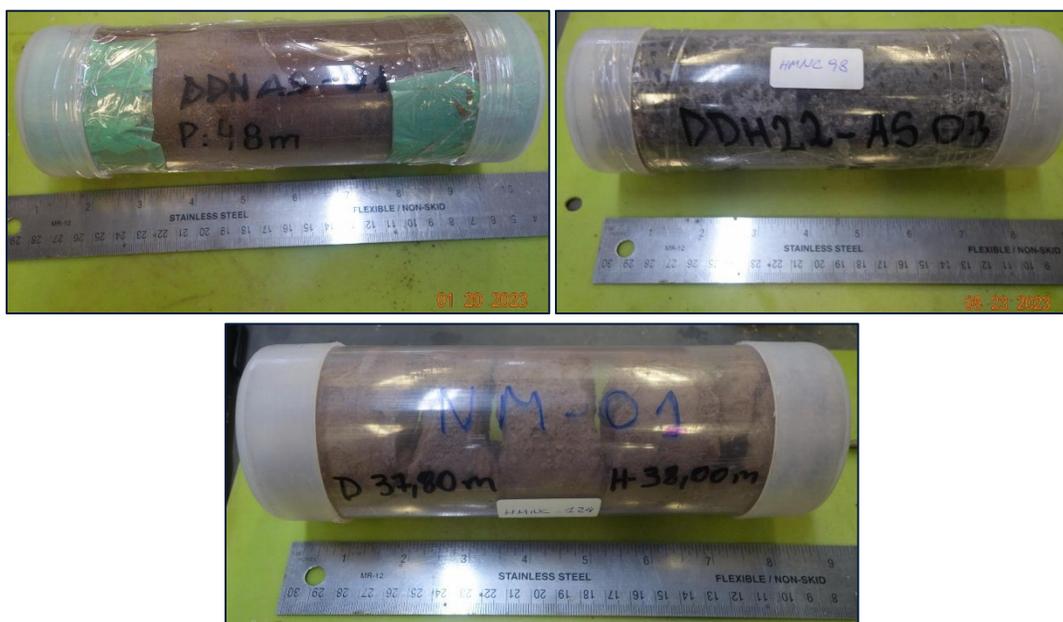


Photo 11.1: Example 2022-23 Program core samples received by GSA Laboratory for analysis.

11.3.2 Porosity Analysis

Core was submitted to GeoSystems Analysis Inc. (“GSA”) in Tucson, Arizona, USA for analysis. Analytical methods used to evaluate the 2018 and 2022-23 porosity samples are shown in Table 11.2. Test results were used to estimate average S_y values, for use in the Resource Estimate.

Table 11.2: GSA Laboratory methods used for analysis of the HMN Project core samples.

Test Type	2018 Samples	2022-23 Samples	Test Method	Standard (ASTM, 2009; MOSA, 2002)
Physical	20	59	Bulk Density	ASMT D2937-17e3
Hydraulic			P_t – Estimated Total Porosity (RBR – Moisture Release Curve method)	MOSA Part 4 Ch. 2, 2.3.2.1
			Estimated Field Water Capacity	MOSA Part 4 Ch. 32, 3.3.3.2
			S_y – Rapid Brine Release (RBR)	Modified ASTM D6836-16 MOSA Part 4 Ch. 3, 3.3.3.5

Six clastic sediment samples were selected for retesting. The samples were machine compacted to reflect the original depth of the sample and re-analyzed using the methods shown in Table 11.2. Results for two

of the samples either did not change or increased slightly. Results for the four finer grained samples exhibited decreased porosity and S_y in response to the compaction, and S_y decreased according to the trend shown on Figure 11.1. This trend, or correction factor, was applied to 20 samples with similar lithologies, to reduce S_y and better reflect conditions at depth within the salar. The resulting averages and univariate statistics are presented in Section 10.6.

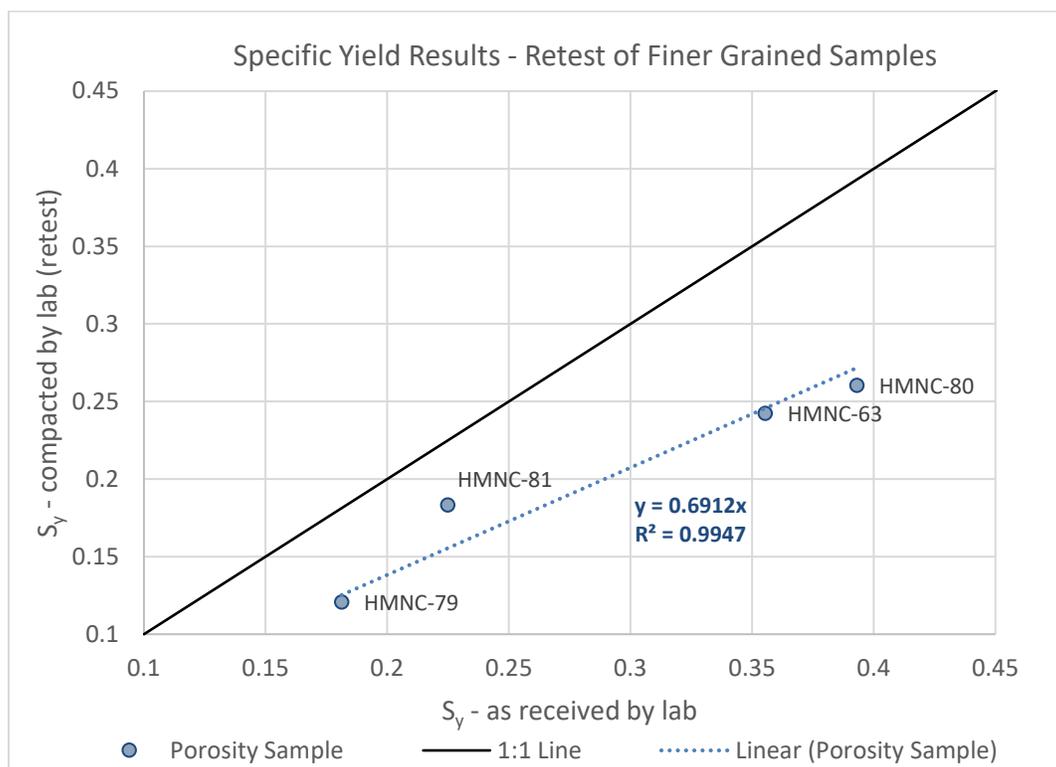


Figure 11.1: Relationship between Specific Yield (S_y) results for the four finer-grained samples as received by GSA versus machine-compacted to sample depth. Graph provided by GSA.

11.4 FIELD QA/QC PROGRAM

11.4.1 Summary

QA/QC samples collected at the HMN Project during the 2016-17, 2018, and 2022-23 programs are listed in Table 11.3. Results of the 2016-17 and 2018 programs were originally provided by Montgomery (2017; 2018) and KPC (2019), and are summarized on Figure 11.2 through Figure 11.5.

Primary components of the 2022-23 field QA/QC program for the HMN Project included the following:

- A reference sample was inserted into the sample stream at a frequency of approximately 1 in 10 samples. The bulk reference sample used for this purpose was collected from pumping well TWW18-01 in 2022.
- A Round Robin analysis of the reference sample collected from pumping well TWW18-01 was conducted at five laboratories.
- A low-range reference sample (essentially a field blank) was inserted at a frequency of approximately 1 in 10 samples. Bottled mineral water was used for this purpose.

- A field duplicate sample was inserted into the sample stream at a frequency of approximately 1 in 10 samples.
- A program of laboratory duplicate sampling was conducted by ASI.
- Two sets of independent field duplicate samples were collected by Dr. Mark King (QP) during two field visits to the 2022-23 field program (Section 12).

QA/QC results presented in the following subsections relate to all QA/QC samples collected at the HMN Project.

Table 11.3: Summary of QA/QC samples collected at the HMN Project.

Field Program	Reference Samples	Field Duplicate Samples	Field Blank Samples	Total QA/QC Samples
2016-17	0	2	2	4
2018	0	13	7	20
2022-23	9	9	8	26
<i>Total</i>	9	24	17	50

11.4.2 Round Robin Analysis of the Bulk Reference Sample

The bulk reference sample collected from pumping well TWW18-01 in 2022 was used as a means of evaluating analytical precision and potential drift, as the program proceeded. As a first step in using this bulk reference sample, a Round Robin analysis was conducted at the following five laboratories as part of the 2022-23 Program:

- ASI, Mendoza, Argentina
- ASI, Palpalá, Argentina
- EON Minerals, Salta, Argentina
- SGS, Salta, Argentina
- Instituto de Beneficio de Minerales (“INBEMI”), Facultad de Ingeniería, Salta, Argentina

The results of the analyses provide mean values and standard deviations for several tested analytes including lithium, calcium, magnesium, and potassium using ICP-OES analysis from certified laboratories. Statistics for lithium and potassium results of the Round Robin analysis are show on Figure 11.2.

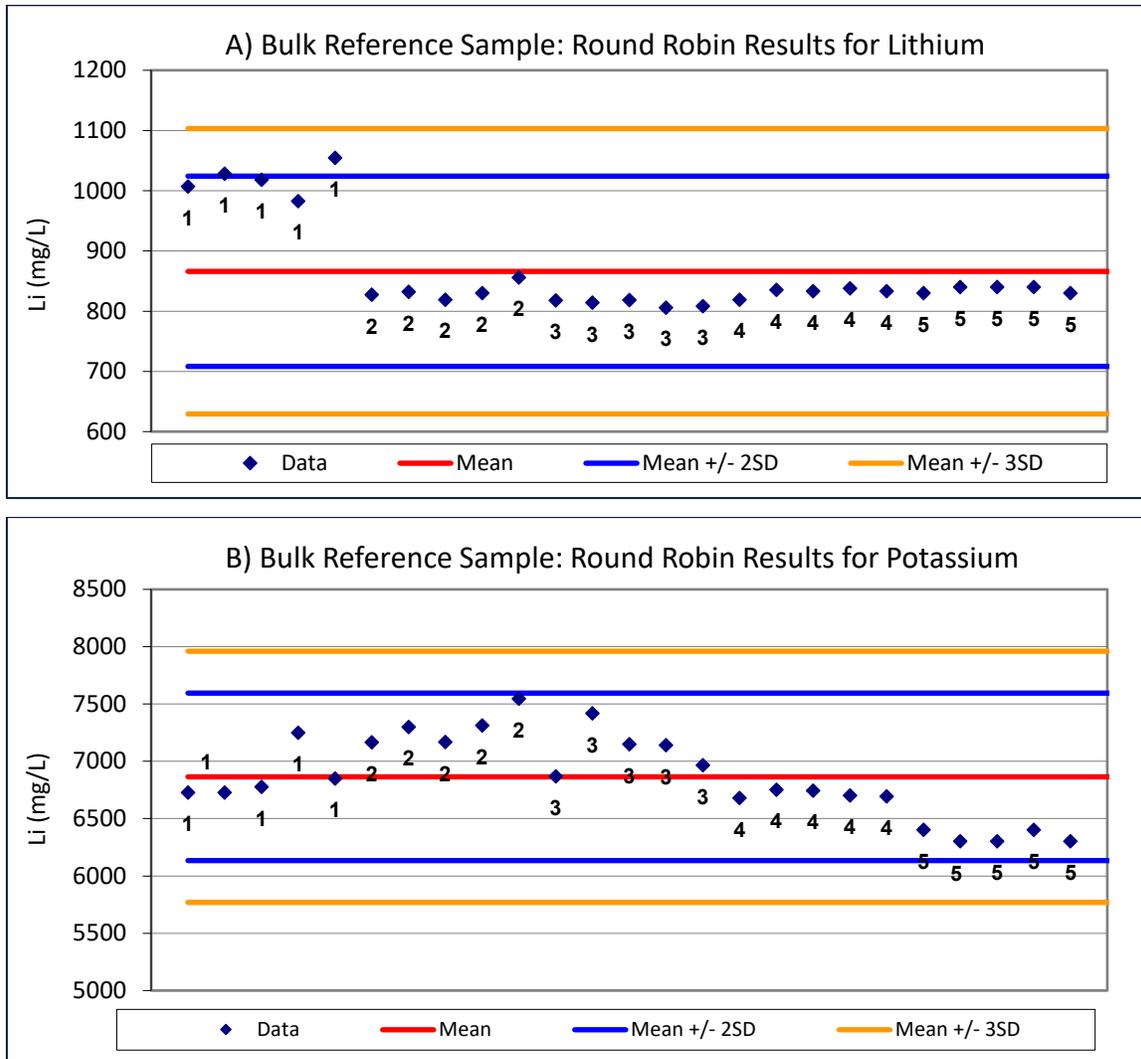


Figure 11.2: Bulk reference sample Round Robin analysis results for A) lithium and B) potassium. Laboratory abbreviations: SGS-Salta (1), ASI-Mendoza (2), EON Minerals (3), ASI-Palpalá (4), INBEMI (5).

11.4.3 Reference Sample Performance in the Sampling Program

As described above, a bulk reference sample was used as a benchmark for ongoing evaluation of analytical drift during the 2022-23 Program. The 2022-23 reference sample performance results for lithium and potassium are shown on Figure 11.3. The lithium results are skewed slightly low due to the generally elevated results from SGS (Figure 11.2). 2022-23 Program results all fall within \pm two standard deviations of the mean, which is considered the primary control limit for the project. Most of the reference sample potassium results fall within \pm two standard deviations, and one sample falls within \pm three standard deviations. Results from the field reference sample program are considered to be within acceptable ranges and show no evidence of unacceptable analytical drift over time.

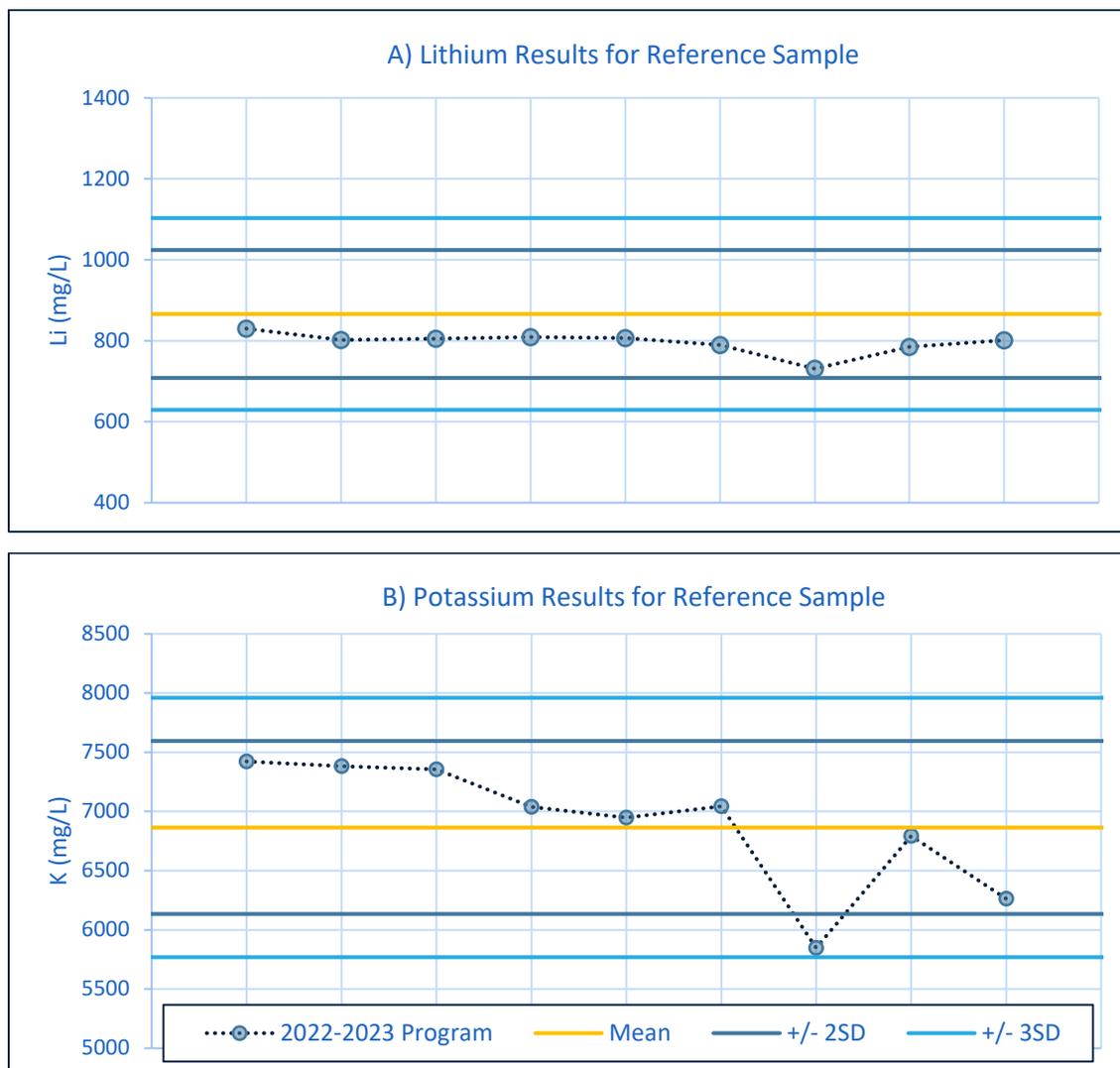


Figure 11.3: Reference sample results compared with Round Robin Mean and Standard Deviation for A) lithium and B) potassium.

11.4.4 Field Duplicate Sample Results

Lithium, potassium, magnesium, and calcium results for 24 field duplicate samples are plotted on Figure 11.4 against their original counterparts. All sample datasets plot within the $\pm 10\%$ lines. The overall precision of the data is considered acceptable.

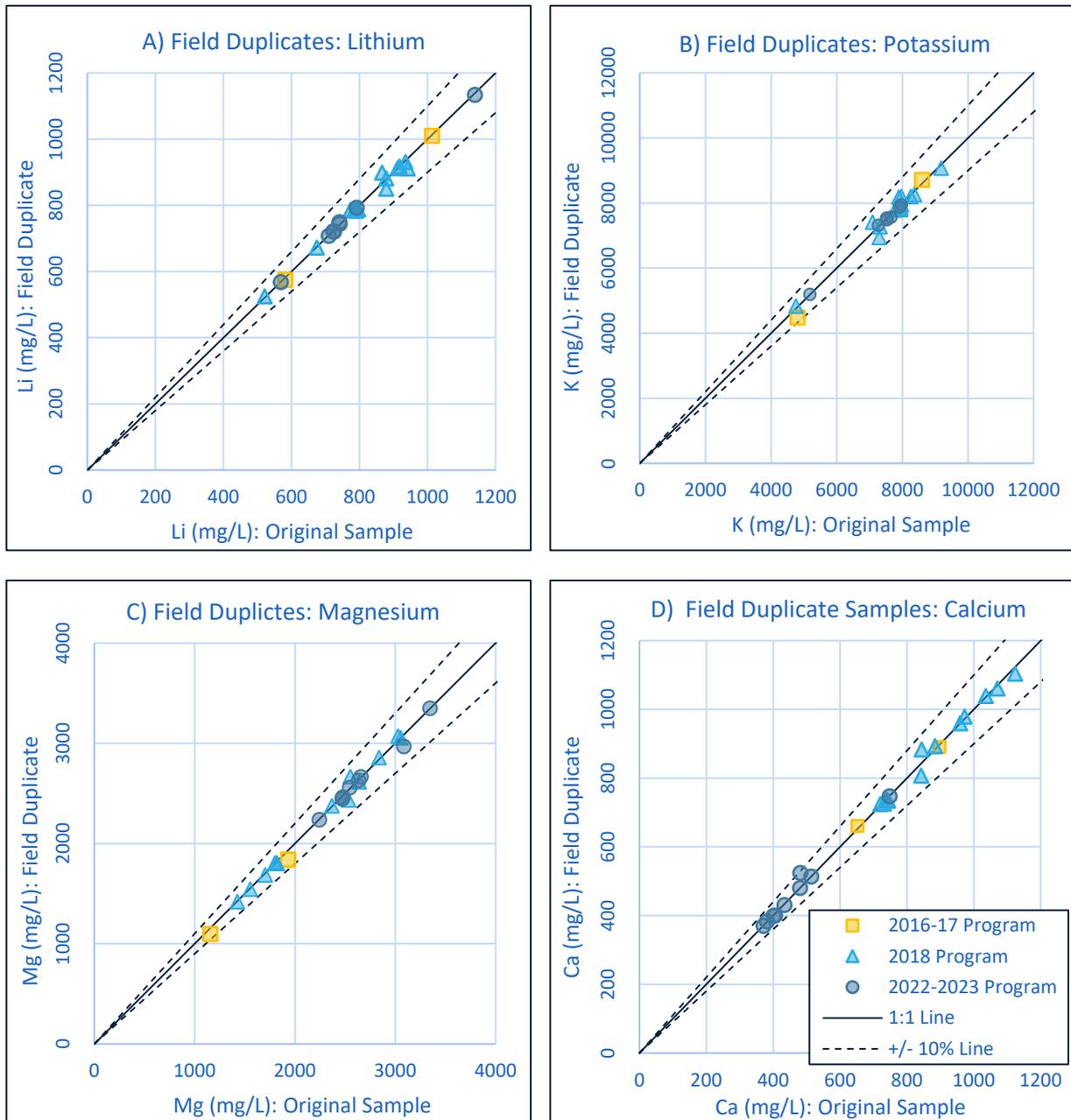


Figure 11.4: Original sample versus field duplicate results for A) lithium, B) potassium, C) magnesium, and D) calcium.

11.4.5 Field Blank Results

Lithium results for 17 field blank samples (low-range reference samples) are shown on Figure 11.5. The results assess for cross-contamination in the laboratory and the field (for example, whether the instrumentation was cleaned sufficiently between analysis of samples). Lithium was not detected in any blank sample. Overall, field blank performance is considered acceptable.

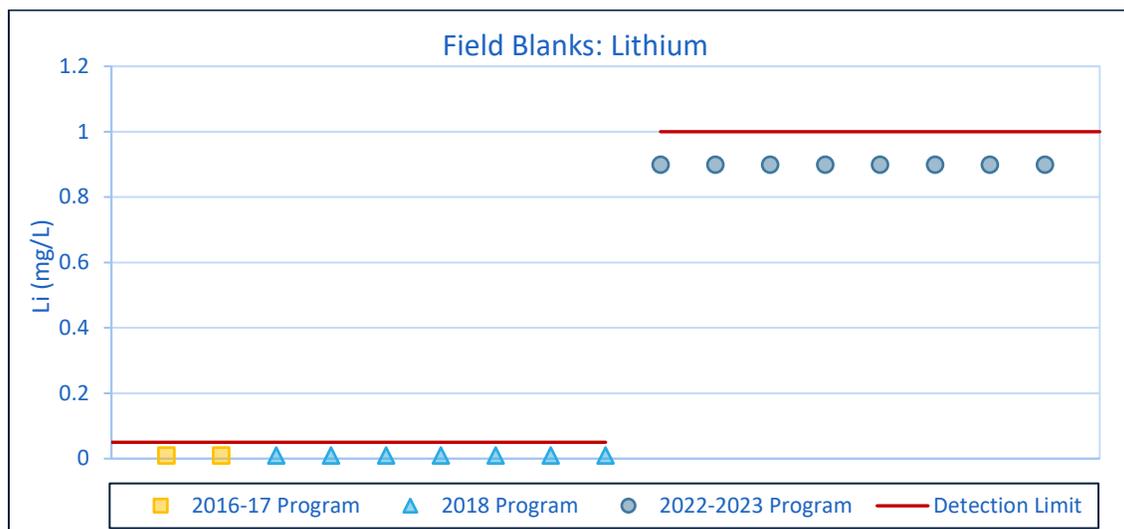


Figure 11.5: Blank sample results for lithium. Change in laboratory detection limited noted in Table 11.1.

11.5 LABORATORY DUPLICATE ANALYSIS

ASI conducts internal laboratory checks on overall analytical accuracy for selected primary parameters. Lithium, potassium, magnesium, and calcium results for the 18 laboratory duplicate analyses are shown on Figure 11.6. All sample results plot within the $\pm 10\%$ lines. Dr. Mark King (QP) considers these results acceptable.

11.6 SAMPLE SECURITY

An established chain of custody procedure was used for HMN Project sampling, storage, and shipping. Samples were collected, handled, and stored onsite by geologists. Samples were under the control of qualified staff at all times, and chain of custody forms were used to document secure delivery to ASI in Mendoza, Argentina as described below:

- 2016-17 and 2018 Program: Brine samples were transported by vehicle directly from the Project to the lab by LIS (previously NRG) personnel.
- 2022-23 Program: Brine samples were periodically transported in Project vehicles to the Lithium South offices in Salta. In Salta, the samples were transported by bus to the lab.

Dr. Mark King (QP) considers that the sample security measures used for the Programs are acceptable.

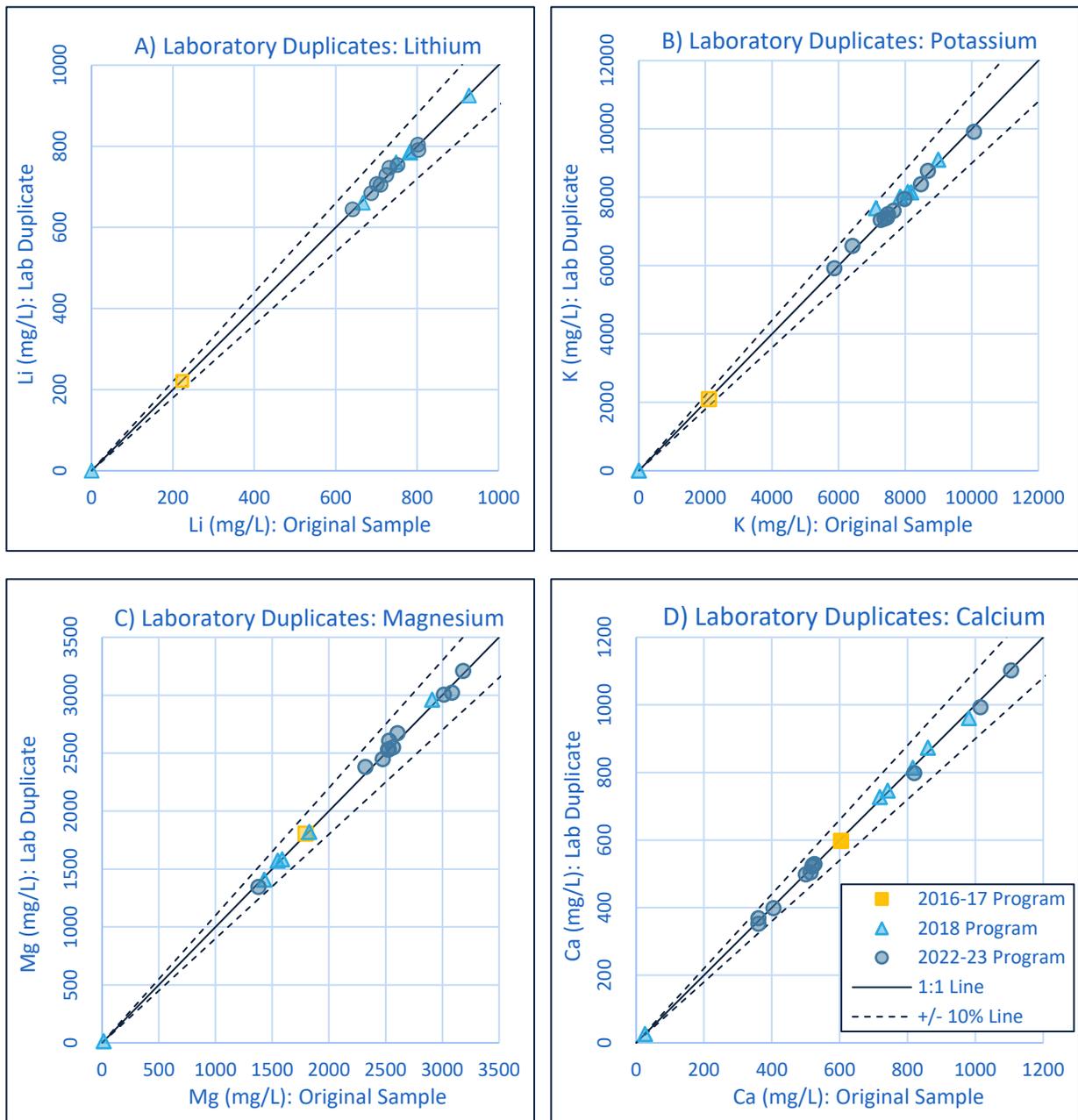


Figure 11.6: ASI internal laboratory duplicate results for A) lithium, B) potassium, C) magnesium, and D) calcium.

12 DATA VERIFICATION

12.1 PROJECT REVIEW AND INTERACTION

Dr. Mark King (QP) provided review and input to the design and execution of the HMN Project 2022-23 field exploration Program. The QP and other GWI geologists maintained technical discourse with LIS throughout the exploration program and the QP visited the Project on two occasions:

- 2022: for two days (October 12 and 13) during drilling at the Alba Sabrina property, and
- 2023: for one day (March 22) during drilling at the Natalia Maria property.

During each site visit, the QP reviewed the details of the drilling and sampling components of the ongoing field program, monitored the diamond drilling and packer sampling operations, reviewed drill core and core logging methods, reviewed field QA/QC procedures and data recording, and collected independent duplicate samples. In October 2022, the QP also viewed all HMN Project properties, visited the 2018 Tramo boreholes, and drove a complete circuit of the SHM to view adjacent holdings and operations.

The QP supervised the compilation of the Project database and worked closely with Aqua Insight Inc. during geological modelling and brine model development related to the updated Resource estimation. Based on these activities, it is the opinion of the QP that an acceptably rigorous set of field and data interpretation methods were used in preparing the HMN Project Mineral Resource Estimate.

Claim and permitting information has not been verified by the QP. This information was received in the form of a Title Opinion document prepared by Jorge Vargas, legal counsel for LIS (Sections 4.2 and 4.3).

12.2 INDEPENDENT DUPLICATE SAMPLING

Independent QA/QC duplicate sampling was conducted by Dr. Mark King (QP) during both visits during the 2022-23 Program. During the first visit, samples were collected during packer sampling from boreholes at Alba Sabrina. During the second visit, a sample was collected by air lift methods, from the monitor well installed in Alba Sabrina borehole DDH-AS22-07A. The results for lithium, potassium, magnesium, and calcium in original and QP duplicate samples are shown on Figure 12.1, relative to a 1:1 line. Except for a single calcium result, all results plot within the $\pm 10\%$ lines. Overall, the QP duplicate data are in reasonable agreement with the original samples, and the results are considered acceptable.

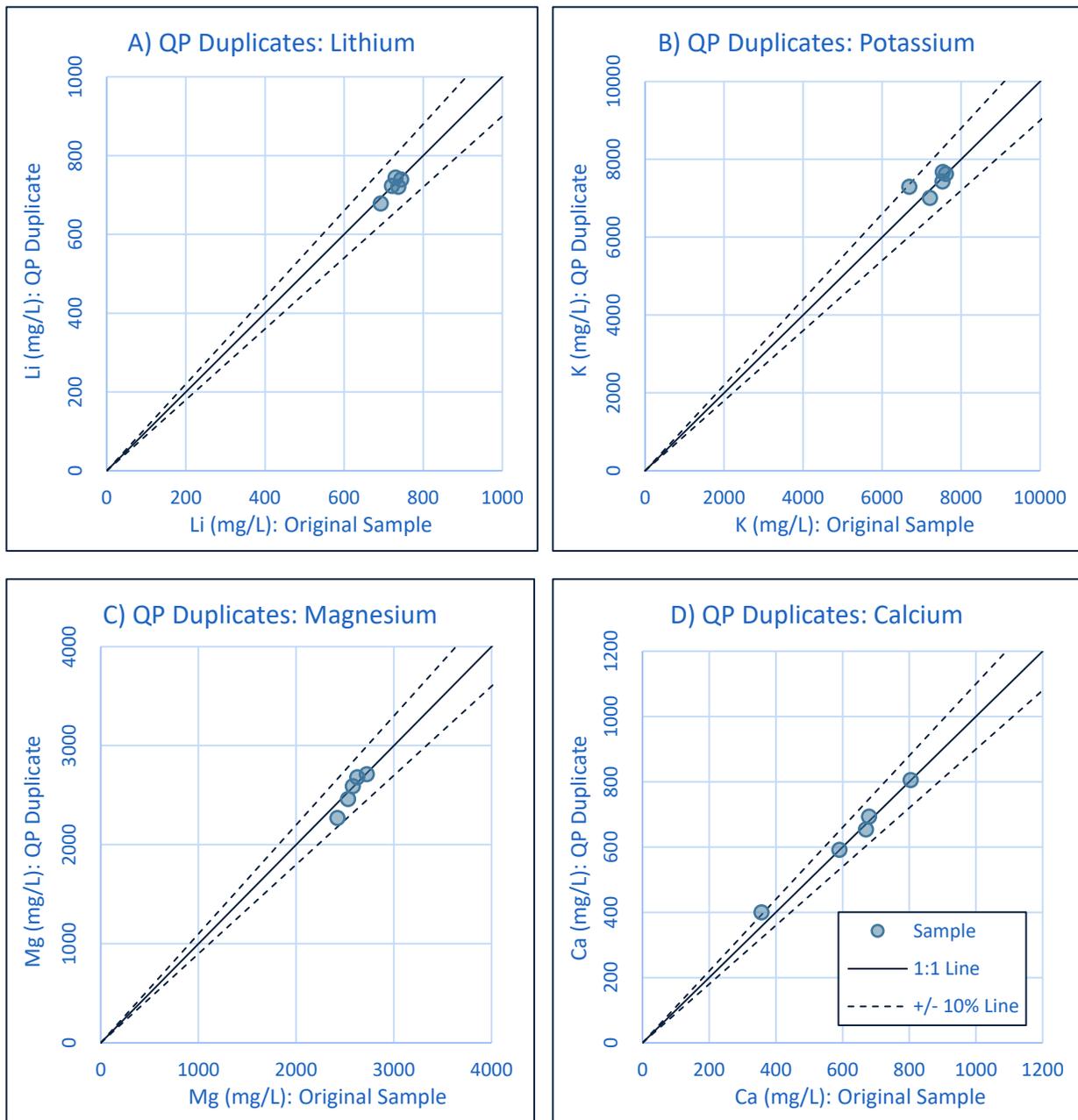


Figure 12.1: 2022-23 QP duplicate sample results for A) lithium, B) potassium, C) magnesium, and D) calcium.

13 MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 OVERVIEW

The review summarized herein was conducted according to the CIM Leading Practice Guidelines for Mineral Processing (“LPGMP”) (CIM, 2022). The LPGMP provides the Principles of Process Support on Mineral Resources and Mineral Reserves Estimation for the purposes of the NI 43-101 Technical Report (NI 43-101, Form 43-101F1, and NI 43-101CP). LIS has conducted a complete characterization study for the HMN Project brine to develop the necessary process for producing technical grade lithium carbonate (Li_2CO_3).

13.2 BRINE CHEMISTRY ANALYSIS

The brines found at the HMN Project are similar to those within the broader SHM, as well as Salar de Olaroz and Salar de Cauchari. The brines have a relatively low Mg/Li ratio, which make them suitable to undergo removal of magnesium with slaked lime, according to the following reactions:

- Slaking: $\text{CaO} + \text{H}_2\text{O} \Rightarrow \text{Ca}(\text{OH})_2$
- Magnesium removal: $\text{Mg}^{++} + \text{Ca}(\text{OH})_2 \Rightarrow \text{Mg}(\text{OH})_2 + \text{Ca}^{++}$
- Sulphate removal: $\text{Ca}^{++} + \text{SO}_4^- + 2\text{H}_2\text{O} \Rightarrow \text{Ca}(\text{SO}_4) \cdot 2\text{H}_2\text{O}$

Dependent on the sulphate to magnesium (SO_4/Mg) ratio, the following scenarios can occur:

- Brines with SO_4/Mg weight ratio > 4 (equating to a molar ratio > 1): If this brine is treated with lime in order to remove magnesium as magnesium hydroxide, then not all sulphate will be precipitated as calcium sulphate. Instead, the brine will become saturated in lithium sulphate salts with concentrations that can reach values above 7000 ppm depending on the sulphate concentration.
- Brines with SO_4/Mg weight ratio < 4 (equating to a molar ratio < 1): If this brine is treated with lime in order to remove magnesium as magnesium hydroxide, then all sulphate will be precipitated as calcium sulphate and the brine in the ponds will not become saturated in lithium sulphate salts.

The overall chemical composition of the brine is provided in Section 14 (Table 14.5) and projected in a Jänecke diagram on Figure 13.1.

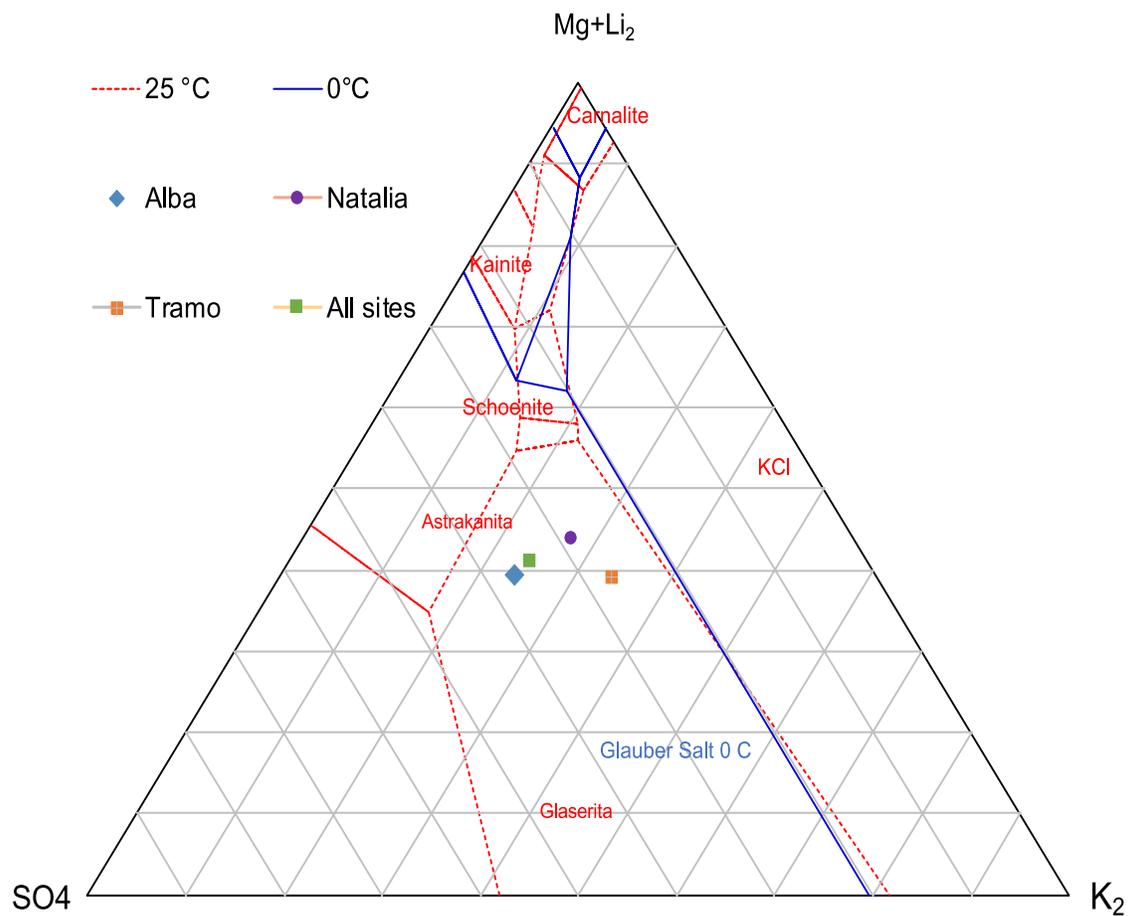


Figure 13.1: Jänecke projection of the HMN Project brines.

13.3 BRINE EVAPORATION TESTING

13.3.1 Instituto de Beneficio de Minerales Evaporation Testing (2019)

LIS conducted an explorative solar evaporation test program in 2019, for a preliminary understanding of the HMN Project brine as it relates to conventional processing. The investigation was conducted at the Instituto de Beneficio de Minerales (“INBEMI”) at University of Salta, under the direction of Mr. Fernando Villarroel, a process engineer and COO of LIS. The goal of the testing was to determine evaporation profiles under conditions similar to those at the site (i.e., 20-25°C).

The tests were conducted on untreated (Test 1) and limed (Tests 2 and 3) samples collected from the HMN Project (Figure 13.2). Solid and liquid samples were retrieved at pre-determined evaporation levels and precipitated salts were separated after each sample retrieval. The test results were plotted in the Jänecke projection (Figure 13.3). Graphs were also prepared showing lithium versus the other main ions present in the brine (Figure 13.4).

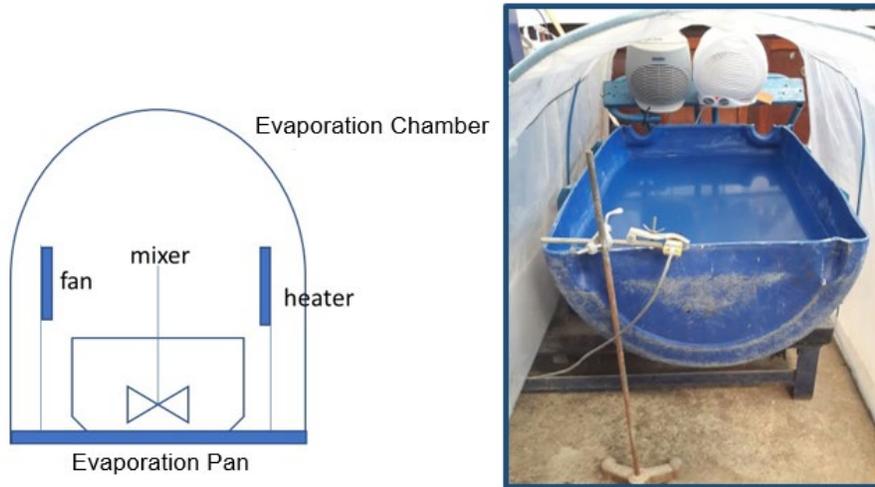


Figure 13.2: Start of the untreated brine evaporation test at INBEMI.

Testing resulted in the following observations:

- Test 1 – untreated brine (e.g., without liming): lithium is lost as lithium sulphate salts;
- Test 2 – limed brine: the sulphate is not completely removed; and
- Test 3 – limed brine with SO_4/Mg molar ratio = 1: neither sulphate nor calcium is concentrated, which is considered the best scenario.

In the Jänecke projection, it can be observed that the resource data (Figure 13.1) has more sulphate and, consequently, a higher SO_4/Mg ratio than the brine tested by INBEMI (Figure 13.3).

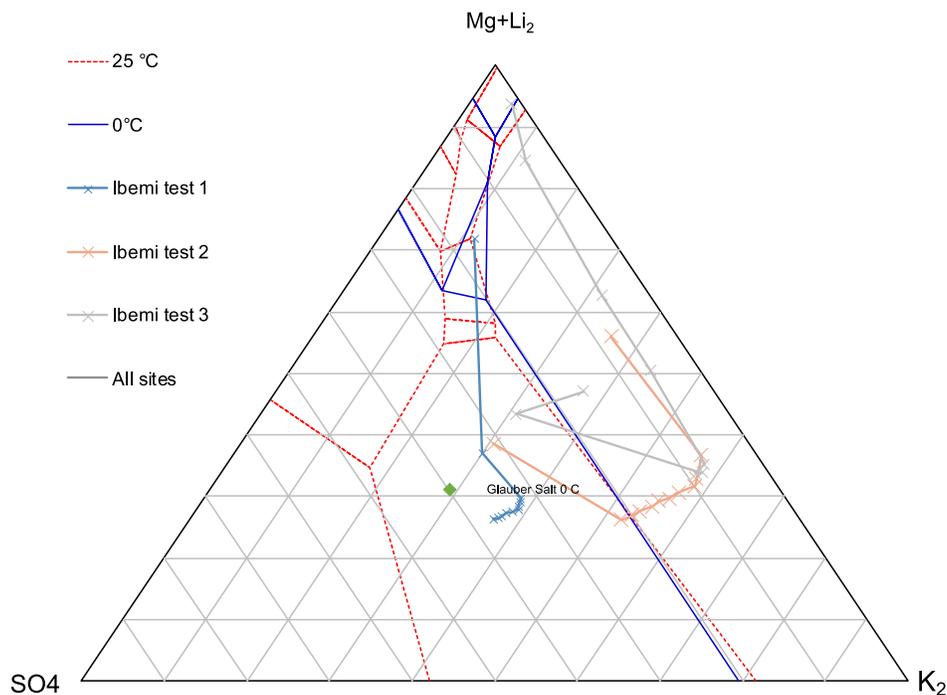


Figure 13.3: Jänecke projection of test work at INBEMI for the HMN Project brines.

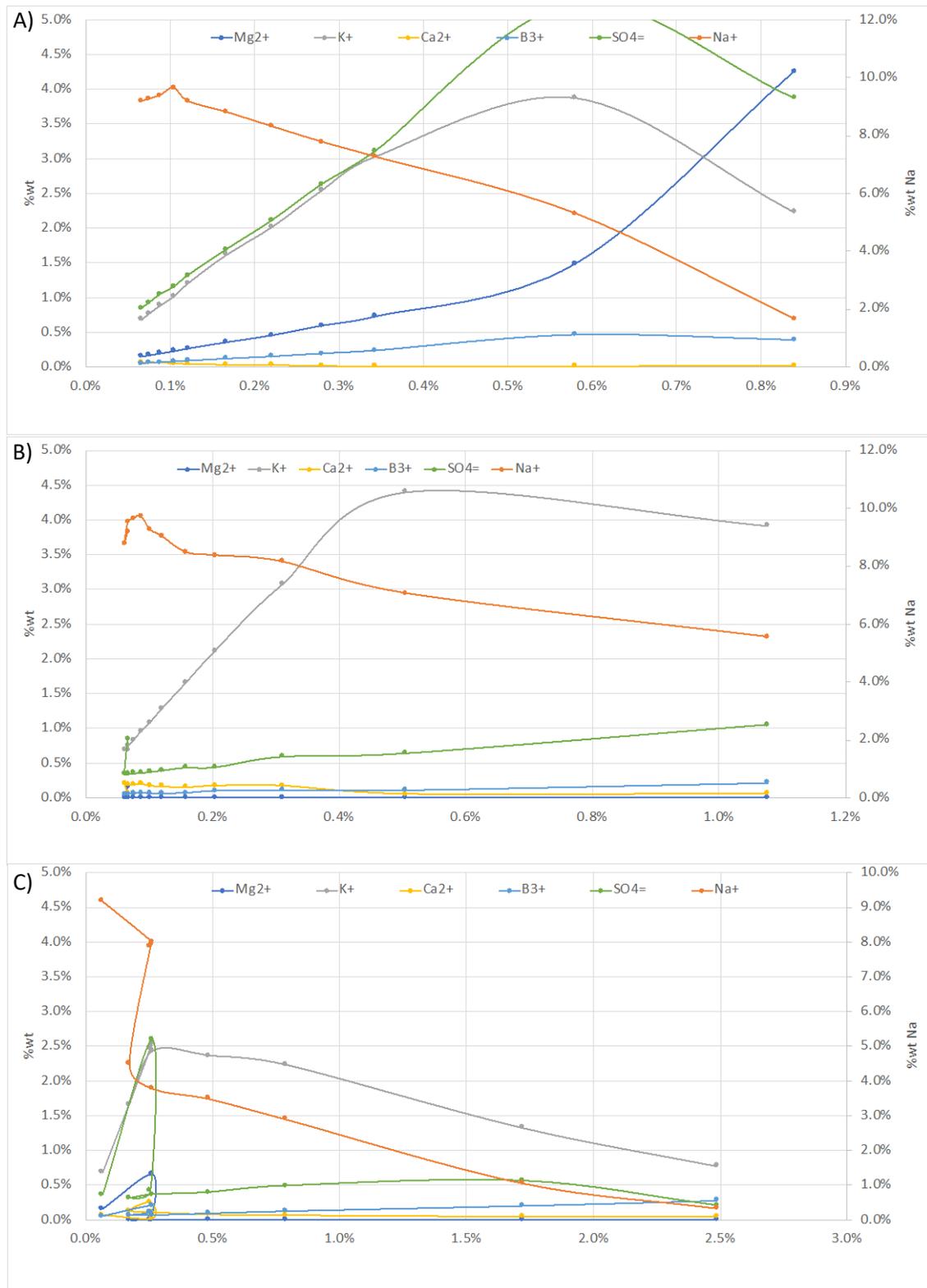


Figure 13.4: Brine concentration results from INBEMI evaporation test work A) Test 1, B) Test 2, and C) Test 3.

13.3.2 HMN Project Evaporation Testing

LIS began pilot evaporation pond tests at the HMN Project site on April 15, 2023. The brines were obtained from the top 40 m of a well at the Tramo claim block. This brine has an exceptionally low SO₄/Mg ratio in comparison to the average HMN Project brines (Figure 13.5).

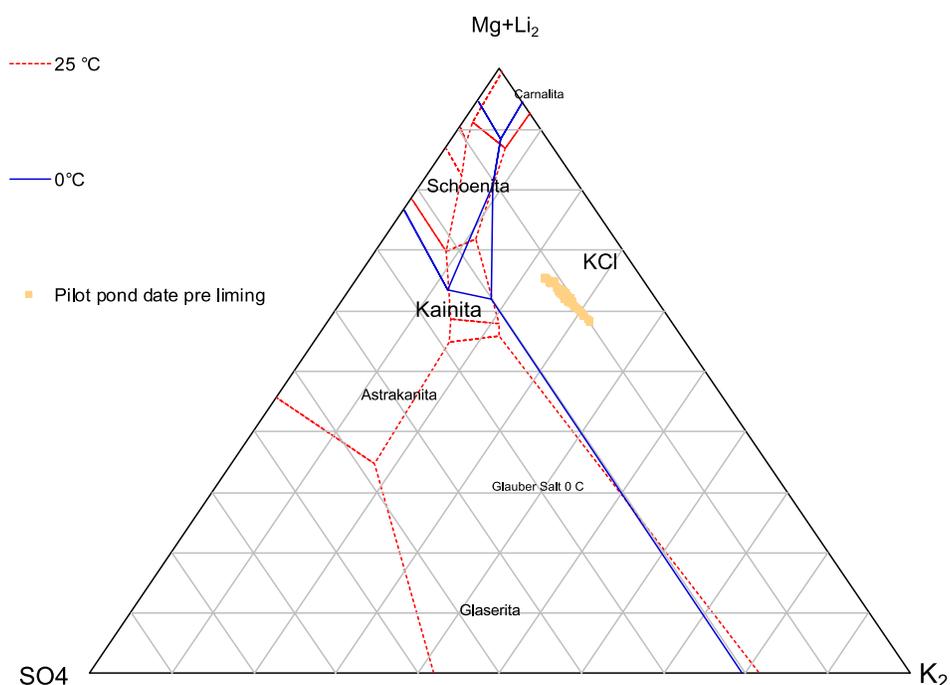


Figure 13.5: Jänecke projection of brine chemistry from the pilot pre-concentration ponds at the HMN Project.

Pre-concentrated brine from the pilot HMN Project evaporation ponds was submitted to SGS Canada Inc., Lakefield for process testing. Test work at SGS was overseen by Alex Mezei, P.Eng., independent of LIS. The pre-concentrated brine samples were obtained from brine exposed to an evaporation area of 28.57 m², over 12 rectangular ponds, each with a surface area of 2.38 m². The number of ponds and total surface area was reduced as the evaporation progressed (Photo 13.1). The average evaporation area throughout the entire pre-concentration was 19.89 m², about 70% of the total initial area. The chemistry of the initial brine feed and resulting pre-concentrated brine (Sample 1) are summarized in Table 13.1.

Table 13.1: Chemistry of pre-concentrated brine Sample 1.

Analytes	Li ⁺	Mg ²⁺	Ca ²⁺	Na ⁺	K ⁺	SO ₄ ²⁻	Cl ⁻	B-tot
Brine Feed (mg/L)	874	3019	1226	99,674	7405	7117	171,385	374
Pre-concentrated Brine (mg/L)	6758	26,131	87	56,913	35,541	28,911	204,547	3228



Photo 13.1: HMN Project pre-concentration stage evaporation ponds.

Additional pre-concentrated samples were generated using two circular ponds with a surface area of 7.07 m² each, and 11 ponds with a surface area of 2.38 m² each. The average evaporation area throughout the entire pre-concentration was 36.15 m². The evaporation process was conducted in batch mode. The chemistry of the initial brine feed and resulting pre-concentrated brine (Sample 2) are summarized in Table 13.2.

Table 13.2: Chemistry of pre-concentrated brine Sample 2.

Analytes	Li ⁺	Mg ²⁺	Ca ²⁺	Na ⁺	K ⁺	SO ₄ ²⁻	Cl ⁻	B-tot
Brine Feed (mg/L)	749	2607	1088	103,065	6472	6997	166,546	399
Pre-concentrated Brine (mg/L)	4737	17,614	242	71,042	34,606	22,375	199,381	2288

The pre-concentrated samples were treated with slaked lime to remove the magnesium as magnesium hydroxide (Photo 13.2). During the magnesium and sulphate removal process, an excess of free calcium, between 20 and 30 g/L, was generated. After liming treatment, the “free magnesium and sulphate brine” from Sample 1 was concentrated to about 33 g/L Li and 88 g/L Ca; and Sample 2 was concentrated to about 14 g/L Li and 40 g/L Ca.

Both samples were further concentrated at laboratory scale, followed by a calcium removal step that used soda ash to precipitate calcium carbonate. This process achieved low values of Ca, SO₄, and Mg in the brine. Some lithium carbonate co-precipitation was observed. Explorative solvent extraction has also been successful in removing boron.



Photo 13.2: Mechanical separation after liming.

13.4 FUTURE MINERAL PROCESSING TEST WORK

As a result of the order of drilling at the HMN Project, the brine tested to date has been indicative of, but not sufficiently representative of, commercial operation because the brine tested to date was sourced from only the Tramo claim block. Hence, it is not representative of the updated Resource which includes brine from the Tramo, Alba Sabrina, and Natalia Maria claim blocks. In October 2023, a brine adjustment program was initiated to provide a mixture of brines representative of the entire Resource.

The implication of the above is that the SO_4/Mg weight ratio will be > 4 (molar ratio > 1), and that some free sulphate will remain in the brine after liming. In the industrial process, lithium will be concentrated until lithium sulphate saturation is achieved. The resulting brine concentrate will be subsequently treated in a lithium carbonate plant. The adjusted processing sequence will reduce lithium loss as brine entrainments in harvested salts, in magnesium hydroxide, and in calcium sulphate solids. Results to date indicate that lithium recovery of around 70% should be achievable. The basic process will be similar to proven industrial operations such as those at Salar de Olaroz, Salar de Cauchari, and Silver Peak. The final product will be technical grade lithium carbonate.

Through simulations, evaporation tests, and laboratory tests, an effective sequence for brine processing will be developed, which will maximize lithium recovery and minimize reagent consumption. The resulting processing flowsheet will be used to support future feasibility studies.

14 MINERAL RESOURCE ESTIMATE

14.1 METHOD OVERVIEW

An updated Mineral Resource Estimate was developed for the HMN Project using the three-dimensional (“3D”) modelling software FEFLOW (DHI-WASY, 2021). The software implementation was managed by Aqua Insight Inc., specialists in FEFLOW applications. Dr. Mark King (QP) provided technical oversight of the modelling and considers the results to be valid and appropriate for Measured, Indicated, and Inferred Mineral Resource Estimates, as defined by the CIM and referenced by NI 43-101. The modelling methods are summarized as follows:

1. New drilling data at Alba Sabrina and Natalia Maria and previous drilling data at Tramo were interpreted to define geological units within Project areas.
2. Geological units from the previous Resource Estimate (Montgomery, 2018) were considered in defining the geological units.
3. Geological units were interpreted along a series of two dimensional (“2D”) sections. This effort was supported by the new drilling and TEM results as well as pre-existing drilling and CSAMT results.
4. Publicly available information collected by others, from within the SHM but outside of the HMN Project area, was used to further inform the geological interpretations. This information included: 2D sections and gravity data from previous work on the Sal de Vida Project (Houston & Jaacks, 2010; Jordan et al., 1999; Montgomery & GAI, 2012; Montgomery et al., 2021); information about the Western Subbasin in Godfrey et al. (2013), Montgomery & GAI (2012), Jordan et al. (1999), and WMC (1994); and regional structures mapped by Hongn and Seggiaro (2001).
5. Interpolation between the 2D sections was conducted within the Project GIS. Final updated surfaces were transferred to FEFLOW to form a fully 3D Geological Model. This model is more detailed within the HMN Project footprint, and less detailed in the outlying areas. In this way, the model is designed to provide reliable resource estimates for the HMN Project, and a reasonable starting point for future hydraulic (Reserve) modeling.
6. The geological units were transferred from the 3D Geological Model into a Resource Model.
7. Resource Zone footprints were defined for each project area based on the intersection of the property boundaries with the salar surface.
8. Drainable porosity (Specific Yield) was assigned to each geological unit within the Resource Zone, based on RBR testing.
9. Resource Zones were evaluated using variogram analysis and a borehole density method. Based on this evaluation, the entire Resource was defined as either Measured or Indicated, with no Inferred category.
10. Brine sample results were used to interpolate 3D concentration distributions throughout the Resource Model, for six dissolved constituents (Li, B, Ca, K, Na, Mg, and SO₄). The interpolation was supported by variogram analysis.
11. Geological volume, drainable (or brine) volume, and the interpolated brine grade were integrated into the Resource Model, which was used to estimate the mass of brine constituents in each geological unit contained within Resource Zones.

12. Measured and Indicated lithium Resources were estimated relative to a 500 mg/L grade cut-off. This lithium-based cut-off was also applied to boron, calcium, potassium, sodium, magnesium, and sulphate.

Dr. Mark King (QP) considers the Resource Estimation methods and results to be reasonable and appropriate. Additional details on each modelling step are provided in the following subsections.

14.2 GEOLOGICAL MODEL DEVELOPMENT

14.2.1 Geological Model Overview

The 3D Geological Model represents the interpreted configuration of primary geological units throughout the SHM. The model in and around the HMN Project properties is more detailed because it is based on field data collected during the exploration programs described in Sections 9 and 10. The outlying areas are represented in a simplified manner.

14.2.2 Geological Model Footprint

The surface footprint of the Geological Model includes the full salar and was defined based on satellite imagery. The model footprint includes the salar surface, alluvial fans north of Alba Sabrina and Tramo, Tincalayu Peninsula, Farallón Catal, and the northern part of the Río Trapiche alluvial fan. Most of the Río de los Patos alluvial fan is outside the model.

The upper boundary of the Geological Model was initially defined by the Digital Elevation Model (“DEM”) (IGN, 2022), and then refined in the HMN Project areas based on drone-sourced high-resolution elevation data and elevation surveys at each of the wells. The lower boundary of the Geological Model was defined by the top of the hydrogeological basement, interpreted from borehole logs, geophysical surveys, and data from outside the HMN Project areas as described in Sections 14.2.3 and 14.2.4.

14.2.3 Geological Units

The 14 primary geological units incorporated into the Geological Model are summarized in Table 14.1, and the distribution of these units within the Geological Model is presented in Section 14.2.4. The geological units were identified using different data sets, as follows:

- Alba Sabrina, Natalia Maria, and Tramo: Geological units within these property areas are based on borehole logs, downhole geophysics, and geological units from the previous Resource Estimate (Montgomery, 2018).
- Gaston Enrique, Norma Edith, and Viamonte: The units in these property areas are inferred from the other HMN Project properties and information available from surrounding areas in the Eastern and Western Subbasins. These properties are not included in the updated Resource Estimate.
- Eastern Subbasin: Conceptual cross-sections by Montgomery and GAI (2012) and Montgomery et al. (2021) were simplified to define the geological units modelled in the Eastern Subbasin, outside of the HMN Project area.
- Western Subbasin: Conceptualization of the Western Subbasin was simplified based on concepts presented in Godfrey et al. (2013), Montgomery and GAI (2012), Jordan et al. (1999), and WMC (1994). Data presented by Integral (2023) will be used to update future iterations of the model in the Western Subbasin.

Tincalayu Peninsula and Farallón Catal were modelled as individual units and are not included in the 14 primary geological units described below. For this stage of Resource Estimation, they were categorized as basement-type, or “no-flow” areas. These units can be redefined for subsequent Reserve Estimation modelling, should hydraulic testing (e.g., at DDH-AS-08) indicate potential for flow across either of these physiological features.

Table 14.1: Primary geological units included in the SHM Geological Model.

Geological Unit	Resource ¹			2018 Tramo Equivalent ²	Eastern Subbasin Equivalent (Sal de Vida) ³	Western Subbasin ⁴
	AS	NM	T			
Interlayered Fine and Coarse Sediments (IFCS)	Y	Y	Y	Sand, silty sand, and sandstone	Interbedded Coarse and Fine-grained Alluvium	Y
Interbedded Halite and Sediments (IHS)	-	Y	Y	Halite or other evaporite	Halite-dominated Evaporites	Y
Basalt	Y	Y	-	-	-	-
Halite	-	Y	-	-	Halite-dominated Evaporites	Y
Upper Middle Sediments (UMS)	Y	-	-	-	- Interbedded Coarse and Fine-grained Alluvium; - Silt and Clay (>80% fine-grained)	-
Conglomerate	-	-	Y	Conglomerate, sand, and gravel	-	-
Compact Halite (CH)	-	-	-	-	Halite-dominated Evaporites	Y
Travertine and Gypsum	-	-	-	-	- Travertine, Tuff and Dacitic Gravel; - Travertine and Gypsum	-
Lower Middle Sediments	-	-	-	-	Sand and Gravel (>80% coarse-grained)	-
Volcanics and Volcano-sediments	-	-	-	-	- Volcanic Sand and Gravel (>80% coarse grained); - Volcanics, Volcanic Tuff	-
Lower Sediments	-	-	-	-	Interbedded Coarse and Fine-grained Alluvium	-
Tertiary Sediments	-	-	-	-	Tertiary Bedrock	-
Brecciated Quartzite (BQTZ)	Y	-	-	-	-	-
Basement	-	-	-	-	Precambrian Basement	-

¹ Geological units included in the updated Resource Estimate for the Alba Sabrina (AS), Natalia Maria (NM), or Tramo (T) property.

² Montgomery (2018)

³ Montgomery & GAI (2012); Montgomery et al. (2021)

⁴ Modelled in the Western Subbasin based on information from Godfrey et al. (2013), Montgomery and GAI (2012), Jordan et al. (1999), and WMC (1994).

Detailed lithological descriptions of each unit intersected within the HMN Project properties are provided in Section 7.3. The CH and Basement units were excluded from the Resource Estimate based on indications of negligible drainable porosity. Primary geological units included in the Resource Estimate are briefly described as follows, from shallowest to deepest:

- **Interlayered Fine and Coarse Sediments (IFCS):** compact to unconsolidated clay, silt, and sand, including the recent alluvial fans that occur along the western margin of Alba Sabrina and the eastern margin of Tramo;
- **Interbedded Halite and Sediments (IHS):** interbedded crystalline to sandy halite, compact to poorly consolidated sand, and compact clay;
- **Basalt:** dark grey basalt flows that range from highly vesicular, to amygdaloidal, to massive, with minor to pervasive fracturing;
- **Halite:** halite-dominated sequences with interbeds of clastic sediments;
- **Upper Middle Sediments (UMS):** poorly consolidated to unconsolidated sand;
- **Conglomerate:** matrix supported polymictic conglomerate with subangular to subrounded clasts ranging from 0.2-15 cm in a silt to medium-grained sand matrix; and
- **Brecciated Quartzite (BQTZ):** brecciated to pervasively fractured quartzite with clay-rich fracture fill and variable iron staining.

14.2.4 Distribution of Geological Units

A series of transverse and longitudinal 2D sections were developed across the SHM for the 14 primary geological units. Distribution of the geological units across these sections and the depth to basement were interpreted from the following:

- New drilling, pre-existing drilling data (Section 10), and geophysical data (TEM and CSAMT; Section 9) were used to generate 2D-cross sections within the HMN Project properties.
- For the Eastern Subbasin, gravity sections (Houston and Jaacks, 2010) were used to estimate basement depth, and previous geological interpretations (Montgomery and GAI, 2012; Montgomery, 2018; Montgomery et al., 2021) were incorporated into simplified conceptual cross-sections.
- The Western Subbasin was modeled as a simplified, halite-dominated sequence based on published information regarding its depth and composition (Godfrey et al., 2013; Montgomery and GAI, 2012; Jordan et al., 1999; and WMC, 1994). This modeled sequence consists of horizontally layered IFCS (10 m thick), IHS (40 m thick), Halite (50 m thick), and CH (unconfined at depth). Here, the top of the CH unit is interpreted to represent the geological basement, or a no-flow boundary. Conceptualization of the Western Subbasin will be updated in future iterations of the model based on the data presented by Integral (2023). It has no effect on the current Resource Estimate, but may have some relevance to future hydraulic modelling.
- Geological and structural mapping were used to infer contacts within and along the margins of the basin (Hongn & Seggiaro, 2001; Jordan et al., 1999; Vinante & Alonso, 2006).

Regional structures were used to estimate the transitions between halite- and clastic-dominated parts of the salar, and to constrain the Basalt unit outside of Alba Sabrina. In the southern part of the salar, the transition between the clastic-dominated Eastern Subbasin and the halite-dominated Western Subbasin

occurs along the fault that extends from Farallón Catal to the Hombre Muerto Peninsula (Figure 7.2). In the northern part of the salar, this transition extends into the northern sector of the Eastern Subbasin, based on drilling data from Natalia Maria.

The contact between the halite-dominated Western Subbasin and clastic-dominated Alba Sabrina channel appears near the NE-SW trending strike-slip fault between Cordon del Gallego and Tincalayu Peninsula. In this area, the Basalt unit extends around the southern margin of Tincalayu Peninsula and over the shallow saddle inferred from TEM surveys between the peninsula and Farallón Catal. The southwestern extent of the Basalt is demarcated by the N-S trending strike-slip fault that runs along the edge of the Norma Edith property, while the northern terminus is based on borehole logs.

The 2D-sections were imported into the Project GIS and interpolated to generate upper surfaces for each geological unit. The surfaces were transferred to FEFLOW, and a full 3D Geological Model was constructed. The final distribution of the geological units within the Geological Model is shown on Figure 14.1. These units were then transferred from the Geological Model into the Resource Model.

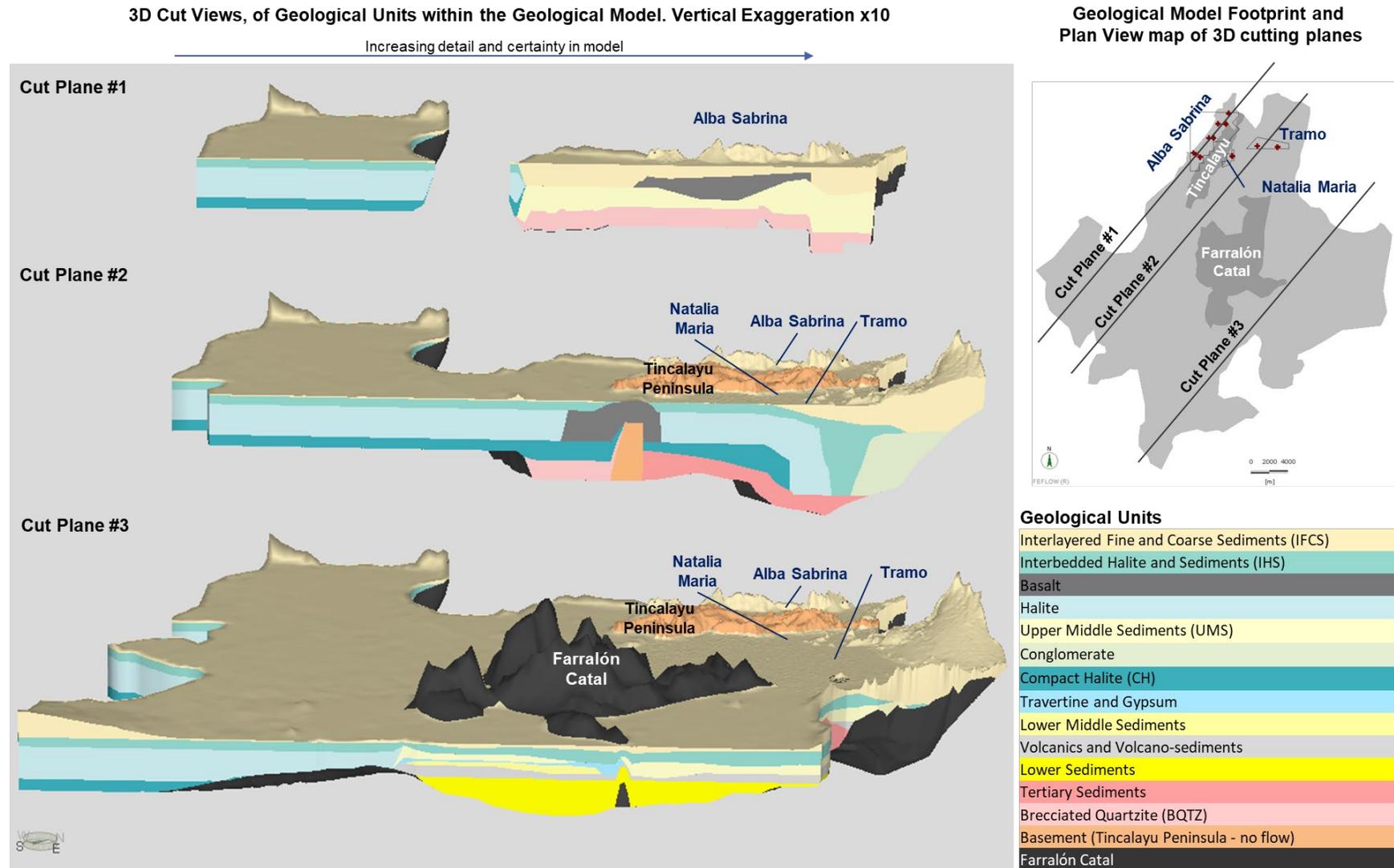


Figure 14.1: Geological units in 3D cut views through the 3D SHM Geological Model.

14.3 RESOURCE MODEL DEVELOPMENT

A Resource Model was developed to facilitate calculation of Mineral Resource Estimate. The model encompasses the same domain as the Geologic Model (Section 14.2) but has more finely discretized elements, to enable a more accurate estimation of lithium resources (Figure 14.2). Meanwhile, the Geologic Model has the capability for future development as a dynamic Reserve Estimation tool.

Laterally, the footprint of the Resource Model was discretized into triangles with typical length scales of 65 m in the vicinity of project areas and 400 m for the broader SHM (i.e., southern and eastern lobes). Layers in the mineral resource areas have a thickness of 10 m. As illustrated on Figure 14.3, each Resource Model element (i.e., calculation point) was attributed with:

- A geologic unit (Section 14.2) and associated hydraulic properties (Section 14.5),
- A mineral resource zone classification (Sections 14.4 and 14.6), and
- A lithium (and other mineral) concentration (Section 14.7).

The Mineral Resource Estimate (Section 14.8) was quantified by selecting all elements having a lithium concentration above the cut-off grade (i.e., 500 mg/L) and calculating brine volume, average concentration, and mass for lithium and other constituents (Table 14.5).

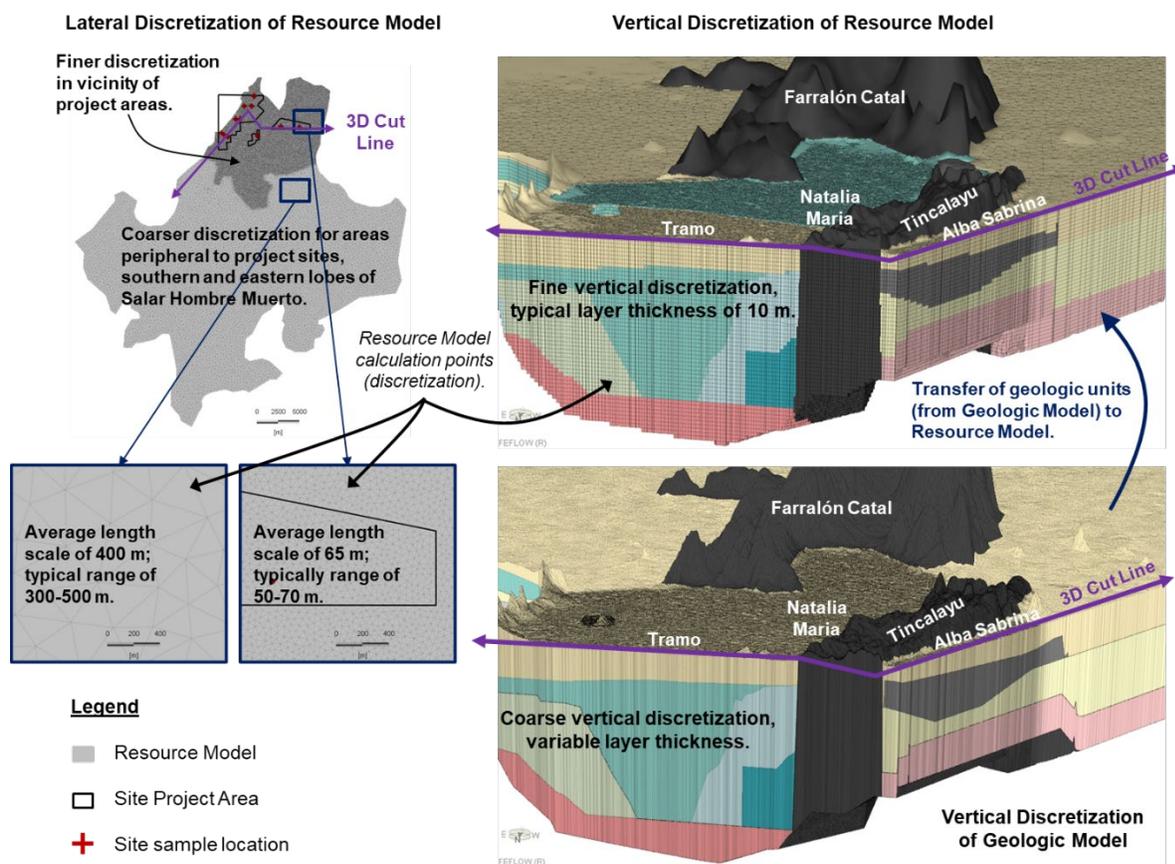
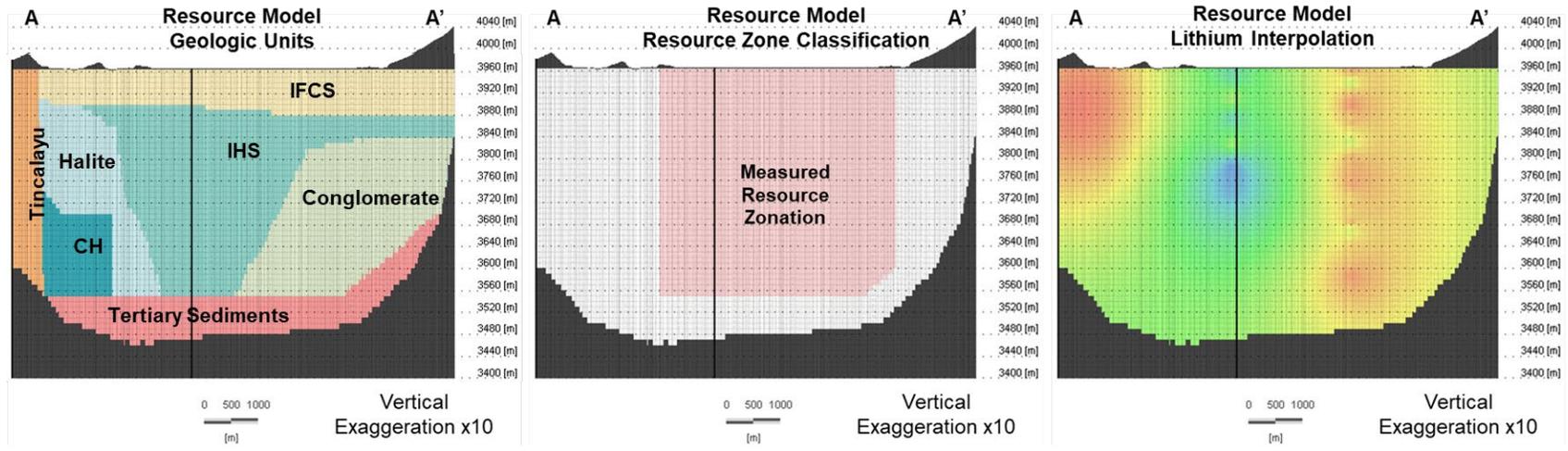


Figure 14.2: Discretization of the HMN Project Resource Model.



1) Geologic Units

Transfer geometry and properties (e.g., specific yield) of geologic units to Resource Model.
 For additional detail see Sections 14.2 and 14.5.

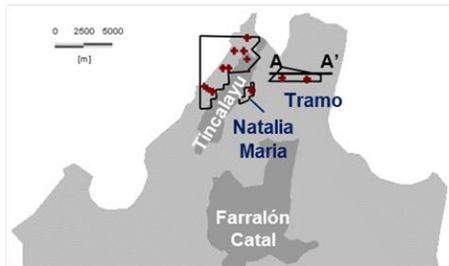
2) Resource Zone Classification

Classify Mineral Resource Zones as Measured, Indicated or Inferred.
 For additional detail see Sections 14.4 and 14.6.

3) 3D Interpolation of Mineral Resources (e.g., Lithium)

Represents the lateral and vertical variability of lithium concentrations in the salar subsurface.
 For additional detail see Section 14.7.

Plan View Map of Cross-Section Location



Legend

- Resource Model
- Site Project Area
- ⊕ Site sample location
- Cross-Section Location through Tramo site.



4) Calculate Mineral Resource Estimates

For an established cut-off grade (e.g., 500 mg/L), within each Resource Zone Classification, aggregate all calculation points to quantify brine volume, average concentration, mass lithium and mass lithium carbonate equivalent as tabulated below.
 For additional detail see Section 14.8.

Parameter	Measured
Brine Volume (m ³)	141,575,396
Avg, Lithium Conc. (mg/L)	769
Mass Lithium (tn)	108,927
Mass LCE (tn)	579,816

Figure 14.3: Visualization of the process used to quantify the updated Mineral Resource Estimate for the HMN Project.

14.4 RESOURCE ZONE DEVELOPMENT

For each Project property, the Resource Zone footprints were based on the intersection of the property boundaries with the salar surface. The Resource footprint for each property is shown on Figure 14.4, and is described as follows:

- Alba Sabrina:
 - The northern boundary of the Resource Zone footprint was delineated by the property boundary, and does not include the bedrock outcrop (annotated on Figure 14.4);
 - The eastern boundary was defined by the intersection of the salar surface and Tincalayu, and does not include lithologies belonging to Tincalayu (annotated on Figure 14.4);
 - The southern boundary was delineated by the property boundary;
 - The western boundary was delineated using the 3980 masl contour, where the salar surface meets alluvial upslope sediments (i.e., approximately 200 m W of borehole DDH-ASS-07; Figure 14.4); and
 - The total resource footprint is approximately 10.64 km².
- Natalia Maria:
 - The northern, eastern, and southern boundaries of the Resource Zone footprint were delineated by the property boundary;
 - The western boundary was defined by the intersection of the salar surface and Tincalayu, and does not include lithologies belonging to Tincalayu (annotated on Figure 14.4); and
 - The total resource footprint is approximately 0.95 km².
- Tramo:
 - The boundary of the Resource Zone footprint was defined by the property boundary, which is completely underlain by the salar deposits; and
 - The total resource footprint is approximately 3.83 km².
- The total current Resource Zone footprint for the HMN Project is approximately 15.42 km².

The top of the Resource Zone was defined as 1.5 m below the surface of the Geological Model, consistent with the evaporation extinction depth (Section 7.6.3). At Alba Sabrina, the top of the Resource Zone was truncated at 3975 masl in the upslope areas. By doing so, aquifers diluted by freshwater input within the modern alluvial fans along the western margin of Alba Sabrina were excluded from the Resource Estimate.

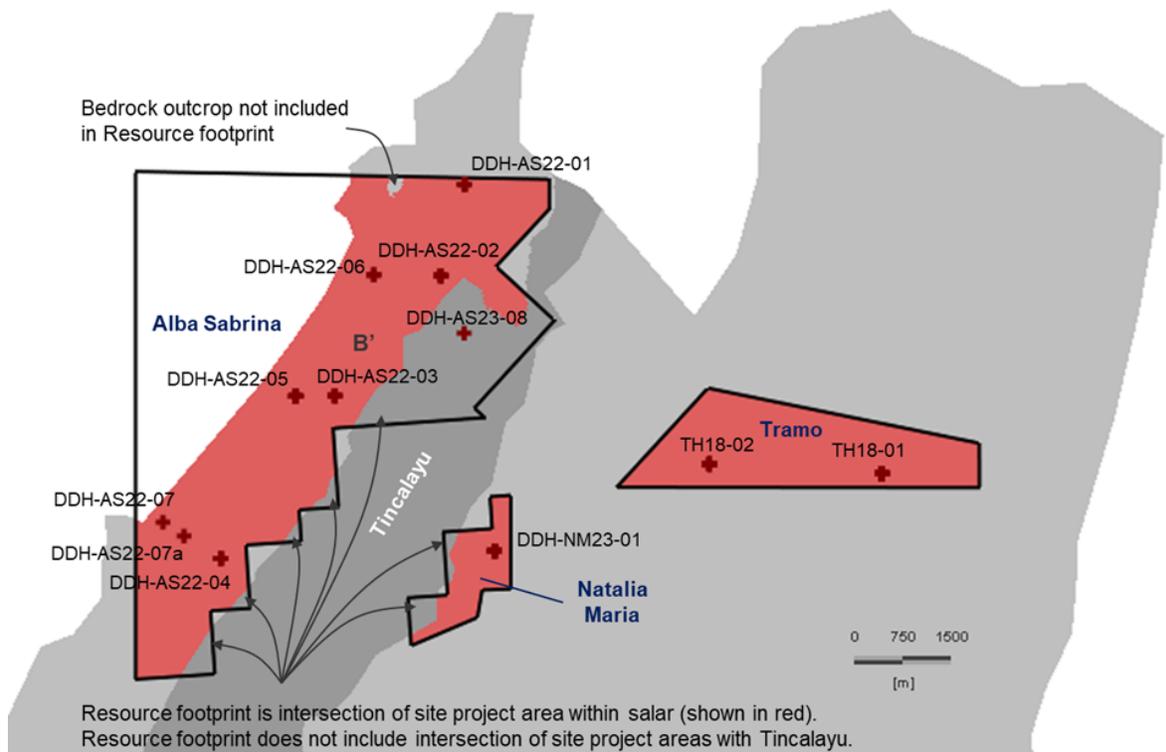
The bottom of the Resource Zone at each property is defined as follows:

- Alba Sabrina: bottom of the Geological Model (i.e., top of the Basement unit).
- Natalia Maria: top of the CH unit, approximately 190 mbgs.
- Tramo: just below the bottom of the 2018 boreholes, at approximately 405 mbgs (3565 masl).

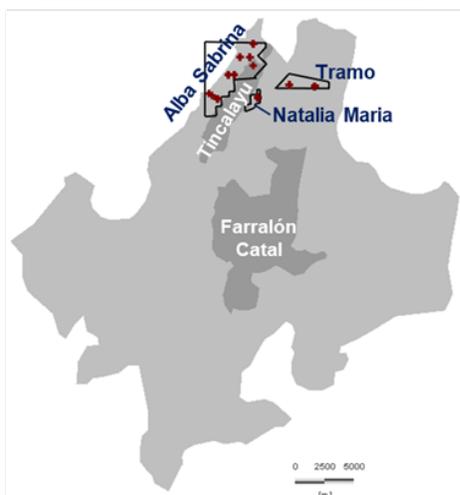
The geological units are shown in the context of the broader Resource Model domain (that encompasses the majority of the SHM) on Figure 14.5. The geologic units within each Project property are shown on Figure 14.6, and their volume and contribution to the lithium resource are summarized in Table 14.2.

14.5 HYDRAULIC PROPERTIES

Specific Yield (“ S_y ”) is the only hydraulic property explicitly used in the Resource Estimate. S_y for each HMN Project geological unit was estimated based on results from a laboratory test known as the Rapid Brine Release (“RBR”) method (Section 11.3). The S_y applied to each unit within the Resource Zones is summarized in Table 14.2.



Inset Map of entire Resource Model



Legend

- + Site sample location
- Project Site
- Resource Model
- Resource Footprint within Site Project Area

Figure 14.4: Resource Footprint for Alba Sabrina, Natalia Maria, and Tramo properties, HMN Project.

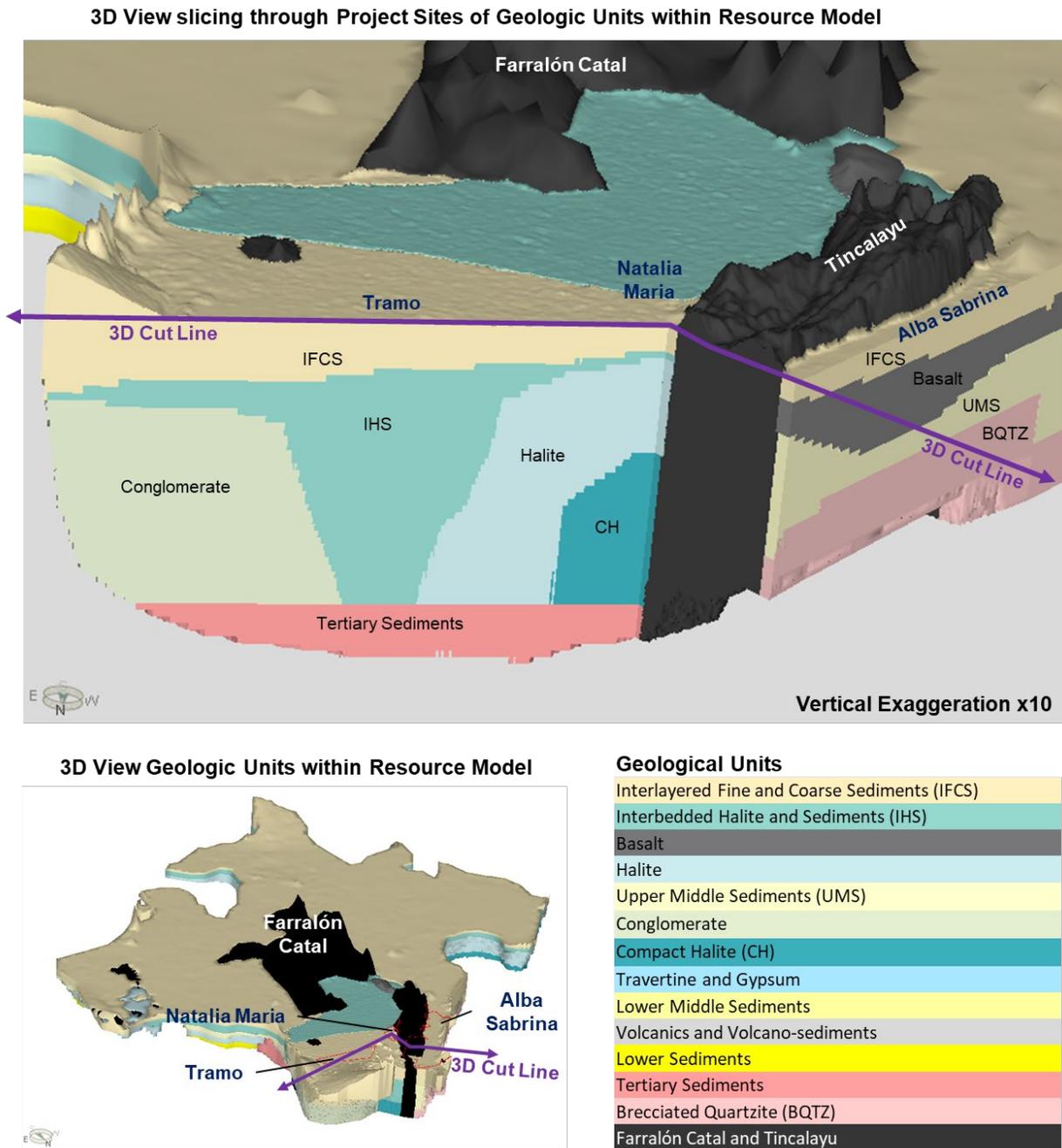
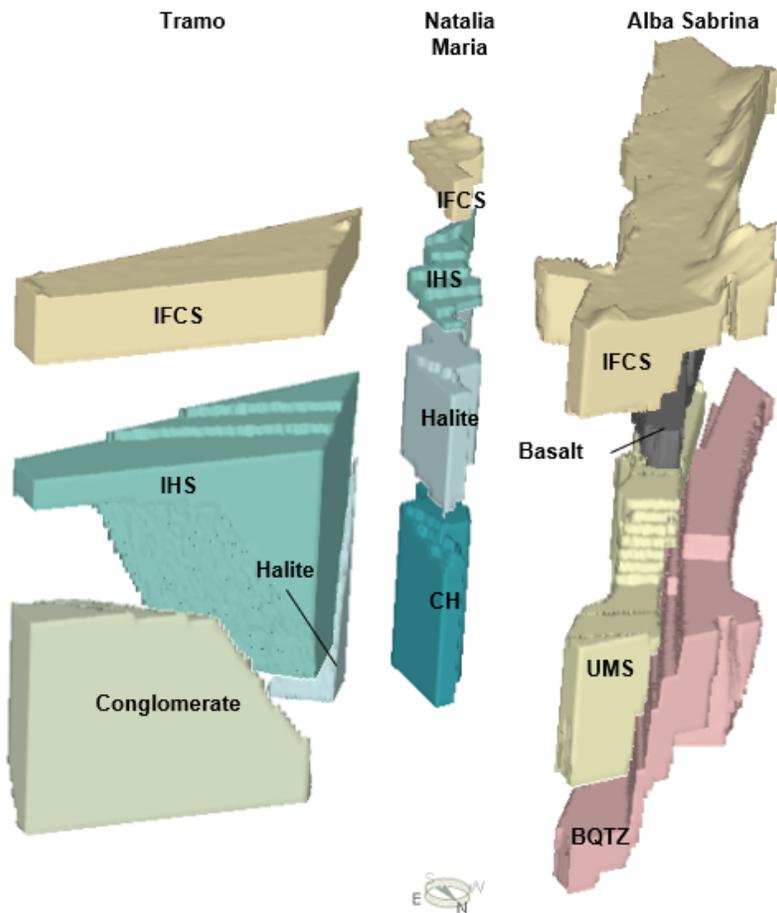


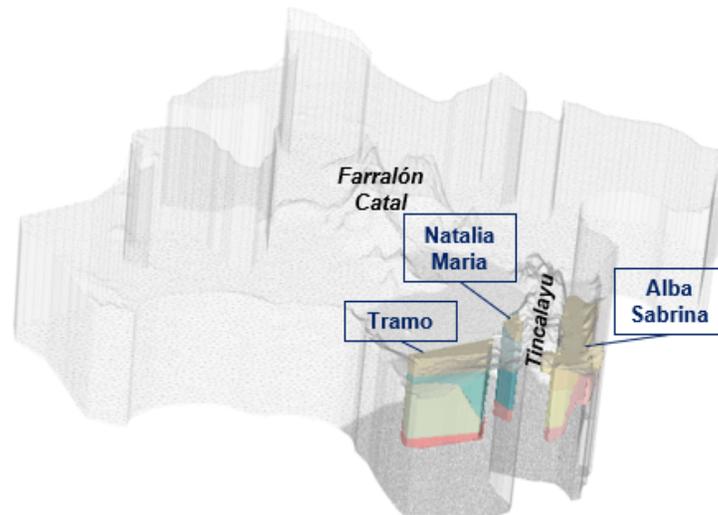
Figure 14.5: Geologic units of the SHM incorporated into the Resource Model Domain.

Exploded View of Geologic Units within Resource Model at Project Areas



Note: Tincalayu not shown.

Geologic Units at Project Sites within Wireframe Mesh of Resource Model



Note: Intersection of Tincalayu with project sites shown in orange.

Geological Units

Interlayered Fine and Coarse Sediments (IFCS)
Interbedded Halite and Sediments (IHS)
Basalt
Halite
Upper Middle Sediments (UMS)
Conglomerate
Compact Halite (CH)
Tertiary Sediments
Brecciated Quartzite (BQTZ)

Figure 14.6: Geological units within the Resource Model for the Alba Sabrina, Natalia Maria, and Tramo properties.

Table 14.2: Summary of primary geological units within the Resource Model by property.

Geological Unit	Volume (x10 ⁶ m ³) ¹	Average Specific Yield ²	Brine Volume (x10 ⁶ m ³)	Brine Volume (% of Site Total)	Resource (% of Site Total) ³	Resource (% of All Sites Total) ³
Alba Sabrina						
Interlayered Fine and Coarse Sediments (IFCS)	612.4	0.111	68.0	27.2%	25.8%	15.1%
Basalt	280.3	0.053	14.9	5.9%	6.2%	3.6%
Upper Middle Sediments (UMS)	580.7	0.131	76.1	30.5%	31.6%	18.5%
Brecciated Quartzite (BQTZ)	1055.2	0.086	90.7	36.3%	36.5%	21.4%
Natalia Maria						
Interlayered Fine and Coarse Sediments (IFCS)	19.3	0.089	1.7	13.3%	13.6%	0.7%
Interbedded Halite and Sediments (IHS)	24.0	0.096	2.3	17.9%	17.7%	0.8%
Halite	130.8	0.068	8.9	68.8%	68.7%	3.3%
Tramo						
Interlayered Fine and Coarse Sediments (IFCS)	302.7	0.089	26.9	19.0%	19.6%	7.2%
Interbedded Halite and Sediments (IHS)	743.2	0.096	71.3	50.4%	46.8%	17.1%
Halite	26.6	0.068	1.8	1.3%	1.2%	0.4%
Conglomerate	476.7	0.087	41.5	29.3%	32.4%	11.9%

¹ Volume values are from the Resource Model developed in FEFLOW and refer to the bulk volume of the unit (i.e., not reflective of porosity).

² Drainable porosity (Specific Yield) was estimated as the average of all RBR results collected from the unit. Additional information on RBR results is provided in Section 10.6.

³ Lithium resource based on 500 mg/L lithium cut-off.

14.6 MINERAL RESOURCE CLASSIFICATION

The mineral resource was classified based on borehole spacing, which is one of the most widely used methods of resource classification (e.g., GWI & Worley, 2021; Silva & Boisvert, 2014; Houston et al., 2011). Variogram analysis of the Project lithium grades indicated a correlation length of 3.5 – 7.0 km for the data (Section 14.7), which equates to a borehole density of 12.25 – 49.00 km²/BH. This is considered a reasonable site-specific range for Measured resources.

In comparison, general brine deposit guidelines suggested by Houston et al. (2011) for immature (i.e., clastic dominated) salars, considered applicable for the HMN Project, are as follows:

- Measured – 6.25 km²/borehole;
- Indicated – 25 km²/borehole; and
- Inferred – 49-100 km²/borehole.

Comparison of the site-specific analysis and the Houston et al. (2011) guidelines indicate that the latter are more conservative. Consequently, the Houston et al. (2011) guidelines were used to classify the HMN Project mineral resources. Resource Zone configurations are summarized in Table 14.3, shown on Figure 14.7, and described as follows:

- Alba Sabrina:
 - Measured Zone: The full salar footprint within the claim area, from surface to 250 mbgs.
 - Indicated Zone: Underlies the Measured zone, from 250 mbgs to the bottom of the modelled basin (400 mbgs; top of hydrogeological basement).
- Natalia Maria:
 - Measured Zone: Surface to 190 mbgs (top of the CH unit).
- Tramo:
 - Measured Zone: The full claim area, from surface to the top of the Tertiary Sediments unit, approximately 405 mbgs. At Tramo, the Tertiary Sediment unit represents the bottom of the Geological Model as this unit is currently characterized as containing no recoverable brine.

While the sampling results from other nearby projects have minimal quantitative effect on the Resource, they provide confidence of an extensive body of lithium-bearing brine in this area of the salar.

Table 14.3: Mineral Resource Zone categorization for the HMN Project, based on borehole spacing.

		Resource Surface Area (km ²)	Measured	Indicated
Houston et al. (2011) Borehole Density (km ² /BH)			6.25	25
	Depth		Surface – 250 mbgs	250 mbgs – bottom of modelled basin
Alba Sabrina	Borehole Density (km ² /BH)	10.64	2.67	10.64
	Depth		Surface – 190 mbgs	
Natalia Maria	Borehole Density (km ² /BH)	0.95	0.95	
	Depth		Surface – 405 mbgs	
Tramo	Borehole Density (km ² /BH)	3.83	1.92	

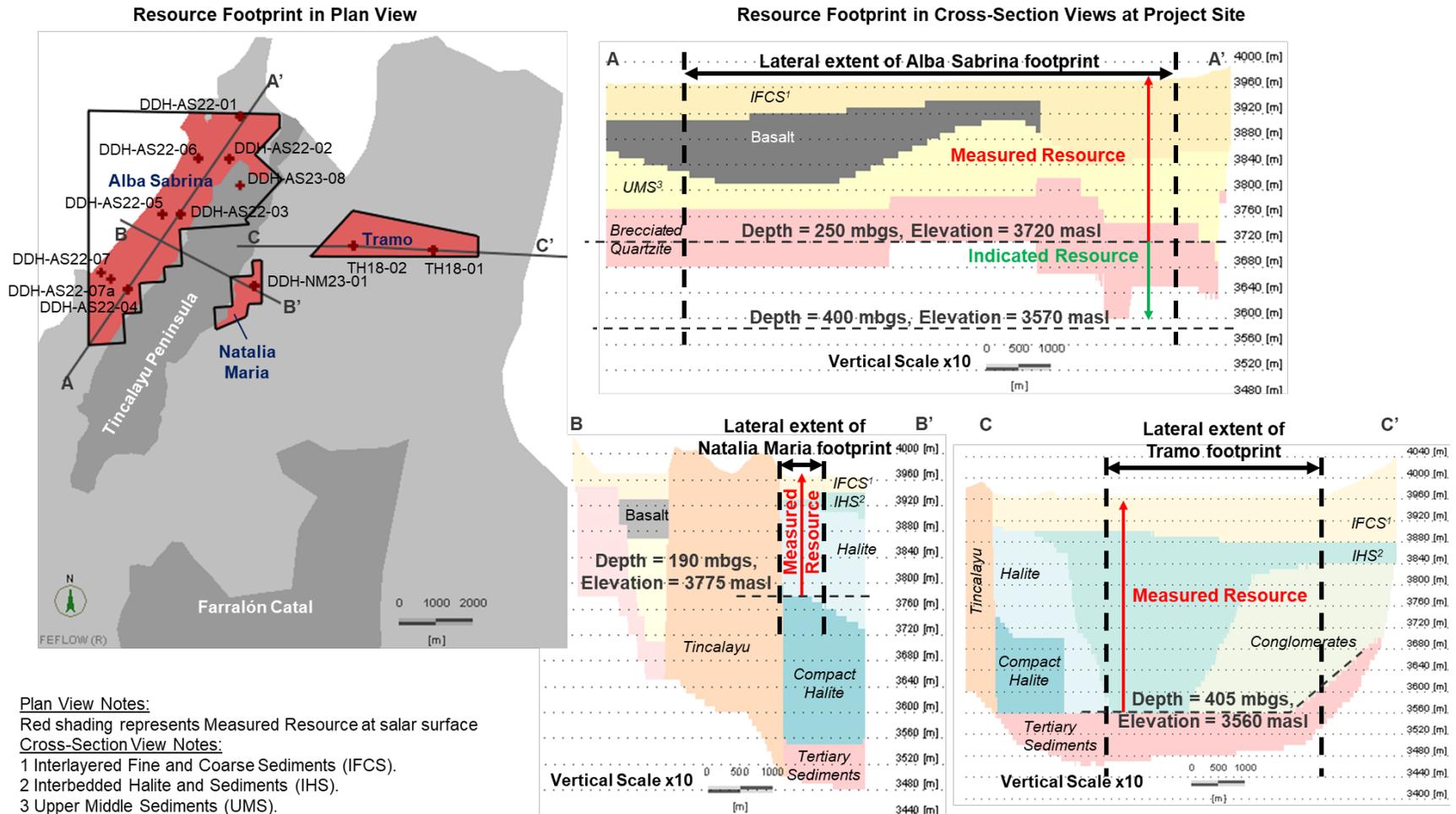


Figure 14.7: Plan and cross-section views of Resource classification zones at the HMN Project properties.

14.7 BRINE CHARACTERIZATION WITHIN THE RESOURCE MODEL

14.7.1 Sample Data

Lithium brine samples used to characterize brine grades within the Resource Model include:

- Quantitative data from Alba Sabrina, Natalia Maria, and Tramo:
 - Depth-discrete samples collected at DDHs, with packer assembly; and
 - Samples collected from the observation well installed on Tincalayu (DDH-AS23-08).
- Qualitative off-site data from:
 - Sal de Vida (Montgomery and GAI, 2012) project areas situated east of Natalia Maria and south of Tramo.

Sample data are summarized in Table 14.4, and locations are shown on Figure 14.8. For property data, concentrations are plotted in profile for Alba Sabrina on Figure 14.9, and for Natalia Maria and Tramo on Figure 14.10. At Alba Sabrina, packer sample HMN-135 was excluded from the characterization (Section 10.5; annotated on Figure 14.9). Off-site data from the adjacent Sal de Vida sites (Montgomery and GAI, 2012) were incorporated in the dataset to characterize the area peripheral to the Project properties (Figure 14.8). These off-site data were used for broad interpolation of brine chemistry. They were located at distance from the Project properties, and their quantitative sample values had minimal effect on the chemistry field interpolated for the properties.

Table 14.4: Lithium grade sample data.

Project Property	Locations	Sample Statistics				
		Count	Typical and Average Packer Interval Length (m) ¹	Concentration (mg/L) ²		
				Min	Average	Max
Alba Sabrina	8	42 ³	1 (3.3)	434	699	792
Natalia Maria	1	9	1 (1.0)	1071	1176	1246
Tramo	2	35	1 (1.2)	507	839	962
<i>Sal de Vida</i> ⁴	<i>6</i>	<i>117</i>	<i>Not available</i>	<i>208</i>	<i>873</i>	<i>1601</i>

¹ Average packer length shown in parentheses.

² Concentrations rounded to the nearest whole number.

³ Excludes sample HMN-135 at location DDH-AS22-03.

⁴ Off-site locations and sample elevation mid-points from Sal de Vida (Montgomery and GAI, 2012), shown in *italicized font*.

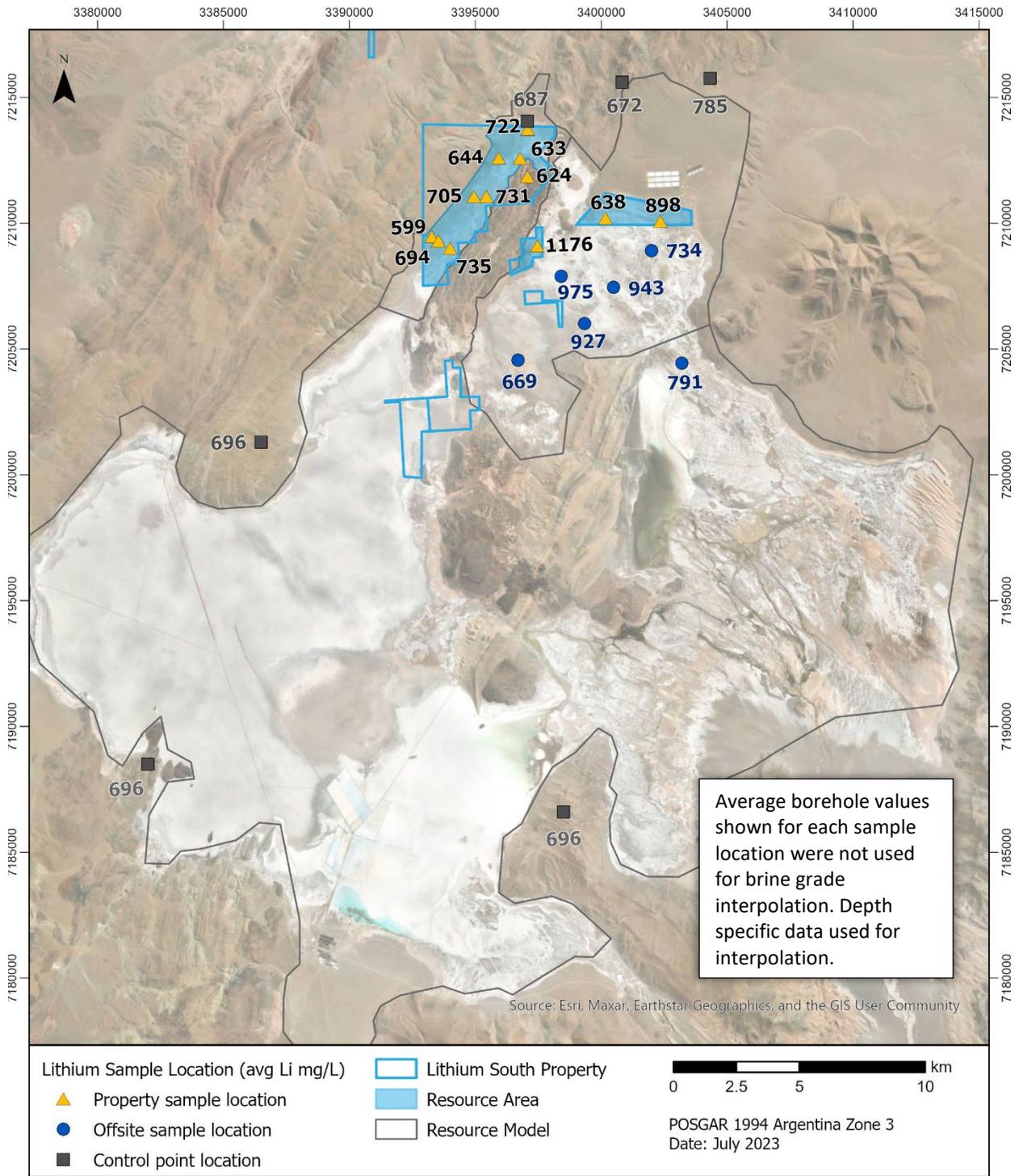
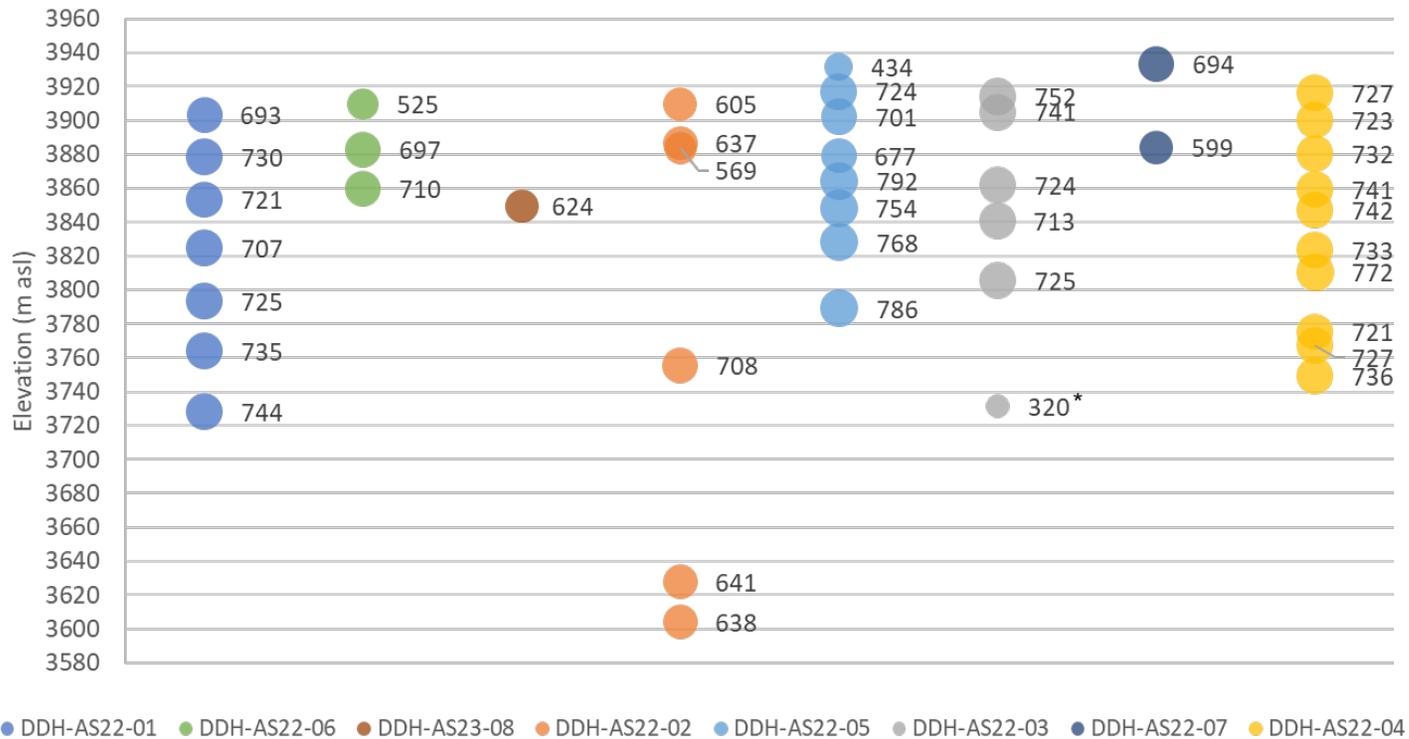
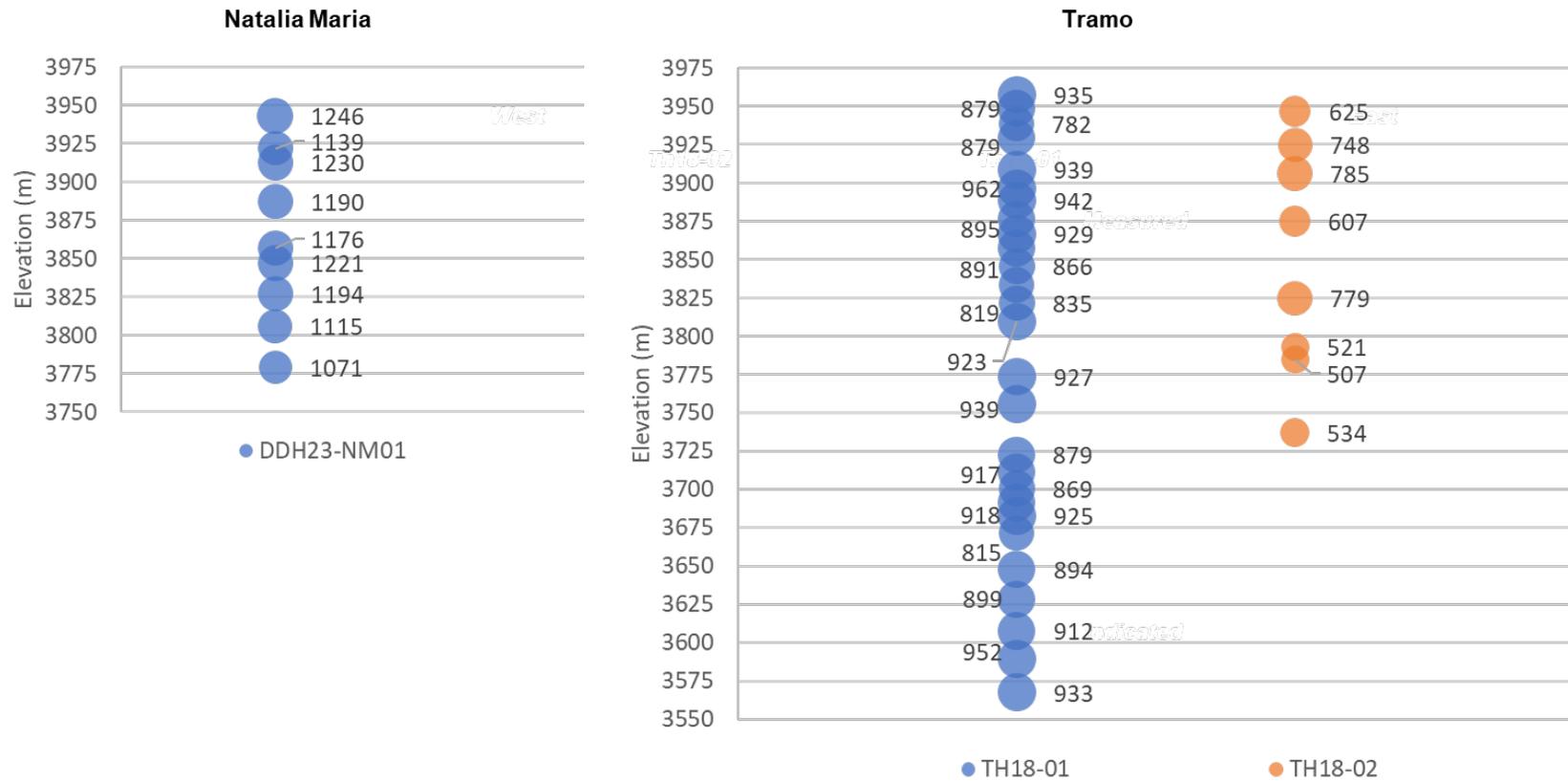


Figure 14.8: Plan view map of sample locations used to characterize the brine grades within the Resource Model.



Notes: Locations are ordered from northeast (left; DDH-AS22-01) to southwest (right ; DDH-AS22-04).
 Marker labels display lithium concentration (mg/L).
 Marker size proportional to lithium concentration.
 Locations DDH-AS22-07 shows samples at DDH-AS22-07 and DDH-AS22-07a.
 *Lithium concentration for sample HMN-135 at location DDH-AS22-03 had a suspiciously low value (potentially due to long packer interval of 40 m) that was inconsistent with neighboring (lateral and vertical) samples; this sample was excluded from the dataset but shown for completeness.

Figure 14.9: Lithium sample data from the Alba Sabrina property, plotted in profile.



Notes: Marker labels display lithium concentration (mg/L).
 Marker size proportional to lithium concentration.
 At Tramo, the average pumping test concentration at TWW18-01 (adjacent to TH18-01) and TWW18-02 (adjacent to TH18-02) were 785 mg/L and 672 mg/L, respectively.

Figure 14.10: Lithium sample data from the Natalia Maria and Tramo properties plotted in profile.

Variogram analysis was performed to estimate the range of correlation lengths that were consistent with the sample data. The experimental variogram, shown on Figure 14.11, was calculated using:

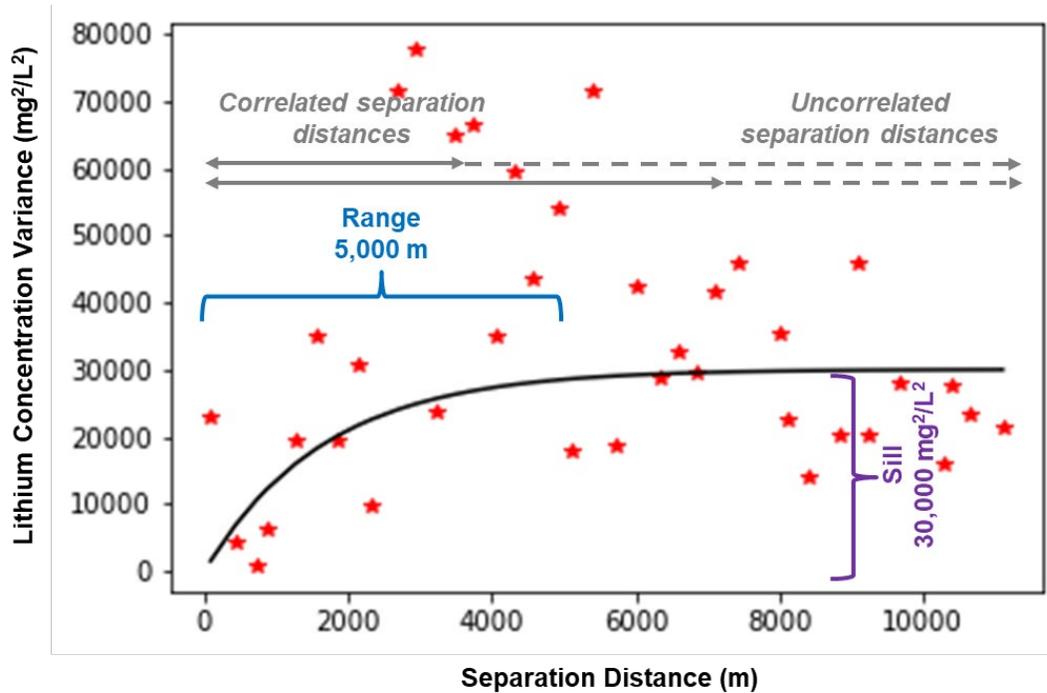
- Assumption of stationarity for lithium samples (i.e., mean and variance of lithium concentrations do not vary over time);
- Omni-directional search direction; and
- 40 lag bins (lag bins of 10 to 50 were tested).

Modelled variograms considered:

- Spherical, Gaussian, and exponential model types;
- Correlations lengths (or ranges) between 3500 m and 7000 m; and
- Sill (or maximum modelled variance) between 20,000 mg²/L² and 40,000 mg²/L².

The modelled variogram that was interpreted to be the best fit to the experimental variogram applied an exponential model type, with a range (or correlation length) of 5000 m, and a variance 30,000 mg²/L² (Figure 14.11). It is noted that this correlation length (5000 m) was larger than the borehole spacing length (< 1 km to 3 km; Table 14.3) used to classify resource zones. In other words, the borehole spacing method was more conservative than the variogram correlation length, which was considered appropriate from a resource estimate quantification perspective.

Variograms for boron, calcium, potassium, sodium, magnesium, and sulphate constituents are presented on Figure C.1 (Appendix C). A range of 5000 m was determined to be suitable for all constituents.



Legend

- ★ Experimental variogram representing variance between sample pairs
- Modelled exponential variogram interpreted to best-fit experimental variogram
- ↔ Range of correlated separation distances based on interpretation of experimental variogram
- → Range of uncorrelated separation distances based on interpretation of experimental variogram
- ⌈ Range of 3,500 m for modelled variogram, representing best-fit of correlated separation distance (for lithium samples)
- ⌋ Sill of 30,000 mg²/L² for modelled variogram, representing the maximum variance corresponding to range

Figure 14.11: Variogram for the lithium sample data.

14.7.2 3D Interpolation of Grade Data

The 3D lithium distribution was interpolated to the Resource Model calculation points using the Ordinary Kriging method, together with the variogram shown on Figure 14.11. Data input into the interpolation consisted of lithium samples (Table 14.4) as well as control points (Figure 14.12).

Control points were judiciously applied to peripheral areas of the Alba Sabrina and Tramo Project properties (Figure 14.12) as follows:

- At Alba Sabrina:
 - Northeast of the site, control points were applied upgradient of site (i.e., brine flowing towards site). These control points were assigned a grade of 687 mg/L, based on the results of a sample collected by Dr. Mark King (QP) from a well at the Providencia Project during the HMN Project site visit in October 2023.
 - South of site, control points were applied outside the margins of the Western Subbasin based on published production data from the Livent property (Integral, 2023). Control points were applied at three locations (Livent1, Livent2, Livent3) using the midpoint of vertical intervals (to a maximum depth of 200 mbgs) and corresponding average production concentrations (ranging from 414 mg/L to 786 mg/L; Integral, 2023).
- At Tramo:
 - Two control points were applied upgradient of site, Tramo 18-01 and Tramo 18-02, situated at the periphery of the alluvial fan that is north of the site, using coincident vertical sample intervals (depths) with TH18-01 and TH18-02, respectively.
 - Control points Tramo 18-01 and Tramo 18-02 applied the average 72-hour pumping test concentrations for TWW18-01 (785 mg/L) and TWW18-02 (672 mg/L), respectively.

The 3D interpolated distribution of lithium concentrations is shown in plan view at the salar surface for the entire Resource Model domain on Figure 14.12, and is shown for Alba Sabrina, Natalia Maria, and Tramo Project sites using 3D cutting planes on Figure 14.13, Figure 14.14, and Figure 14.15, respectively.

Measured and interpolated lithium concentrations were compared at each sample location and presented as a scatter plot on Figure C.2 (in Appendix C). The plot indicates the best fit was achieved at the Project sites and that there was greater variability for the off-site data (consistent with a higher Root Mean Squared error [“RMS”], see Table C.1). This was considered reasonable, as the focus of the Resource Model was to quantitatively estimate lithium resources at the Project sites. For boron, calcium, potassium, sodium, magnesium, and sulphate constituents:

- Measured to interpolated fit are presented as summary tables, Table C.2 through Table C.7, and scatter plots on Figure C.3 (in Appendix C);
- Interpolated concentrations are shown for cross-sections through properties on Figure C.4 (Appendix C).

Overall, these constituents had a similar degree of fit as lithium.

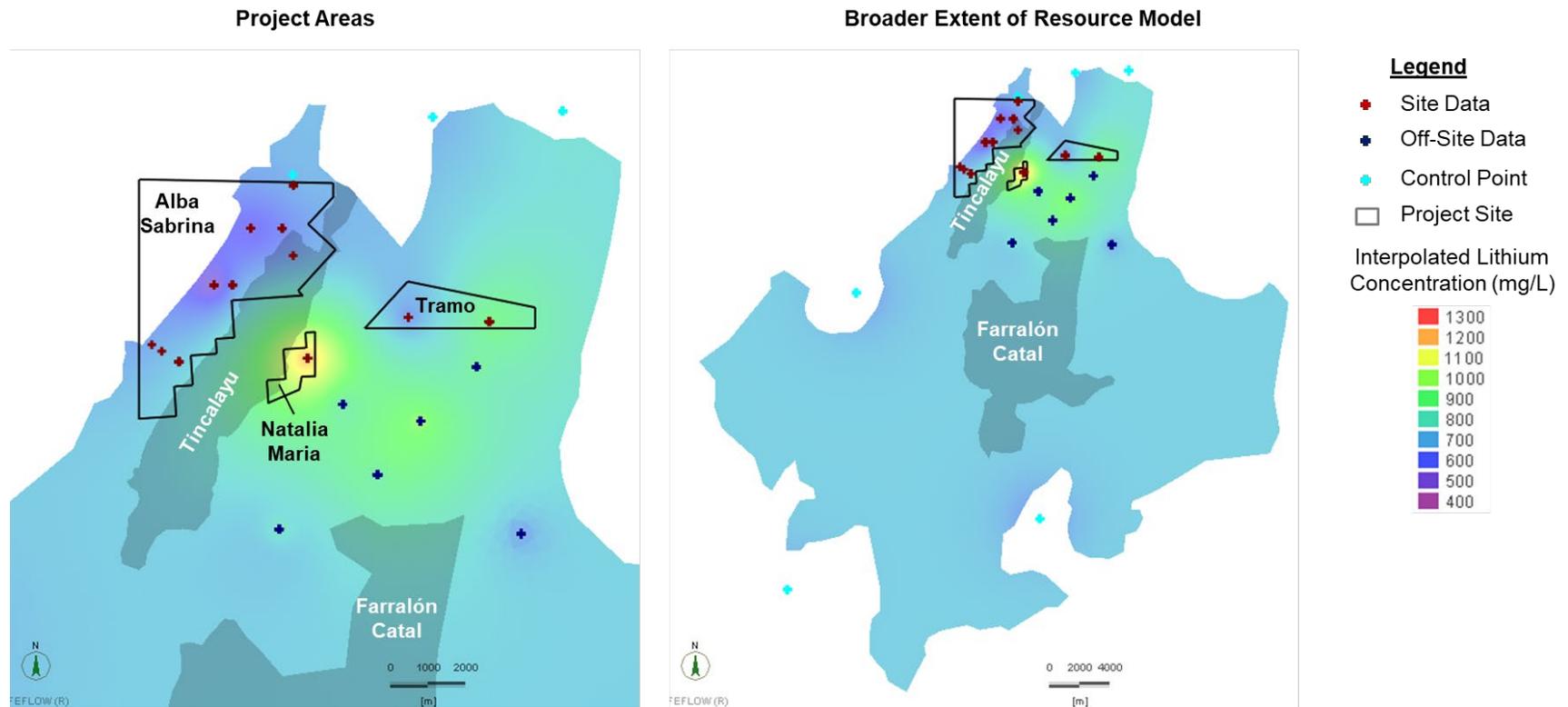
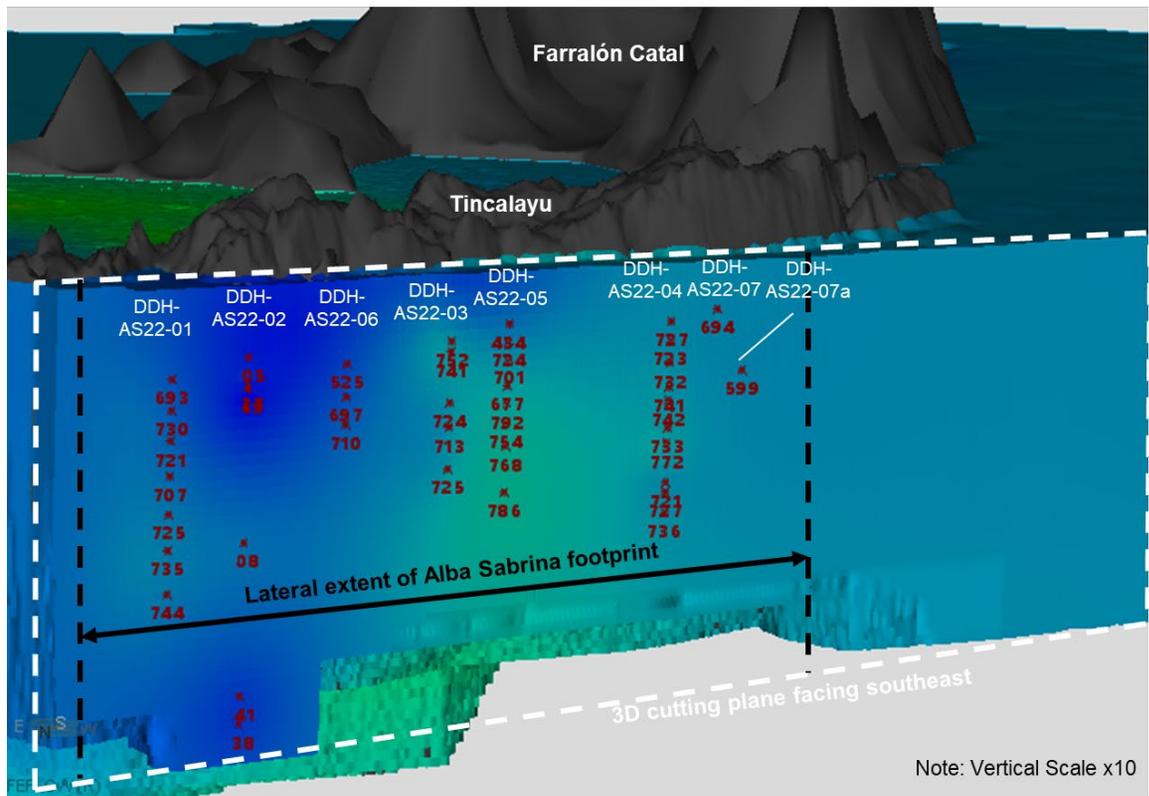
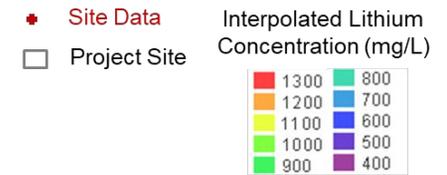


Figure 14.12: Plan view map of the interpolated lithium concentrations at salar surface (approx. 3965 masl).



Legend



Plan View Map of Cutting Plane

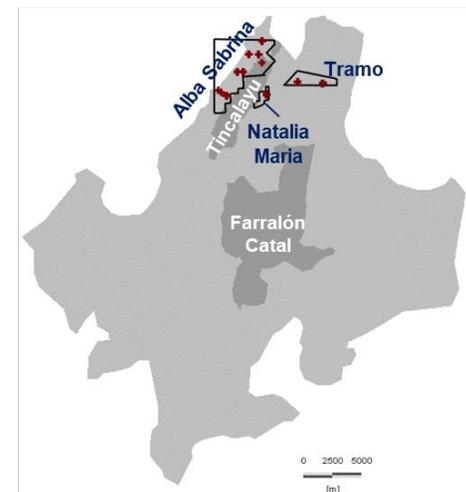
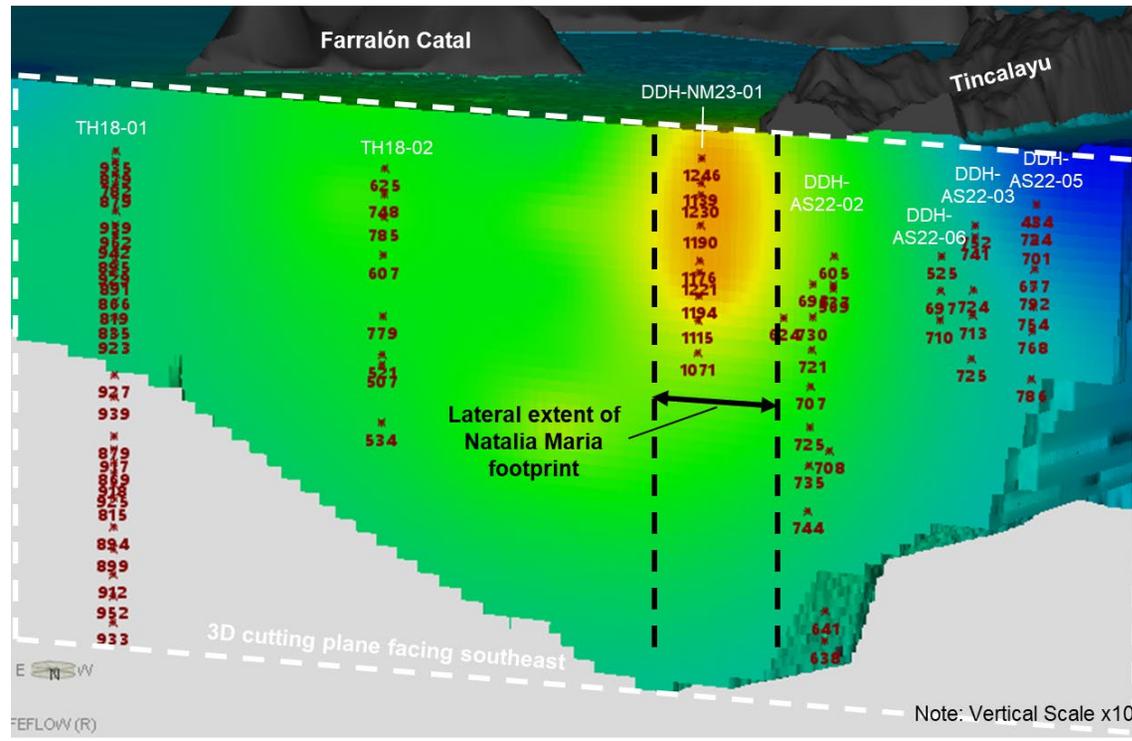
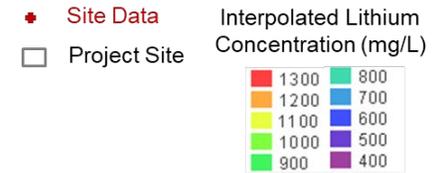


Figure 14.13: Interpolated lithium concentrations at Alba Sabrina, along a 3D cutting plane.



Legend



Plan View Map of Cutting Plane

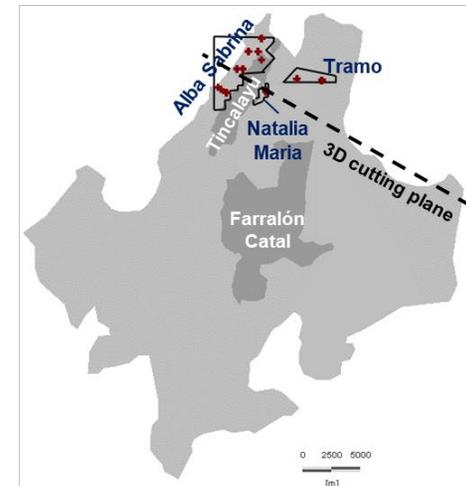
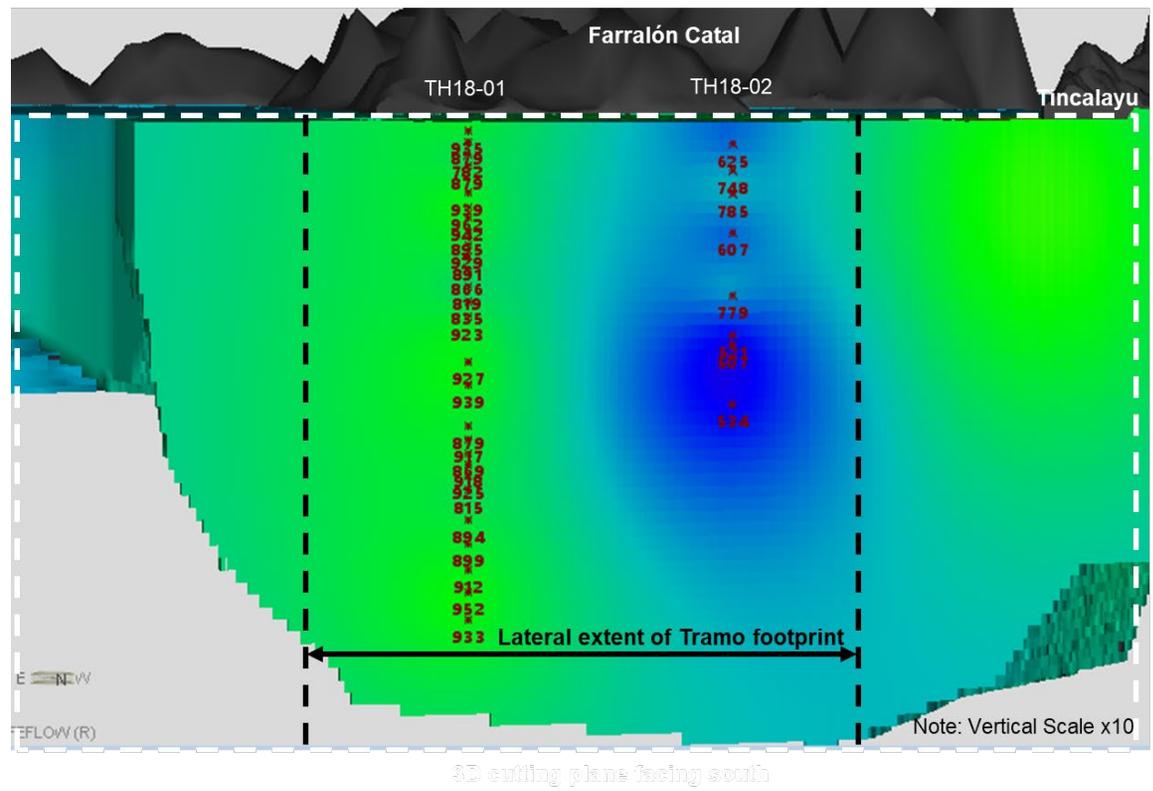
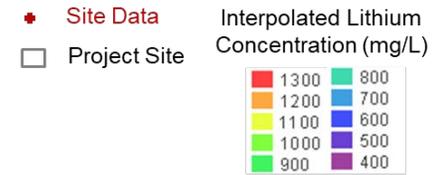


Figure 14.14: Interpolated lithium concentrations at Natalia Maria, along a 3D cutting plane.



Legend



Plan View Map of Cutting Plane

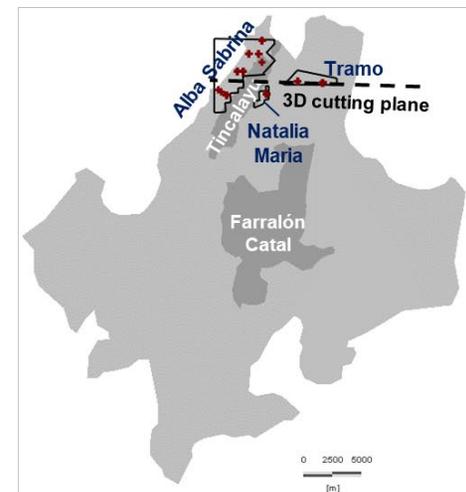


Figure 14.15: Interpolated lithium concentrations at Tramo, along a 3D cutting plane.

14.8 MINERAL RESOURCE ESTIMATE

The Lithium Resource Estimate was calculated using a grade cut-off of 500 mg/L lithium and is presented in Table 14.5. Overall, the total estimate of the lithium resources across all three Project sites was characterized as follows (Table 14.5):

- A total brine volume of $404,100 \times 10^3 \text{ m}^3$ with an average concentration of 736 mg/L; and
- A total lithium and LCE mass of 297,400 tonnes and 1,583,200 tonnes, respectively.

The mass ratios of potassium, calcium, magnesium, and sulphate relative to the lithium resource were as follows (Table 14.5):

- Calcium to lithium ratio of 0.93;
- Potassium to lithium ratio of 9.79;
- Magnesium to lithium ratio of 3.27; and
- Sulphate to lithium ratio of 16.62;

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

Further, all conceptual models (including the FEFLOW models used herein to estimate resources) have a degree of risk and uncertainty that should be considered when evaluating the Project. Additional associated risks for evaluating the transition from Resources to Reserves at this Project include:

- Potential for brine capture from adjacent project sites;
- Potential for brine losses to adjacent project sites; and
- Potential for dilution of brine by freshwater inputs along the lateral and upper boundaries of the salar during recovery pumping.

Dr. Mark King (QP) considers that these will be important criteria for any future production design.

Table 14.5: Summary of the Mineral Resource Estimate relative to a grade cut-off of 500 mg/L lithium (Effective Date: September 5, 2023).

Parameter	Alba Sabrina			Natalia Maria	Tramo	All Sites
	Measured	Indicated	Total	Measured	Measured	Total
Brine Volume (x10³ m³)^{1, 2}						
	217,900	31,700	249,600	12,900	141,600	404,100
Average Concentration (mg/L)³						
Lithium (Li)	696	712	698	1103	769	736
Boron (B)	474	479	475	490	377	441
Calcium (Ca)	536	593	543	538	944	684
Potassium (K)	7118	7226	7132	9991	7080	7205
Sodium (Na)	103,513	102,402	103,372	109,566	98,633	101,910
Magnesium (Mg)	2454	2534	2464	3030	2256	2409
Sulphate (SO ₄)	13,507	13,755	13,538	12,868	9866	12,230
Tonnage²						
Lithium	151,700	22,600	174,200	14,200	108,900	297,400
Lithium Carbonate ⁴	807,400	120,200	927,500	75,800	579,800	1,583,200
Boron	103,300	15,200	118,400	6300	53,400	178,200
Boric Acid ⁵	590,600	86,800	677,400	36,200	305,500	1,019,100
Calcium	116,800	18,800	135,600	7000	133,700	276,200
Calcium Chloride ⁶	323,400	52,000	375,400	19,300	370,200	764,800
Potassium	1,550,800	229,000	1,779,800	129,100	1,002,300	2,911,200
Potash ⁷	2,740,200	404,600	3,144,800	228,100	1,771,100	5,144,000
Sodium	22,552,700	3,244,900	25,797,600	1,415,800	13,964,100	41,177,400
Sodium Chloride ⁸	57,328,800	8,248,600	65,577,400	3,598,900	35,496,700	104,672,900
Magnesium	534,600	80,300	614,900	39,200	319,400	973,500
Sulphate	2,942,800	435,900	3,378,700	166,300	1,396,800	4,941,800
Tonnage Ratios						
Ca/Li	0.77	0.83	0.78	0.49	1.23	0.93
K/Li	10.22	10.14	10.21	9.06	9.20	9.79
Na/Li	148.69	143.75	148.05	99.36	128.20	138.45
Mg/Li	3.52	3.56	3.53	2.75	2.93	3.27
SO ₄ /Li	19.40	19.31	19.39	11.67	12.82	16.62

- Notes:
- ¹ Grade cut-off of 500 mg/L lithium.
 - ² Quantities rounded to the nearest 100; product and sums may not be exact due to rounding.
 - ³ Average concentration quantities rounded to the nearest whole number.
 - ⁴ Lithium carbonate mass calculated as lithium mass multiplied by the equivalency factor (5.323).
 - ⁵ Boric acid mass calculated as boron mass multiplied by the equivalency factor (5.719).
 - ⁶ Calcium chloride mass calculated as calcium mass multiplied by the equivalency factor (2.769).
 - ⁷ Potash mass calculated as potassium mass multiplied by the equivalency factor (1.767).
 - ⁸ Sodium chloride mass calculated as sodium mass multiplied by the equivalency factor (2.542).

The Tramo property was the only HMN property for which a Resource was previously estimated. When comparing the current Tramo lithium Resource Estimate to the previous Estimate presented by Montgomery (2018), it is noted that the previous method involved a spreadsheet polygon approach while the current method is based on development of a 3D geological model, in preparation for future hydraulic (Reserves) modelling. It is also noted that no additional sampling or drilling was conducted at Tramo, and the same borehole and lithium sample data was used for both estimates. In comparing results from these two methods, it was determined that:

- The total brine volume was consistent to within <0.1%, previously $141,800 \times 10^3 \text{ m}^3$ (Montgomery, 2018) and herein $141,600 \times 10^3 \text{ m}^3$ (Table 14.5).
- The average lithium concentration increased by approximately 2%, previously 756 mg/L (Montgomery, 2018) and herein 769 mg/L (Table 14.5). The 2% increase was attributed to the 3D interpolation of lithium concentrations (compared to previous volumes or zones of piece-wise constancy).
- The mass for lithium and LCE increased by approximately 1.5%, previously 107,300 tonnes for lithium (Montgomery, 2018) compared to 108,900 tonnes herein, and 571,000 tonnes for LCE (Montgomery, 2018) compared to 579,800 tonnes herein. This relatively minor increase is attributed to the incorporation of more detailed geology and brine models.

The consistency in quantitative outcomes (i.e., differences of 2% or less) provides confidence that the estimate herein is appropriate.

14.9 POTENTIAL OPPORTUNITIES FOR FURTHER RESOURCE EXPANSION

Additional exploration zones with potential to further increase the Resource within the HMN Project properties include:

- Natalia Maria: Fractures and clastic interlayers observed in the CH unit, and within potential clastic infill material at depth below the CH unit have potential to contain recoverable brine. For the present Estimate, brine is assumed to be unrecoverable below the upper surface of the CH.
- Tramo: Salar infill materials below 400 mbgs may potentially contain recoverable brine.
- Gaston Enrique, Norma Edith, and Viamonte have not yet been explored, and are not included in the current Resource Estimate.

Recommended work to evaluate resource potential in these areas is presented in Section 26.

15 MINERAL RESERVE ESTIMATE

No Mineral Reserves are declared for this Resource stage HMN Project.

16 MINING METHODS

The recent PEA (KPC, 2019) contains the latest version of this Section, which pertains to the previous Resource Estimate (Montgomery, 2018).

17 RECOVERY METHODS

The recent PEA (KPC, 2019) contains the latest version of this Section, which pertains to the previous Resource Estimate (Montgomery, 2018).

18 PROJECT INFRASTRUCTURE

Existing infrastructure in and around the HMN Project is presented in Section 5.3. The recent PEA (KPC, 2019) contains the latest version of this Section, which pertains to the previous Resource Estimate (Montgomery, 2018).

19 MARKET STUDIES AND CONTRACTS

The recent PEA (KPC, 2019) contains the latest version of this Section, which pertains to the previous Resource Estimate (Montgomery, 2018).

20 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

20.1 ENVIRONMENTAL BASELINE STUDY

20.1.1 Overview

The Environmental Baseline Study (“EBS”) for the HMN Project was completed by E&C Consultores (“ECA”) of Salta in March 2022 and filed with the Mining Authority in May 2022 (ECA, 2022). The study covers the Alba Sabrina, Natalia Maria, Tramo, Gaston Enrique, Norma Edith, and Viamonte properties and includes the documentation of flora, fauna, climate, air quality, hydrogeology, soils, a socio-demographic survey, and ecosystem characterization. A weather station was also established on site for environmental monitoring during the study period.

The results were prepared under the General Environmental Law of the Mining Code 24.585. The report provides an early indication of potential impacts associated with future development at the HMN Project, so that effective mitigation can be achieved through appropriate pro-active management techniques. Sections 20.1.2 through 20.1.4 summarize the flora, fauna, and archeological heritage findings presented in the EBS reports compiled by ECA (2022).

20.1.2 Flora

Two flora surveys were conducted, one in the dry season (August 2021) and in one the wet season (February 2022). Alba Sabrina, Natalia Maria, Tramo, and Viamonte were surveyed, while the other properties were excluded from the study because they are characterized by a salt crust devoid of vegetation. The purpose of the flora survey was to identify plant communities within the study area, and to characterize the conservation status of the species observed. The results of the surveys include the following:

- One plant species with a “least concern” conservation status was found in the study area, the copana cactus (*Maihueniopsis glomerata*).
- 28 grass and shrub species belonging to 12 families, including *Ephedraceae*, *Asteracea*, *Cactaceae*, *Chenopodiaceae*, *Euphorbiaceae*, *Fabaceae*, *Frankeniaceae*, *Malvaceae*, *Poaceae*, *Solanaceae*, and *Verbenaceae* were recorded.
- The wet season (February) exhibits higher species diversity and plant density in comparison to the dry season (August).
- The highest diversity of species was observed on the alluvial fans and hillsides in Alba Sabrina, followed by certain areas within Natalia Maria, Tramo, and Viamonte.

20.1.3 Fauna

ECA (2022) also completed a faunal biodiversity survey during two field campaigns, in August 2021 and February 2022, on each of the HMN Project properties, the immediate surroundings in the northern part of the Hombre Muerto basin, and the Río de Los Patos delta. The objectives of the biodiversity survey were to create a baseline from which to compare future monitoring results, and to support the development of an effective environmental management plan.

The results of the two surveys are summarised in Table 20.1, and species observations include the following:

- Fifteen (15) vertebrate species were recorded within the HMN Project properties during the August 2021 survey, and 23 during the February 2022 survey. In comparison, a total of 52 vertebrate species (five native mammals, four domestic mammals, 42 birds, and one reptile) were observed outside of the HMN Project properties, in the Río de los Patos delta and freshwater marshes in the northwestern basin during the February 2022 survey.
- The camelid vicuña (*Vicugna vicugna*) accounts for the highest species density of mammals observed within the HMN Project properties, followed by the semi-wild donkey (*Equus asinus*), the culpeo or Andean fox (*Lycalopex culpaeus*), as well as the tuco-tuco (*Ctenomys opimus*), and viscacha (*Lagidium viscacia*) from the rodent family.
- The 15 bird species recorded during the February 2022 survey include, in order of abundance, ash-breasted Sierra finch (*Geospizopsis plebejus*), bright-rumped yellow finch (*Sicalis uropygialis*), golden-spotted ground dove (*Metriopelia 132eep132c*), black-hooded Sierra finch (*Phrygilus atriceps*), puna miner (*Geositta punensis*), black siskin (*Spinus atratus*), plain-mantled tit-spinetail (*Leptasthenura aegithaloides*), straight-billed earthcreeper (*Ochetorhynchus ruficaudus*), Cordilleran canastero (*Asthenes modesta*), rufous-naped ground tyrant (*Muscisaxicola rufivertex*), common miner (*Geositta cunicularia*), cinereous harrier (*Circus cinereus*), mountain caracara (*Phalco boenus megalopterus*), scale-throated earthcreeper (*Upucerthia dumetaria*), and cinereous ground tyrant (*Muscisaxicola cinereus*). None of the bird species recorded are considered vulnerable or threatened species.
- One species of herpetofauna (reptiles and amphibians), the lizard *Liolaemus poecilochromus*, was recorded in the northwestern part of the Alba Sabrina property during the February 2022 survey.
- One individual butterfly (Papilionoidea) was observed in a small cave on the eastern slope of the Cordon del Gallego range in Alba Sabrina during the February 2022 survey.

Table 20.1: Number of species recorded during the faunal biodiversity surveys within the HMN Project properties (ECA, 2022).

Property	August 2021				February 2022			
	Mammal	Bird	Herpetofauna	Butterfly	Mammal	Bird	Herpetofauna	Butterfly
Alba Sabrina	8	4	1	0	6	10	1	1
Natalia Maria	5	1	0	0	3	9	0	0
Tramo	4	2	0	0	3	1	0	0
Gaston Enrique	0	-	0	0	0	0	0	0
Norma Edith	0	0	0	0	0	0	0	0
Viamonte	1	-	0	0	2	2	0	0
Total Species ¹	9 ²	5	1	0	6 ³	15	1	1

¹ Total Species represents species count across all properties, not a sum of species recorded at each property
² Eight of which are native species, includes domestic animals
³ Five of which are native species, includes domestic animals

According to ECA (2022), the results of the fauna survey indicate:

- Species richness and density are higher in the summer, due to increased availability of surface (fresh) water during the wetter summer months.

- The HMN Project properties do not constitute habitat areas with high biodiversity value in the context of the Hombre Muerto basin.
- The salar surface has virtually no habitual use by wildlife, and it is only used for transit by a few species.
- No threatened species were detected in any of the HMN Project areas.
- Any future development of the HMN Project should protect freshwater sources within the area, and should include strategies to minimize interference with animals, such as vicuña, which transit the HMN Project properties.

20.1.4 Archaeology

An archaeological survey was conducted in October 2021 by Arqueo Ambiental Archaeological Consultants at the request of ECA. The resulting report is included in the EBS (ECA, 2022). The objectives of the study were to determine locations and characteristics of archaeological heritage sites in the area, and to build the foundations of a cordial relationship between the archaeological heritage and any future development of the HMN Project.

A total of 32 heritage sites, including isolated finds, assemblages of archaeological material (lithic flakes and tools), and single isolated structures, were identified during the field survey. One is located within the HMN Project properties at Alba Sabrina and 31 are located outside the properties. Based on these findings, two areas of Medium Sensitivity were identified outside of the current HMN Project Properties, on the southeastern and southwestern sides of Alba Sabrina.

The following measures were recommended, to minimize risk to the archeological heritage of the area:

- Information from the archaeological report in the EBS should be used to inform HMN Project development, to ensure that knowledge of archaeological sites and potential for chance discoveries are considered during planning and development.
- Collection and/or handling of archaeological material, which is considered one of the most severe impacts, should be prohibited in and around the HMN Project.
- Foot and vehicular traffic should be restricted around the heritage sites identified during the survey.
- Vehicular traffic should be restricted to authorised tracks and/or roads, avoiding non-approved, cross-country, or off-road roads.
- As a protective measure, a precautionary perimeter of not less than 50 m in diameter should be established around the findings, which may be modified at a later date, as determined by the relevant enforcement authority.
- A training course regarding archeological heritage protocol should be provided to staff, particularly those directly involved in field activities.
- Communication should be maintained with the archaeology team for consultation in the event of doubts and concerns that may arise during planning and development.
- It is suggested to observe the provisions established in the National Law on Indigenous Affairs Nº 23.302 (Ley Nacional del Indígena, 1985).

An Archaeological Contingency Plan (“ACP”) is also recommended, to outline the appropriate actionable steps in the event a new archaeological site is discovered. The proposed ACP suggests that in the event of a discovery, all work in the area of discovery should stop, the discovery should be reported to the site

archaeologist or appropriate provincial enforcement agency, the archaeological material should be safeguarded, a proposal should be written to recover all archaeological information related to area of discovery, and a report detailing the discovery and action plan should be submitted to the enforcement authority.

20.2 PERMITS AND AUTHORITIES

The Argentina National Constitution of 1994 established the right of all inhabitants to enjoy a healthy, balanced environment, suitable for human development and for productive activities to meet present needs without compromising those of future generations.

The primary legal framework for mine development in Argentina consists of:

- National Law No. 24.585 on Mining Environmental Protection and its Regulations;
- Provincial Laws and Decrees designating the Application Authority and regulatory procedures; and
- Several national, provincial, and local Resolutions.

An approved Environmental Impact Report (“EIR”) is required to initiate construction and operations. This contains a description of the environment, description of the Project, analysis of the environmental impacts, environmental management plan, contingency planning, methodology used, and relevant standards consulted. Upon approval of the EIR, the Mining Authority issues an Environmental Impact Statement (“EIS”), which is the Project Authorization.

LIS, through its wholly owned Argentine subsidiary NRG Metals Argentina S.A., submitted an updated exploration EIR to the Mining Authority in February 2020. An addendum to the drilling program component of the exploration EIR was submitted in July 2021.

On March 25, 2022, LIS obtained the EIS through Resolution 0543 issued by the Mining Authority. This EIS grants authorization for ongoing exploration activities within the HMN Project.

20.3 MINE CLOSURE

A conceptual closure plan and cost was developed for the Project and presented by KPC (2019). There are no specific laws in Argentina that specify mine closure requirements, and there is no bonding requirement. The closure plan for the Project was developed in consideration of best industry practices. The closure plan was designed to accommodate the following objectives:

- Protection of the health and safety of the public;
- Protection of the environment;
- Assurance of physical and chemical stability of post-closure structures;
- Assurance of unrestricted and unimpacted natural surface water flow;
- Prevention of erosion of post-closure structures from wind or water; and
- Safe removal of impacted surface structures and buildings.

Buildings and surface structures will be cleaned of residual fuels, lubricants, reagents, and wastes prior to being deconstructed and dismantled. Recyclable wastes will be reused wherever possible. All structures

will be removed to ground level, with concrete slabs or other inert foundations covered with native material. Salt residues will be placed and contoured on the salar.

Closure costs were estimated at \$2.6 M by KPC (2019).

20.4 SOCIAL DEVELOPMENT AND COMMUNITY IMPACT

20.4.1 Corporate Social Responsibility

LIS (NRG Metals Argentina S.A.) has developed a comprehensive Corporate Social Responsibility (“CSR”) policy. This policy articulates a set of action-oriented strategies aligned with international standards of best mining practices. These strategies are designed to ensure that the HMN Project generates positive and beneficial outcomes for the surrounding communities by supporting:

- Transparency in communication, empathy, integration, and respect for local culture and customs;
- Community participation in Project development, through support to local suppliers and training and hiring of local labour; and
- Development and management of sustainable community projects.

LIS has been actively engaged in outreach programs with the two neighbouring communities of Estación de Salar de Pocitos and Santa Rosa de los Pastos Grandes since the inception of exploration activities at the HMN Project. Both communities fall within the designated area of direct influence of the Project, as delineated in the exploration permit issued by the Salta province Secretary of Mining and Energy. Notably, both populations hold official recognition as Indigenous peoples of the local area. LIS is also committed to its role within the “Mesa Social”, a forum that comprises representatives from the community, mining companies operating in the region, and provincial government authorities.

In 2022, LIS commissioned the services of ECA to conduct an Environmental and Social Baseline Study to generate a comprehensive and accurate depiction of all aspects influencing the Project. The study encompassed an examination of:

- The physical environment (e.g., Section 20.1), and
- Socio-economic systems (e.g., Sections 20.1.4 and 20.4.2).

20.4.2 Socio-Economic Systems

LIS submitted the first Social Performance Report to the Mining Authority in February 2023. The Social Performance Report discloses all activities related to the local communities, for example:

- Communication with local communities about development of the HMN Project;
- Company participation in community events;
- Hiring of local services;
- Contributions made to the community (Photo 20.1);
- Training of community members (Photo 20.2); and
- The Mining Social Roundtable (Section 20.4.3).



Photo 20.1: Example of contributions made by LIS to the local communities.
Donation and blessing of the bell for the church of Santa Rosa de los Pastos Grandes.



Photo 20.2: Training community members of Santa Rosa de los Pastos Grandes as lithium processing assistants.

LIS adheres to the general guidelines outlined in the Mining Promotion (Promoción Minera) Law 8164 and its associated Regulatory Decree 534 of 2020 of the province of Salta. This includes a strong emphasis on the preferential engagement of local services and labour. Notably, LIS prioritised hiring local labour for the initial exploration phase, achieving 94% of personnel from the province of Salta. Furthermore, the requisites for mining services and suppliers also indicate a clear predominance of local businesses in the year 2022, reaching approximately 52% (over 234 local suppliers used, out of 454 required), during the year.

LIS is also investing in the training and development of its workforce with a focus on the implementation of the Sustainable Development Goals (“SDGs”). The company is actively integrating target SDGs as the Project progresses. The approach used by LIS is rooted in the United Nations (“UN”) post-2015 sustainable development agenda (UN DESA, 2023), comprising 17 goals and 169 targets to be achieved by 2030. Within the context of the SDGs, the progressive incorporation is specifically geared towards the priority goals relevant to the mining sector, as endorsed by the Argentine Chamber of Mining Entrepreneurs (Cámara Argentina de Empresarios Mineros), including:

- SDGs applicable at Environmental Sustainability: SDGs 6, 15, 7, and 13;
- Applicable SDGs on Social Inclusion: SDGs 1, 5, 6, and 16; and
- Applicable SDGs in Economic Development: SDGs 8, 9, and 12.

20.4.3 Mining Social Roundtable

LIS participated in the Mining Social Roundtable held in Santa Rosa de los Pastos Grandes on March 14, 2023, along with government authorities and other mining companies. During this collaborative forum, LIS expressed its commitment to actively analyze, seek solutions, and contribute to addressing various concerns and challenges raised by the local community. Noteworthy among the proposed initiatives were:

- Implementation of programs for secondary school graduates;
- Construction of a fenced enclosure to establish a protected planting area;
- Installation of a community radio;
- Intensive use and commercialisation of vicuña wool;
- Construction of a sewage network and effluent treatment plant for Santa Rosa de los Pastos Grandes;
- Extension of the power grid to areas outside of Santa Rosa de los Pastos Grandes; and
- Repair broken drinking water distribution pipes within Santa Rosa de los Pastos Grandes.

21 CAPITAL AND OPERATING COSTS

The recent PEA (KPC, 2019) contains the latest version of this Section, which pertains to the previous Resource Estimate (Montgomery, 2018).

22 ECONOMIC ANALYSIS

The recent PEA (KPC, 2019) contains the latest version of this Section, which pertains to the previous Resource Estimate (Montgomery, 2018).

23 ADJACENT PROPERTIES

Projects within the SHM and adjacent to the HMN Project are shown on Figure 23.1. Lithium brine projects within the SHM include, in order of development stage:

- **Livent (Minera del Altiplano S.A.):** The Fénix Project is currently the only commercial lithium producer in the SHM and has been operational since 1997. It encompasses the southwestern subbasin of the SHM and its northern margin is located four km S of Alba Sabrina, adjacent to Viamonte. Recent Proven and Probable Reserve Estimates for the project are 3.9 Mt LCE over 40 years at an average grade of 523 mg/L Li, based on a cut-off grade of 218 mg/L Li, and a 76.6% time-weighted average process efficiency (Integral, 2023).
- **Allkem:** The Sal de Vida Project is under construction in the southeastern subbasin of the SHM. Estimated Proven and Probable Reserves for the project are 1.7 Mt LCE over 40 years with a projected average grade of 778 mg/L Li after 40 years of pumping, based on a cut-off grade of 500 mg/L, and assuming 70% process efficiency (Montgomery et al., 2022).
- **POSCO:** The Sal de Oro Project surrounds the Gaston Enrique, Natalia Maria, Tramo, and Viamonte properties in the northeastern subbasin of the salar. Construction began in 2021 and is scheduled to be complete in 2024. The project will produce lithium hydroxide using conventional evaporation (POSCO, 2022).
- **Minera Santa Rita S.R.L.:**
 - The Virgen del Valle Lito Project is an advanced stage project located in the southeastern subbasin of the SHM and is surrounded by the Allkem claims and Livent claims. Reserve estimates indicate 1.13 Mt of LCE with a 40-year projected life of mine (MSR, 2023). Direct Lithium Extraction (“DLE”) is proposed for the project, and a pilot plant is pending regulatory approval.
 - The Providencia Project is on the northern border of the Alba Sabrina property. It is a small-scale, privately owned lithium brine operation. No public data is available for this project.
- **Galan Lithium:**
 - The Hombre Muerto West Project is a construction stage project located on the alluvium at the western margin of the salar, adjacent to the Fénix Project. The total Mineral Resource Estimate for the project is 6.6 Mt of LCE at an average grade of 880 mg/L Li (Galan, 2023).
 - The Candelas Project is south of the Sal de Vida project and extends further south along Río de Los Patos. The project hosts a total (Indicated) Resource of 685,000 tonnes of LCE at an average grade of 672 mg/L Li (Galan, 2019).
- **Alpha Lithium:** The Hombre Muerto Project is an early-stage exploration project located in the northeastern subbasin of the SHM. The project includes several non-contiguous properties within five km of the HMN Project properties; and one of the properties is located adjacent to the northern border of Alba Sabrina.
- **Edison Lithium Corp:** The Edison Lithium claim area is located on the southwestern border of Alba Sabrina. No known exploration has been completed on the property as of the date of this report.

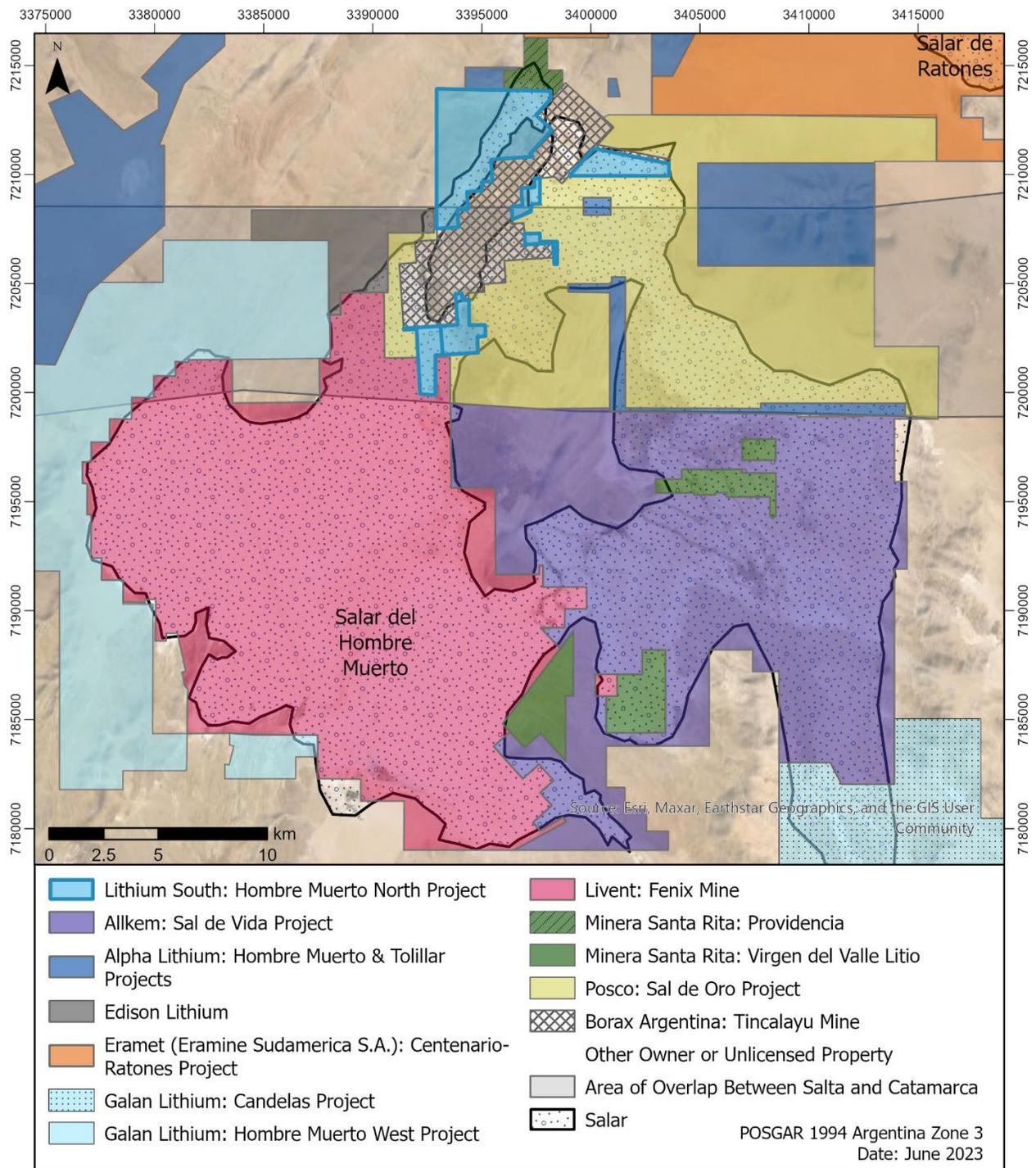


Figure 23.1: Location and owners of claims within the SHM and adjacent to the LIS properties.

The Tincalayu Mine and associated claims, operated by Borax Argentina, are located on the Tincalayu Peninsula between and adjacent to all the HMN Project properties within the SHM (Figure 23.1). Tincal ore is currently mined at a rate of 60,000 tonnes per year, and has been extracted from an open pit within the Sijes Formation since the mine first became operational in 1964. The upgraded historical Indicated and Inferred Resource Estimate for the Tincalayu deposit is 17.8 Mt of 11.0% boric oxide at a marginal cut-off grade of 2.8% boric oxide (Orocobre Ltd., 2014).

Several other lithium brine projects are in basins adjacent to the SHM and near the HMN Project (Figure 5.1), including:

- Eramine Sudamérica S.A.: The Centenario-Ratones Project is a construction-stage lithium brine project in Salar de Ratones and Salar de Centenario. The southern margin of the project area is approximately two km NE of Tramo.
- Tibet Summit: The Sal de Los Angeles Project is a construction-stage lithium brine project located in Salar de Diablillos, approximately 20 km E of Tramo.
- Alpha Lithium Argentina: The Tolillar Project, located five km NW of Alba Sabrina, is an advanced-stage lithium brine exploration project in the Salar de Tolillar.

The current resources and information on the adjacent properties are reported on the corporate websites and SEDAR filings of the holding companies. These data have not been verified by the author and are not reported herein. The information presented may not necessarily be indicative of the geology or mineralization on the HMN Project that is the subject of this Technical Report.

Investors are cautioned that this information is taken from the publicly available sources, has not been independently verified by LIS and it is not known if it conforms to the standards of NI 43-101. Furthermore, proximity to a discovery, mine, or mineral resource, does not indicate that mineralization will occur at the HMN Project, and if mineralization does occur, that it will occur in sufficient quantity or grade that would result in an economic extraction scenario.

24 OTHER RELEVANT DATA AND INFORMATION

The information presented in this Technical Report is considered sufficient to characterize and evaluate this exploration Project and to support the updated Mineral Resource Estimate reported herein.

25 INTERPRETATIONS AND CONCLUSIONS

The updated Mineral Resource Estimate documented in this report, with an effective date of September 5, 2023, was supervised by Mark King, Ph.D., P.Geo., F.G.C.. The mineral deposits that are the focus of this estimate are related to lithium brine contained within the salar deposits of the Salar del Hombre Muerto (“SHM”).

The updated Mineral Resource Estimate conforms with National Instrument 43-101 (NI 43-101) and the Canadian Institute of Mining, Metallurgy, and Petroleum Definition Standards for Resources and Reserves (CIM Standards). The following interpretations and conclusions are supported by the HMN Project data collected to date:

- Conditions in the SHM, and specifically in the Alba Sabrina, Natalia Maria, and Tramo properties, have led to the accumulation of brine with potentially economic grades of lithium.
- Drilling results demonstrate regional variability in the SHM salar infill materials, and shows that:
 - The channel occupied by the Alba Sabrina property is clastic sediment-dominated;
 - The salar in and around Natalia Maria, along the eastern margin of Tincalayu Peninsula, is halite-dominated; and
 - The northeastern corner of the Eastern Subbasin, in and around Tramo, is clastic sediment-dominated. Halite content of the salar deposits increases to the west, towards the Tincalayu Peninsula, indicating a transition zone between the clastic-dominated salar intersected on the eastern side of Tramo and the halite-dominated salar intersected at Natalia Maria.
- Brine sampling data indicate that lithium grade is highest in the Natalia Maria property, and lowest in the Alba Sabrina property. Lithium grade increases to the east within the Tramo property.
- Brine impurities, including potassium, calcium, magnesium, and sulphate are low in the HMN Project brines. Interpolated ratios of these constituents relative the lithium resource are:
 - Calcium to lithium ratio of 0.93;
 - Potassium to lithium ratio of 9.79;
 - Sodium to lithium ratio of 138.45;
 - Magnesium to lithium ratio of 3.27; and
 - Sulphate to lithium ratio of 16.62;
- The updated Mineral Resource Estimate was calculated for the Interlayered Fine and Coarse Sediments, Interbedded Halite and Sediments, Halite, Basalt, Upper Middle Sediments, Conglomerate, and Brecciated Quartzite. The Compact Halite unit, intersected below 190 mbgs at Natalia Maria, is not currently considered in the resource. Follow-up testing of the Compact Halite could indicate that it has a low, but potentially significant permeability.
- The Alba Sabrina, Natalia Maria, and Tramo properties contain an estimated 297,400 tonnes of Measured and Indicated lithium Resources, relative to a 500 mg/L cut-off grade, which equates to 1,583,200 tonnes of LCE.

26 RECOMMENDATIONS

The next phase of exploration at the HMN Project is designed to support future Reserve Estimates and to potentially expand the Resource Estimate at depth in Tramo, plus into the Gaston Enrique, Norma Edith, and Viamonte properties. The following program components are proposed for this next phase of exploration.

To support future Reserve Estimates:

- Three rotary exploration boreholes should be drilled and completed as pumping wells. Long-term (72-hr) pumping tests should be conducted at each pumping well to evaluate brine chemistry and subsurface hydraulic properties. The rotary holes should be drilled on selected platforms used in the 2022-2023 drilling program at Alba Sabrina and Natalia Maria:
 - Alba Sabrina: Two rotary boreholes drilled to approximately 250 and 400 m depth; and
 - Natalia Maria: One rotary borehole drilled to approximately 250 m.
- Slug tests should be performed on the 11 observation wells installed at Alba Sabrina and Natalia Maria during the 2022-2023 Program, to evaluate subsurface hydraulic properties.
- The water balance should be updated to reflect site-specific baseline water level, hydrogeological, and meteorological data.
- A numerical flow should be developed to support reserve estimation, by representing brine processes in the HMN Project area and any significant freshwater inputs in the boundary zones.

To update Mineral Resource Estimates:

- Three diamond exploration coreholes should be drilled and completed as observation wells, to test for lithium brine and to evaluate subsurface lithology and porosity in the Gaston Enrique, Norma Edith, and Viamonte properties. These exploration coreholes are designed to support expansion of the Resource Zone into these three, previously undrilled HMN Project properties. Proposed borehole locations are based on TEM results and include:
 - Gaston Enrique: One diamond corehole drilled to approximately 400 m depth;
 - Norma Edith: One diamond corehole drilled to at least 300 m depth; and
 - Viamonte: One diamond corehole drilled to at least 250 m depth.
- Two additional diamond exploration coreholes should be drilled and completed as observation wells, to test for lithium brine at depth below the current Resource Zone and to determine depth to basement in the Natalia Maria and Tramo properties. Proposed borehole locations include:
 - Natalia Maria: One diamond corehole should be drilled east of the existing boreholes, to at least 500 mbgs or until the Compact Halite unit is fully intersected, to test for permeability within the Compact Halite unit and for presence of deeper brine aquifers; and
 - Tramo: One diamond corehole should be drilled between the two existing drill platforms to at least 450 mbgs or until basement is intersected.
- The Geological and Resource Models should be updated based on diamond drilling results, to potentially increase the size of the Resource Zone.

For the ongoing monitoring program:

- Dataloggers should be installed at selected wells in Alba Sabrina, Natalia Maria, and Tramo, to continuously monitor water level responses to weather events and pumping at adjacent wells.
- Collection of meteorological data should continue from the Santa Rita weather station.
- Survey collection should continue to support environmental studies required to sustain permitting.

Proposed exploration activities and estimated costs are summarized in Table 26.1. It is considered feasible to complete all field activities and reporting related to Reserve Estimates within one year (2023-24 field season). Activities related to an Updated Resource Estimate could be completed in conjunction with the Reserve activities or in the following 2024-2025 field season.

Some activities, including meteorological, water level, and other environmental monitoring, would be ongoing. The cost of the engineering program required to advance the HMN Project to the Reserves stage is beyond the scope of this Technical Report. Consequently, engineering recommendations are not addressed herein and will be covered in an upcoming updated PEA.

Table 26.1: Cost estimates for the proposed exploration program at the HMN Project.

Item	Unit Cost (US\$ / unit)	Quantity	Estimated Cost (US\$)
Reserve Estimate			
Rotary drilling with pumping well installation (10" and 8")	1600	900 m	1,440,000
Long-term pumping tests	100,000	3	300,000
Slug tests on 2022-23 Program observation wells	20,000	11	220,000
Brine geochemistry analysis	230	30	6900
Preliminary numerical flow and reserve model & updated water balance			200,000
<i>Subtotal – Reserve Estimate</i>			2,166,900
Updated Resource Estimate			
Drilling platforms & access	100,000	5	500,000
Diamond drilling (HQ) with core recovery, packer sampling, and observation well installation	1500	1900 m	2,850,000
Brine geochemistry analysis	230	125	28,750
Core RBR analysis	250	125	31,250
Technical analyses & Resource update			150,000
<i>Subtotal – Resource Estimate</i>			3,560,000
Field Logistics, Support, and Reporting			
Camp logistics and associated program logistical costs			1,000,000
Project supervision & site support			300,000
QP services & reporting			150,000
<i>Subtotal – Field Logistics, Support, and Reporting</i>			1,450,000
Ongoing Monitoring			
Brine level monitoring and datalogger installation			500,000
Meteorological & environmental monitoring			200,000
<i>Subtotal – Ongoing Monitoring</i>			700,000
Subtotal (rounded up to nearest 100,000)			7,900,000
Contingency 5%			395,000
Total (rounded up to nearest 100,000)			8,300,000

27 REFERENCES

- Alonso, R. N. (2020). History of lithium in the Puna. *Revista Facultad de Ciencias Exactas, Físicas y Naturales*, 7(Supplement 1).
- ASTM. (2009). *American Society for Testing and Materials: Vol. 4.08*.
- AWC, & Reidel, F. (2017). *Resource Estimate for Lithium & Potassium Sal de los Angeles project* (Prepared for LithiumX) [NI 43-101 Technical Report]. Atacama Water Consultants (“AWC”).
- AWC & Worley. (2022). *Definitive Feasibility Study Update: Lithium Project, Stage One, III Región, Chile* (Prepared for Minera Salar Blanco (Lithium Power International)) [NI 43-101 Technical Report]. Atacama Water Consultants (“AWC”).
- Burga, E., Burga, D., Genck, W., & Weber, D. (2019). *Updated Mineral Reserve Estimate for the Cauchari-Olaroz Project, Jujuy Province, Argentina* (Prepared for Lithium Americas) [NI 43-101 Technical Report].
- Carrapa, B., Mpodozis, C., & Jordan, T. E. (2005). Tectono-stratigraphic evolution of the Andean Puna plateau and adjacent foreland basins of northwestern Argentina. *Basin Research*, 17(4), 417–439.
- Charrier, R., Pinto, L., & Rodríguez, M. (2007). Tectonostratigraphic evolution of the Andean Orogen in Chile. *Geological Society Special Publication*, 21–114.
- CIM. (2014). *CIM Definition Standards for Mineral Resources & Mineral Reserves*. https://mrmr.cim.org/media/1128/cim-definition-standards_2014.pdf
- CIM. (2022). *CIM Leading Practice Guidelines for Mineral Processing*. <https://mrmr.cim.org/media/1159/cim-leading-practice-guidelines-for-mineral-processing-2022.pdf>
- Conhidro, S. R. L. (2019). *Hydrogeological Study of Los Patos River Basin—Salar del Hombre Muerto*. Federal Investment Council – Government of the Province of Catamarca.
- De la Fuente, R. (2008). *Informe de Impacto Ambiental. Grupo Minera Meme, Salar del Hombre Muerto, Provincia de Catamarca* (Study prepared for Maktub Compañía, S.R.L.) [Environmental Report]. Grupo Minera Meme.
- DHI-WASY. (2021). *FEFLOW* [Computer software].
- ECA. (2022). *Línea de Base Ambiental y Social: Proyecto Hombre Muerto Norte, Los Andes Departamento, Salta Provincia* (Prepared for Lithium South Corp.) [Environmental Baseline Study]. EC & Asociados (“ECA”).
- Galan. (2019). *High-grade Maiden Lithium Resource Exceeds Expectations 685 Kt LCE @ 672 mg/l Li from Candelas North Zone* [Company Website]. Galan Lithium Ltd. (“Galan”) ASX Announcement. <https://wcsecure.weblink.com.au/pdf/GLN/02153826.pdf>.
- Galan. (2023, May 1). *Galan’s 100% Owned HMW Project Resource Increases to 6.6 MT LCE @ 880 mg/l Li (72% in Measured Category* [Company Website]. Galan Lithium Ltd. (“Galan”) ASX Announcement. <https://wcsecure.weblink.com.au/pdf/GLN/02660778.pdf>.
- GDH Group Engineering. (2019). *Preliminary Economic Assessment (PEA)—Pozuelos—Pastos Grandes Project. Salta, Argentina* (NI 43-101 Technical Report 85/11927). LSC Lithium.

https://www.miningnewsfeed.com/reports/PozuelosPastosGrandes_PEA_01172019.pdf

- Godfrey, L. V., Chan, L.-H., Alonso, R. N., Lowenstein, T. K., McDonough, W. F., Houston, J., Li, J., Bobst, A., & Jordan, T. E. (2013). The role of climate in the accumulation of lithium-rich brine in the Central Andes. *Applied Geochemistry*, 38, 92–102. <https://doi.org/10.1016/j.apgeochem.2013.09.002>
- Godfrey, L. V., Jordan, T. E., Lowenstein, T. K., & Alonso, R. L. (2003). Stable isotope constraints on the transport of water to the Andes between 22° and 26°S during the last glacial cycle. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 194(1–3), 299–317. [https://doi.org/10.1016/S0031-0182\(03\)00283-9](https://doi.org/10.1016/S0031-0182(03)00283-9)
- Golder, & Geos. (2021). *Updated Mineral Resource Estimate – Mariana Lithium Brine Project, Salta, Argentina* (Prepared for International Lithium Corp.) [NI 43-101 Technical Report]. Golder & Associates (“Golder”) and Geos Mining Minerals Consultants (“Geos”).
- GWI & Worley. (2021). *Feasibility Study – 3Q Project, Catamarca, Argentina* (Prepared for NEO Lithium Corp.) [NI 43-101 Technical Report]. Groundwater Insight Inc. (“GWI”) and Worley.
- Hains, D. H. (2012). *CIM Best Practice Guidelines for Resource and Reserve Estimation for Lithium Brines*. CIM Estimation Best Practice Committee.
- Hongn, D. F., & Seggiaro, R. E. (2001). *Hoja Geológica 2566-III, Cachi. Provincias de Salta y Catamarca* (Boletín 248; p. 94). Instituto de Geología y Recursos Minerales, Servicio Geológico Minero Argentino.
- Houston, J., & Jaacks, J. (2010). *Technical Report on the Sal de Vida Lithium Project, Salar de Hombre Muerto* (Prepared for Lithium One Inc.) [NI 43-101 Technical Report].
- Hydrominex. (2022). *Olaroz Resource Update, Olaroz Lithium Facility Stage 2 Technical Study, Jujuy Province* (Prepared for Allkem) [NI 43-101 Technical Report]. Hydrominex Geoscience (“Hydrominex”).
- HydroSOLVE, I. (2008). *AQTESOLV for Windows 95/98/NT/2000/XP/Vista: HydroSOLVE* (version 4.50.004 – Professional).
- IGN. (2022). *30 m Digital Elevation Models* [Geospatial Information Visualizer]. Instituto Geográfico Nacional (“IGN”). <https://mapa.ign.gob.ar/>
- Ley Nacional del Indígena, Law 23.302 (1985). <http://www.cidh.org/indigenas/indigenas.en.01/article.ii.htm>
- Integral. (2023). *Resource and Reserve Report, Pre-Feasibility Study, Salar del Hombre Muerto* (Prepared for Livent USA Corp.) [Pre-Feasibility Study]. Integral Consulting Inc. (“Integral”).
- Jordan, T., Alonso, R., & Godfrey, L. (1999). Tectónica, subsidencia y aguas en el salar Hombre Muerto, Puna Argentina. *14th Congreso Geológico Argentina, Proceedings, 1*, 245–256.
- Kasemann, S. A., Meixner, A., Erzinger, J., Viramonte, J. G., Alonso, R. N., & Franz, G. (2004). Boron isotope composition of geothermal fluids and borate minerals from salar deposits (central Andes/NW Argentina). *Journal of South American Earth Sciences*, 16(8), 685–697. <https://doi.org/10.1016/j.jsames.2003.12.004>
- KPC. (2019). *NI 43-101 Preliminary Economic Assessment Report for the Hombre Muerto Norte Project, Salta Province, Argentina*. (Prepared for NRG Metals Inc.) [NI 43-101 Technical Report]. Knight Piésold Consulting (“KPC”).

- Kraemer, P. E., Mpodozis, C., & Charrier, R. (1999). Tectonic development of the late Eocene to Miocene central Andes (33°-30°S), Chile. *Geological Society of American Bulletin*, 111(7), 1045–1065.
- Lowenstein, T. K., Li, J., Godfrey, L. V., & Jordan, T. E. (1996). *Andean Climate History from a Holocene–Pleistocene Salt Core, Salar del Hombre Muerto, Argentina*. GSA.
- MLA. (2020). Document. Manufacturas Los Andes (“MLA”).
- Montgomery. (2017). *Technical Report for the Hombre Muerto North Project, Salta and Catamarca Provinces, Argentina* (Prepared for NRG Metals Inc.) [NI 43-101 Technical Report]. Montgomery & Associates Consultores Limitada (“Montgomery”).
- Montgomery. (2018). *Technical Report Initial Measured Lithium and Potassium Resource Estimate Hombre Muerto North Project, Salta And Catamarca Provinces, Argentina* (Prepared for NRG Metals Inc.) [NI 43-101 Technical Report]. Montgomery & Associates Consultores Limitada.
- Montgomery. (2019). *Initial Exploration Results Salar de Tolillar Project; Salta Province, Argentina* (Montgomery & Associates Consultores Limitada, p. 85) [NI 43-101 Technical Report].
- Montgomery and GAI. (2012). *Measured, indicated, and inferred lithium and potassium resource, Sal de Vida project, Salar del Hombre Muerto, Catamarca-Salta* (Prepared for Lithium One Inc.) [NI 43-101]. Montgomery & Associates Consultores Limitada (“Montgomery”) and Geochemical Applications International (“GAI”).
- Montgomery, DRA Pacific Ltd., and Ausenco. (2021). *Sal de Vida Project Salar del Hombre Muerto Catamarca, Argentina* (Prepared for Galaxy Resources Ltd., p. 247) [NI 43-101 Technical Report]. Montgomery & Associates Consultores Limitada (“Montgomery”). <https://minedocs.com/21/Sal-de-Vida-TR-05282021.pdf>
- Montgomery, Gunne Metallurgy, and Ausenco. (2022). *Sal de Vida Project Salar del Hombre Muerto Catamarca, Argentina* (Prepared for Galaxy Lithium S.A., p. 273) [NI 43-101 Technical Report]. Montgomery & Associates Consultores Limitada (“Montgomery”).
- MOSA. (2002). *Methods of Soil Analysis* (Vol. 4). Physical Methods, Soil Science Society of America.
- MSR. (2023). *Virgen del Valle Litio Project* [Company Website]. Virgen Del Valle Litio. <https://vvl-lithium.com/language/en/home-ingles/>
- Orocobre Ltd. (2014, November 18). Tincalayu Historical Estimate Upgraded to JORC Compliant Resource. *Company News Release*. <https://www.asx.com.au/asxpdf/20141118/pdf/42tsbnrj2kjrjm.pdf>.
- POSCO. (2022, October 18). POSCO Holdings to invest in saltwater lithium factory in Argentina. *Company News Release*. <https://newsroom.posco.com/en/posco-holdings-to-invest-in-salt-water-lithium-factory-in-argentina-2/>.
- Ramos, V. A. (2009). Anatomy and global context of the Andes: Main geologic features and the Andean orogenic cycle. In S. M. Kay, V. A. Ramos, & W. R. Dickinson, *Backbone of the Americas: Shallow Subduction, Plateau Uplift, and Ridge and Terrane Collision*. Geological Society of America. [https://doi.org/10.1130/2009.1204\(02\)](https://doi.org/10.1130/2009.1204(02))
- Roskill. (2009). *Lithium Market Reports* [Mineral Information Services].
- Silva, D. S. F., & Boisvert, J. B. (2014). Mineral resource classification: A comparison of new and existing techniques. *Journal of the Southern African Institute of Mining and Metallurgy*, 114(3), 256–273.
- SQM. (2009). *US SEC Report Form 20-F* (US SEC Report Form 20-F 33–65728; Annual Filings). Sociedad

- 149eep149ca Y Minera de Chile S.A. (“SQM”).
- SRK. (2016). *Definitive Feasibility Study – Salar del Rincon Project, Salta, Argentina. NI 43-101 Technical Report prepared for Energi Group* (Prepared for Energi Group.) [NI 43-101 Technical Report]. SRK Consulting (“SRK”).
- Theis, C. V. (1935). The relation between the lowering of the piezometric surface and the rate and duration of discharge of a well using groundwater storage. *American Geophysical Union Transactions*, 16, 519–524.
- UN DESA. (2023). *The Sustainable Development Goals Report 2023: Special Edition—July 2023* (p. 80). United Nations Department of Economic and Social Affairs (“UN DESA”). <https://unstats.un.org/sdgs/report/2023/>
- Vinante, D., & Alonso, R. N. (2006). Evapofacies del Salar Hombre Muerto, Puna Argentina: Distribución y génesis. *Revista de la Asociación Geológica Argentina*, 61(2), 286–297.
- Voss, N. (2002). The central Andean Altiplano-Puna Plateau: A case for cold and 149eep lithospheric roots of plateau uplift? *Earth and Planetary Science Letters*, 203(3–4), 743–757.
- WMC. (1994). *Salar del Hombre Muerto*. Water Management Consultants (“WMC”).

28 LIST OF ABBREVIATIONS

%	percentage	Hz	hertz
°C	temperature in degrees Celsius	ICP-OES	Inductively Coupled Plasma – Optical (Atomic) Emission Spectrometry
2D	two dimensional	IFCS	Interlayered Fine and Coarse Sediments
3D	three dimensional	INBEMI	Instituto de Beneficio de Minerales
ACP	Archaeological Contingency Plan	K	potassium
ASI	Alex Stewart International (lab)	K/Li	potassium to lithium ratio
B	boron	km	kilometre
Ba	barium	km ²	square kilometres
BQZ	Brecciated Quartz	km ² /BH	square kilometres per borehole
Ca	calcium	km ³	cubic kilometres
Ca/Li	calcium to lithium ratio	km/h	kilometres per hour
CaCO ₃	calcium carbonate	L	litre
CaO	calcium oxide	L/s/m	litres per second per metre
Ca(OH) ₂	calcium hydroxide	LCE	Lithium Carbonate Equivalent
Ca(SO ₄)	calcium sulphate	Li	lithium
CDGs	Sustainable Development Goals	Li ₂ CO ₃	lithium carbonate
CH	Compact Halite	LIS	Lithium South Development Corp.
CIM	Canadian Institute of Mining Metallurgy and Petroleum	LPGMP	Leading Practice Guidelines for Mineral Processing
Cl ⁻	chloride	m	metre
cm	centimetre	m ³	cubic metres
CO ₃	carbonate	masl	metres above sea level
CSAMT	Controlled Source Audio-frequency Magnetotelluric survey	mbgs	metres below ground surface
CSR	Corporate Social Responsibility	m ² /d	square metres per day
DLE	Direct Lithium Extraction	m ³ /hr	cubic metres per hour
DDH	Diamond Drill Hole	m ³ /s	cubic metres per second
DEM	Digital Elevation Model	m ³ /yr	cubic metres per year
E	east	Ma	Mega annum, 1,000,000 years
E ₀	Potential evaporation	MAusIMM	Member of the Australasian Institute of Mining and Metallurgy
EBS	Environmental Baseline Study	mg	milligram
EIR	Environmental Impact Report	Mg	magnesium
EIS	Environmental Impact Statement	mg/L	milligrams per litre
Fe	iron	mg ² /L ²	square milligrams per square litre
g/cm ³	grams per cubic centimetre	Mg/Li	magnesium to lithium ratio
g/L	grams per litre	Mg(OH) ₂	magnesium hydroxide
GSA	GeoSystems Analysis Inc. (lab)	mm	millimetre
GW	Groundwater Insight Inc.	Mn	manganese
H ₂ O	water	Mt	million tonnes
ha	hectare	N	north
HCO ₃	bicarbonate	Na	sodium
IHS	Interbedded Halite and Sediments		
HMN	Hombre Muerto North Project		
hr	hour		

NRG	NRG Metals, former name of LIS	SO ₄	sulphate
ohm-m	ohm metres	SO ₄ /Li	sulphate to lithium ratio
P.Geo.	Professional Geoscientist	Sr	strontium
pH	measure of acidity or alkalinity	S _y	Specific Yield
P _t	total porosity	TDS	Total Dissolved Solids
QA/QC	Quality Assurance/Quality Control	TEM	Transient Electromagnetic survey
R	resistivity	UMS	Upper Middle Sediments
RBR	rapid brine release	UN	United Nations
RMS	root mean square	US\$	United States dollar
S	south	W	west
SDGs	Sustainable Development Goals	W/m ²	Watts per square metre
SHM	Salar del Hombre Muerto		

29 DATE AND SIGNATURE PAGES

I, Mark W.G. King, served as supervising QP for this Technical Report, entitled UPDATED MINERAL RESOURCE ESTIMATE - HOMBRE MUERTO NORTH LITHIUM PROJECT. It was prepared for Lithium South Development Corp. and has an effective date of September 5, 2023.

In my role as QP, I do hereby certify that:

1. I am employed as President and Senior Hydrogeologist with Groundwater Insight Inc., 3 Melvin Road, Halifax, Nova Scotia, B3P 2H5, telephone 902 223 6743, email king@gwinsight.com.
2. I have the following academic and professional qualifications and experience:
 - a. Academic
 - i. B.Sc. (Geology), Dalhousie University, Halifax, Nova Scotia, 1982
 - ii. M.A.Sc. (Civil Eng.), Technical University of Nova Scotia, 1987
 - iii. Ph.D. (Earth Science), University of Waterloo, Waterloo, Ontario, 1997
 - b. Professional
 - i. Registered Professional Geoscientist of Nova Scotia (membership #84); Serving on Admissions Board of the Association
 - ii. Member of Association of Groundwater Scientists and Engineers (membership #3002241)
 - c. Experience and Areas of Specialization Relevant to this Technical Report
 - i. Technical involvement in lithium brine projects, in various levels of detail, on more than 30 projects in Chile, Argentina, Nevada, Utah, California, Mongolia, and Germany
 - ii. Numerical modelling of groundwater flow and solutes in groundwater
 - iii. Field delineation and monitoring of solutes in groundwater
 - iv. Organic and inorganic groundwater geochemistry
 - v. 35 years of experience in groundwater quality and quantity projects
3. I am a qualified person (“QP”) for the purposes of National Instrument 43-101 – Standards of Disclosure for Mineral Projects (the “Instrument”).
4. While working on the current Technical Report, I visited the Lithium South Hombre Muerto Project on October 12-13, 2022, and on March 22, 2023.
5. I am responsible for technical review and supervising the preparation of all sections, except for Section 1.12 and Section 13, of this Technical Report.
6. I am independent of Lithium South as described in Section 1.5 of the Instrument.
7. I have had no previous involvement with Lithium South.
8. I have read the Instrument, and this Technical Report has been prepared in compliance with the Instrument.
9. As of the effective date of this Technical Report, and to the best of my knowledge, information, and belief, this Technical Report contains all scientific and technical information that is required to be disclosed to make this Technical Report not misleading.

Effective Date: September 5, 2023

Date of Signing: November 3, 2023

“Mark King”

“sealed”

Original signed and stamped by

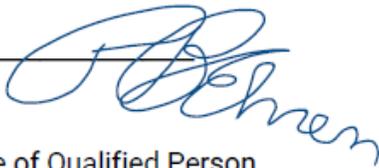
Mark W.G. King, Ph.D., P. Geo., F.G.C

I, Peter Ehren, pursuant to section 8.3 of National Instrument 43-101 – Standards for Disclosure of Mineral Projects, consent to the public filing of the technical report titled “Updated Mineral Resource Estimate – Hombre Muerto North Project”, prepared by Lithium South Development Corporation, dated September 5th, 2023.

I have read the document and confirm that it fairly and accurately represents the information in the technical report in Sections 13 (Mineral Processing and Metallurgical Testing), which I am responsible for as a Qualified Person.

The undersigned also consents to the use of extracts from, or a summary of, the technical report in news releases or other Lithium South Development Corporation Discloser.

Dated this October 31, 2023.



Signature of Qualified Person

Peter Ehren

Print name of Qualified Person

Appendix A: PUMPING TEST RESULTS

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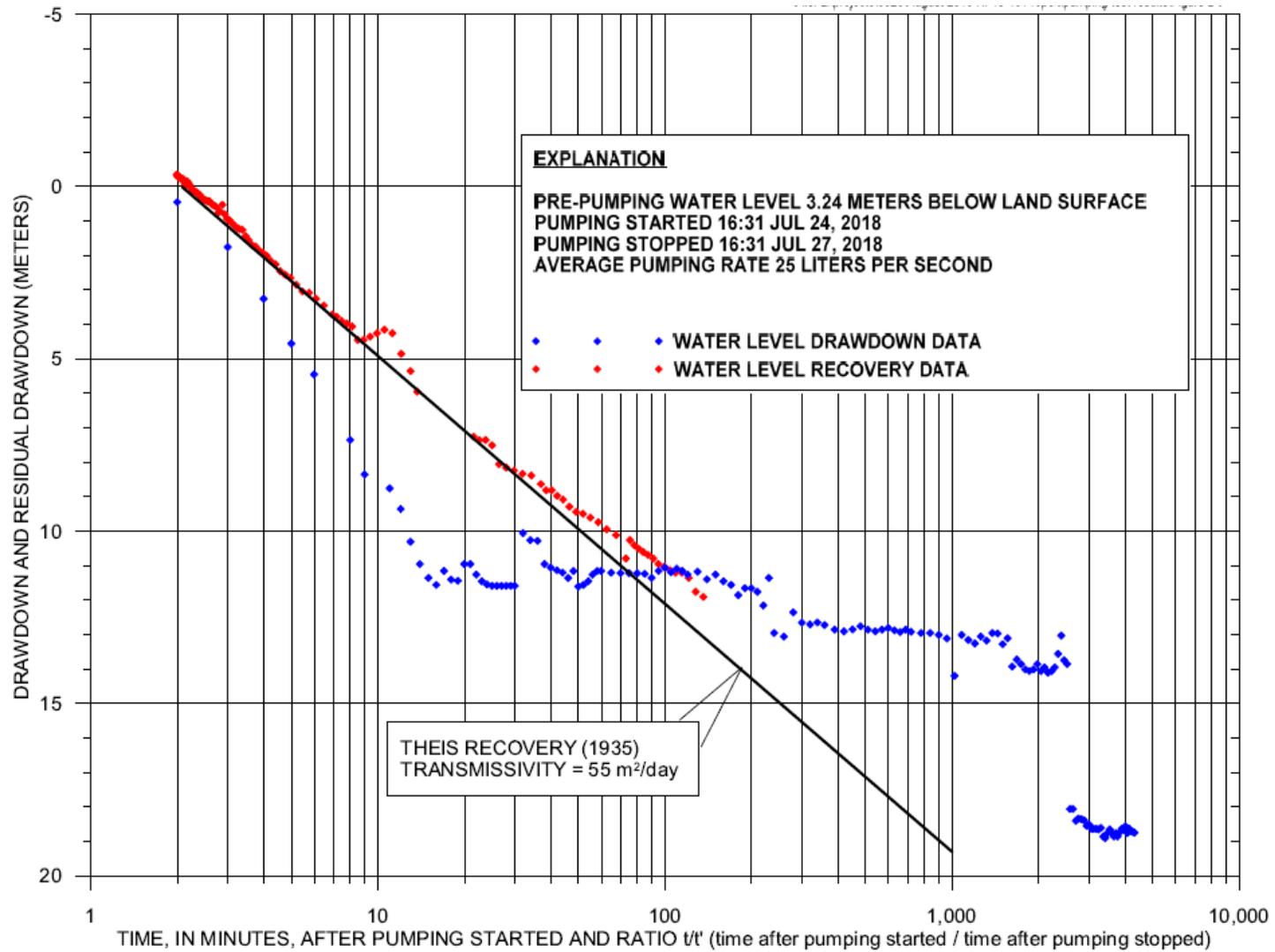


Figure A.1: Drawdown and recovery graph for 72-hr pumping test at pumping well TWW18-01 (Montgomery, 2018).

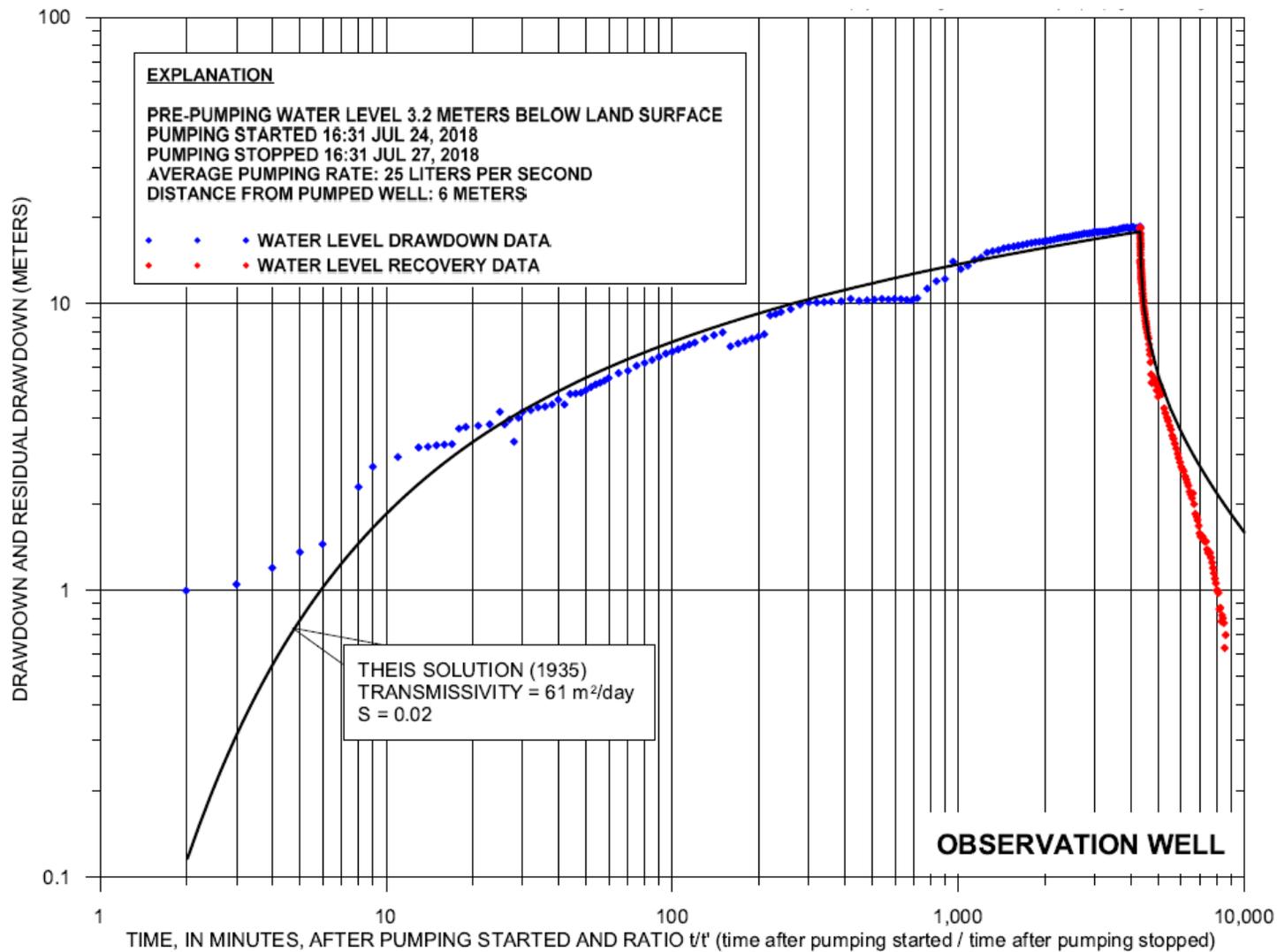


Figure A.2: Drawdown and recovery graph for observation well TH18-01, during 72-hr pumping test at pumping well TWW18-01 (Montgomery, 2018).

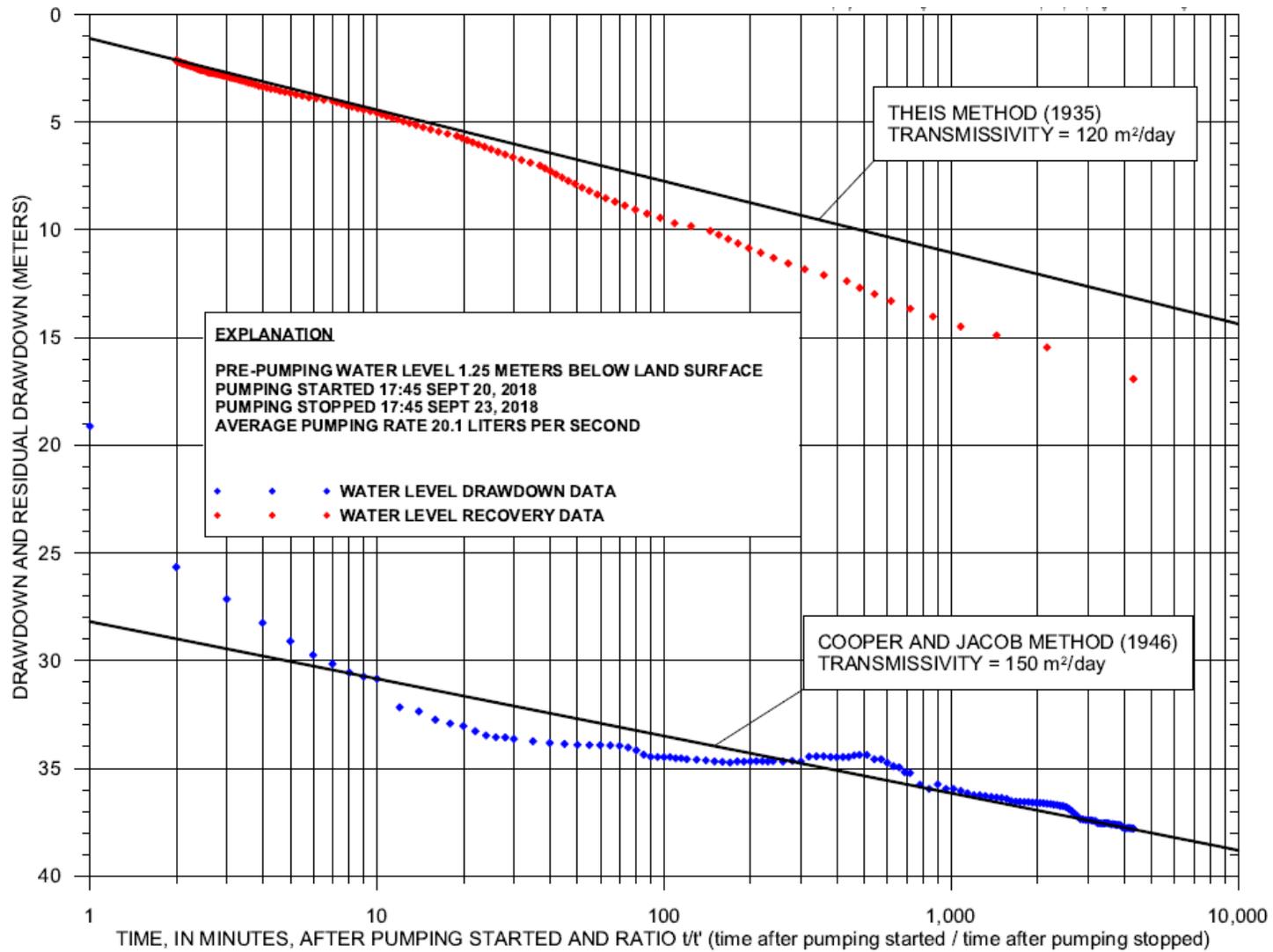


Figure A.3: Drawdown and recovery graph for 72-hr pumping test at pumping well TWW18-02 (Montgomery, 2019).

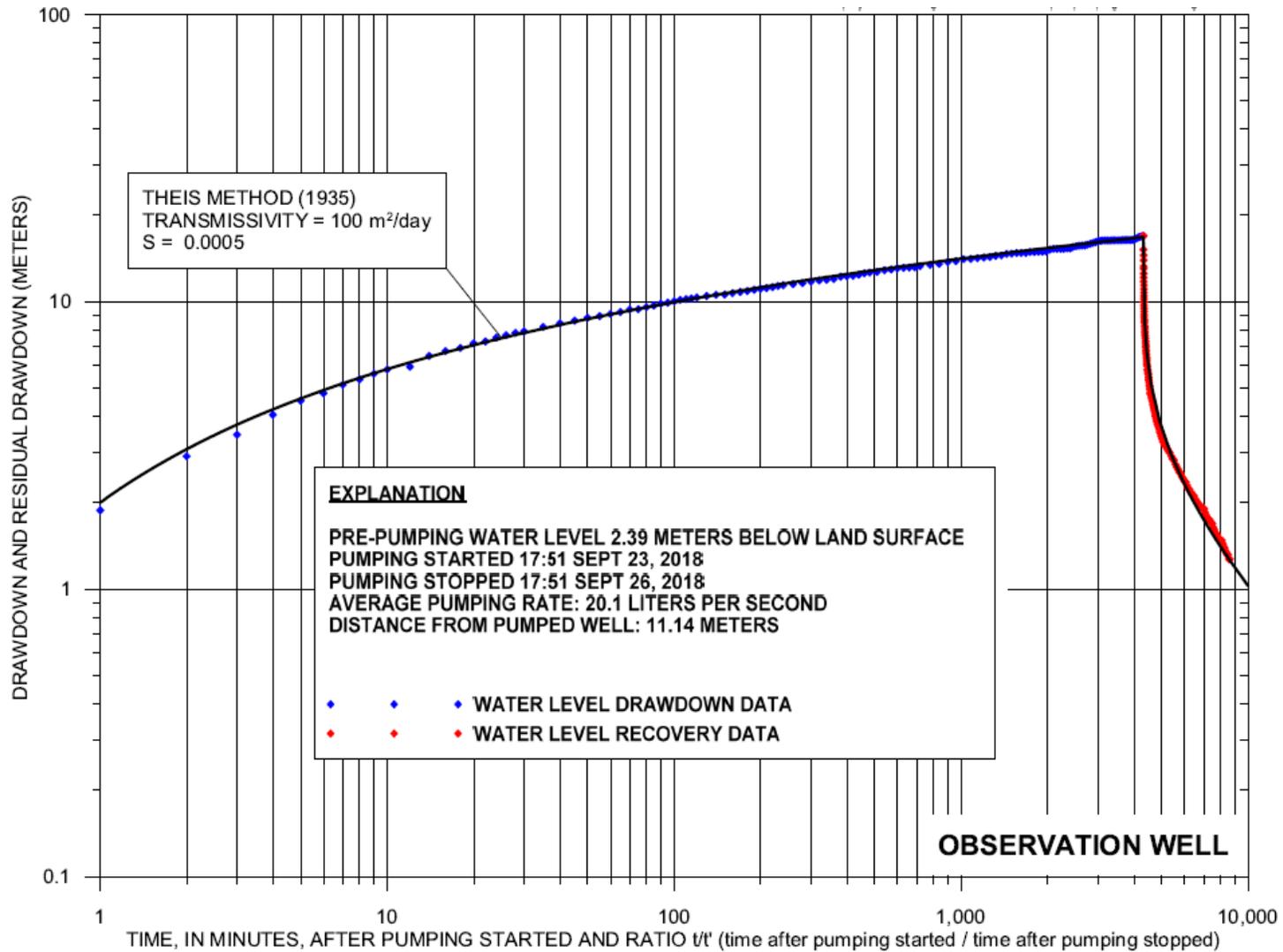


Figure A.4: Drawdown and recovery graph for observation well TH18-02, during 72-hr pumping test at pumping well TWW18-02 (Montgomery, 2019).

Appendix B: BOREHOLE AND WELL SPECIFICATIONS

Table B.1: Borehole specifications for the 2018 and 2022-23 HMN Project drilling programs.

Property	Platform	Borehole ID	Depth (m)	Drilling Method	Well Construction				Type of Well	* Downhole Geophysical Surveys	Sampling				Packer Sampling	
					Gravel Interval		Screen Interval				# Sy Samples Collected	# Sy Samples Analyzed	# Composite Brine Samples	# Depth-Discrete Brine Samples	From (upper; m)	To (lower; m)
					From (upper; m)	To (lower; m)	From (upper; m)	To (lower; m)								
Alba Sabrina	DDH-AS22-01	299	Diamond	5	264	56	264*	Obs Well	SP NS NL	13	7	3	7	70	72	
														95	97	
														120	122	
														149	150	
														180	182	
														210	211	
	DDH-AS22-02	411	Diamond, Tricone	180	265	188	320	Obs Well	SP NS NL	14	11	1	6	245	247	
														61	62	
														84	85	
														47	128	
														215	216	
														342	345	
	DDH-AS22-03	262	Diamond	5	188	24	188*	Obs Well	SP NS NL	15	14	1	6	366	368	
														57	58	
														66	67	
														109	110	
														130	131	
														165	167	
	DDH-AS22-04	270	Diamond	5	228	15	228*	Obs Well	SP SPR NS NL	15	7	1	10	220	260	
														52	53	
														68	69	
														88	89	
														109	110	
														121	122	
														145	146	
														158	159	
														193	194	
														201	202	
	DDH-AS22-05	218	Diamond	5	225	9	228*	Obs Well	SP NS NL	6	3	1	8	219	220	
														35	41	
														52	53	
														66	69	
														90	91	
														105	106	
														121	122	
														141	142	
180	181															
DDH-AS22-06	182	Diamond	60	138	66	138	Obs Well	SP NS NL	6	5	1	3	60	61		
													87	88		
													110	111		
DDH-AS22-07	152	Diamond	80	150	90	140	Obs Well	SP NS NL	2	1	1	1	102	103		
DDH-AS22-07A	143	Diamond	70	143	80	138	Obs Well	C	3	1	1	1	53	54		
DDH-AS23-08	203	Diamond	90	201	100	200	Obs Well	-	-	-	1	-	-	-		

* intervals of screened casing and blind casing
 ** SP = spontaneous potential; SPR = single point resistivity; NS = normal short resistivity; NL = normal long resistivity; C = conductivity

Table B.1 continued: Borehole specifications for the 2018 and 2022-23 HMN Project drilling programs.

Property	Platform	Borehole ID	Depth (m)	Drilling Method	Well Construction				Type of Well	Downhole Geophysical Surveys	Sampling				Packer Sampling	
					Gravel Interval		Screen Interval				# Sy Samples Collected	# Sy Samples Analyzed	# Composite Brine Samples	# Depth-Discrete Brine Samples	From (upper; m)	To (lower; m)
					From (upper; m)	To (lower; m)	From (upper; m)	To (lower; m)								
Natalia Maria	NM-1	DDH-NM23-01	326	Diamond	55	105	60	100	Obs Well	SP NS NL	11	10	0	9	24	25
															45	46
															56	57
															80	81
															110	111
															120	121
															140	141
															161	162
															188	189
		PW-NM23-01	46	Tricone	18	45	20	41	Obs Well	-	-	-	1	-	-	-
Tramo	T-1	TH18-01	401	Diamond	1	401	58	401*	Obs Well	-	37	10	-	33	9	10
															18	19
															28	29
															37	38
															58	59
															70	71
															78	79
															90	91
															100	101
															109	110
															121	122
															133	134
															145	146
															157	158
															193	194
															211	212
															244	245
															255	256
															266	267
															275	276
															284	285
															295	296
															319	320
															338	339
															359	360
															377	378
															398	401
		TWW18-01	401	Rotary	0	401	15	381*	Pump Well	SP NS NL	-	-	14	-	-	-
		TH18-02	281	Diamond	1	198	24	180*	Obs Well	SP SPR NS NL	10	10	-	10	19	21
															41	42
															59	61.5
															91	92
															141	142.5
															173	174
															182	181
															228.5	230.5
		TWW18-02	400	Rotary	2	378	12	378*	Pump Well	SP NS NL	-	-	7	-	-	-

* intervals of screened casing and blind casing

** SP = spontaneous potential; SPR = single point resistivity; NS = normal short resistivity; NL = normal long resistivity; C = conductivity

Appendix C: VARIOGRAMS AND BRINE GRADE INTERPOLATIONS

Table C.1: Statistics for fit of measured to interpolated lithium concentrations at sample locations.

Statistic	Project Sites			Off-Site
	Alba Sabrina	Natalia Maria	Tramo	All
Count of Samples	42	9	35	118
Mean Residual (mg/L)	-1.1	2.1	-0.2	-1.3
Absolute Mean Residual (mg/L)	6.0	8.3	10.1	52.7
Root Mean Squared Residual (mg/L)	11.2	10.4	14.1	90.8
Average Measured Concentration (mg/L)	698.7	1175.8	838.9	872.6
Average Interpolate Concentration (mg/L)	699.9	1173.7	839.1	873.9

Notes: Residual calculated as measured subtract interpolated concentration and rounded to one decimal.

Table C.2: Statistics for fit of measured to interpolated boron concentrations at sample locations.

Statistic	Project Sites			Off-Site
	Alba Sabrina	Natalia Maria	Tramo	All
Count of Samples	42	9	35	117
Mean Residual (mg/L)	0.1	0.8	-0.2	-0.5
Absolute Mean Residual (mg/L)	4.9	2.9	13.1	13.7
Root Mean Squared Residual (mg/L)	9.3	3.7	20.6	23.6
Average Measured Concentration (mg/L)	491.0	511.2	372.5	391.7
Average Interpolate Concentration (mg/L)	490.9	510.5	372.6	392.2

Notes: Residual calculated as measured subtract interpolated concentration and rounded to one decimal.

Table C.3: Statistics for fit of measured to interpolated calcium concentrations at sample locations.

Statistic	Project Sites			Off-Site
	Alba Sabrina	Natalia Maria	Tramo	All
Count of Samples	42	9	35	117
Mean Residual (mg/L)	-1.7	-2.2	1.8	1.8
Absolute Mean Residual (mg/L)	18.5	3.7	18.0	47.0
Root Mean Squared Residual (mg/L)	35.7	4.7	29.1	81.1
Average Measured Concentration (mg/L)	498.2	487.6	950.9	887.4
Average Interpolate Concentration (mg/L)	499.6	489.8	949.1	885.6

Notes: Residual calculated as measured subtract interpolated concentration and rounded to one decimal.

Table C.4: Statistics for fit of measured to interpolated potassium concentrations at sample locations.

Statistic	Project Sites			Off-Site
	Alba Sabrina	Natalia Maria	Tramo	All
Count of Samples	42	9	35	117
Mean Residual (mg/L)	-5.0	20.3	-22.0	30.6
Absolute Mean Residual (mg/L)	60.7	76.6	92.1	719.2
Root Mean Squared Residual (mg/L)	111.6	108.2	133.5	1,395.8
Average Measured Concentration (mg/L)	7,119.8	10,374.9	7,286.8	9,888.2
Average Interpolate Concentration (mg/L)	7,124.8	10,354.6	7,308.8	9,857.6

Notes: Residual calculated as measured subtract interpolated concentration and rounded to one decimal.

Table C.5: Statistics for fit of measured to interpolated sodium concentrations at sample locations.

Statistic	Project Sites			Off-Site
	Alba Sabrina	Natalia Maria	Tramo	All
Count of Samples	42	9	35	117
Mean Residual (mg/L)	-5.0	20.3	-22.0	30.6
Absolute Mean Residual (mg/L)	60.7	76.6	92.1	719.2
Root Mean Squared Residual (mg/L)	111.6	108.2	133.5	1,395.8
Average Measured Concentration (mg/L)	7,119.8	10,374.9	7,286.8	9,888.2
Average Interpolate Concentration (mg/L)	7,124.8	10,354.6	7,308.8	9,857.6

Notes: Residual calculated as measured subtract interpolated concentration and rounded to one decimal.

Table C.6: Statistics for fit of measured to interpolated magnesium concentrations at sample locations.

Statistic	Project Sites			Off-Site
	Alba Sabrina	Natalia Maria	Tramo	All
Count of Samples	42	9	35	117
Mean Residual (mg/L)	-1.5	3.5	3.4	-4.4
Absolute Mean Residual (mg/L)	13.9	16.2	61.4	139.9
Root Mean Squared Residual (mg/L)	24.0	21.6	122.1	241.3
Average Measured Concentration (mg/L)	2,483.3	3,125.4	2,459.0	2,502.0
Average Interpolate Concentration (mg/L)	2,484.8	3,122.0	2,455.6	2,506.4

Notes: Residual calculated as measured subtract interpolated concentration and rounded to one decimal.

Table C.7: Statistics for fit of measured to interpolated sulphate concentrations at sample locations.

Statistic	Project Sites			Off-Site
	Alba Sabrina	Natalia Maria	Tramo	All
Count of Samples	42	9	35	117
Mean Residual (mg/L)	-16.2	26.4	-31.5	-4.7
Absolute Mean Residual (mg/L)	199.5	30.8	117.8	39.0
Root Mean Squared Residual (mg/L)	338.4	49.0	168.1	63.4
Average Measured Concentration (mg/L)	13,746.0	13,278.2	9,656.2	10,420.8
Average Interpolate Concentration (mg/L)	13,761.2	13,251.8	9,687.7	10,425.5

Notes: Residual calculated as measured subtract interpolated concentration and rounded to one decimal.

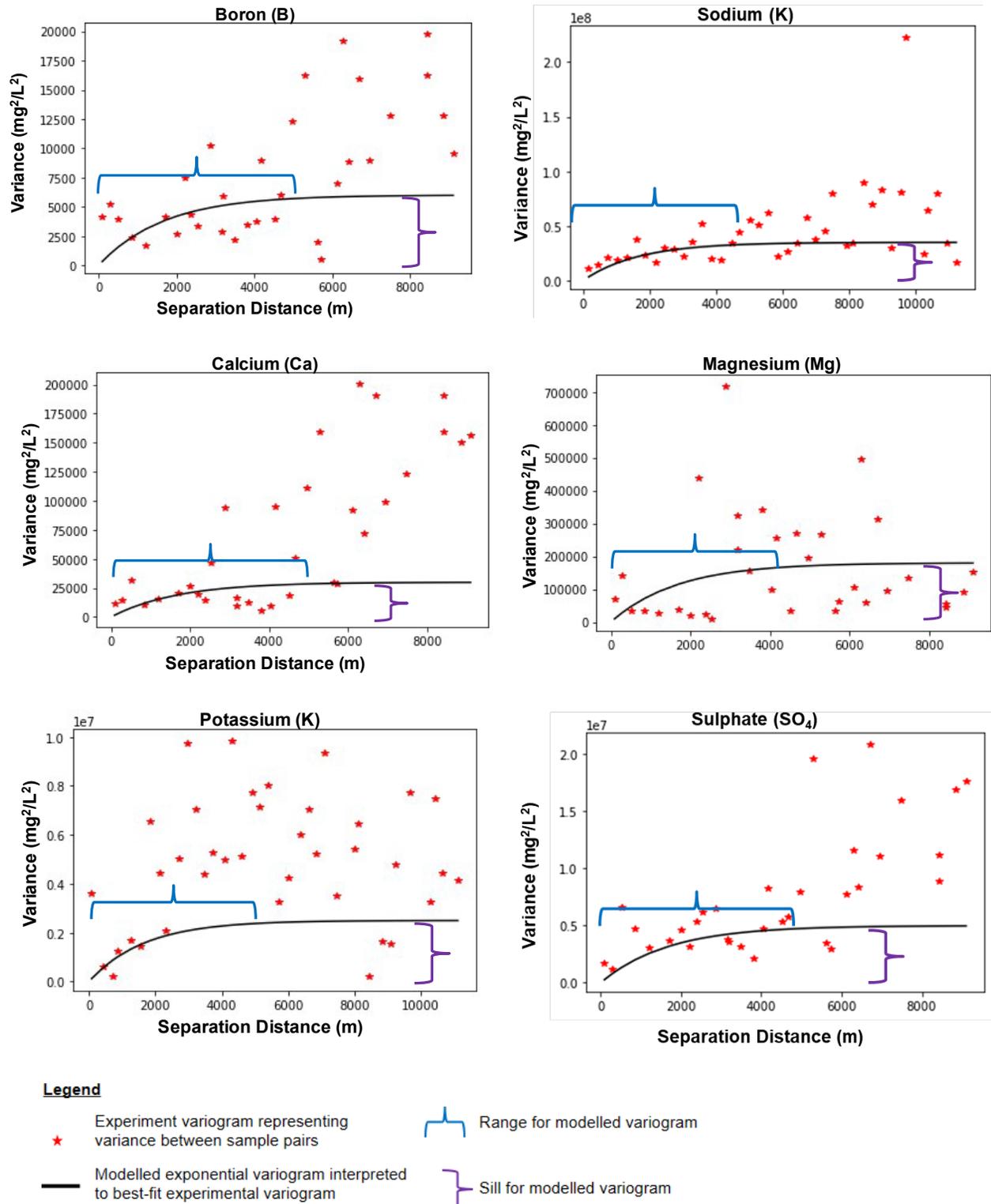
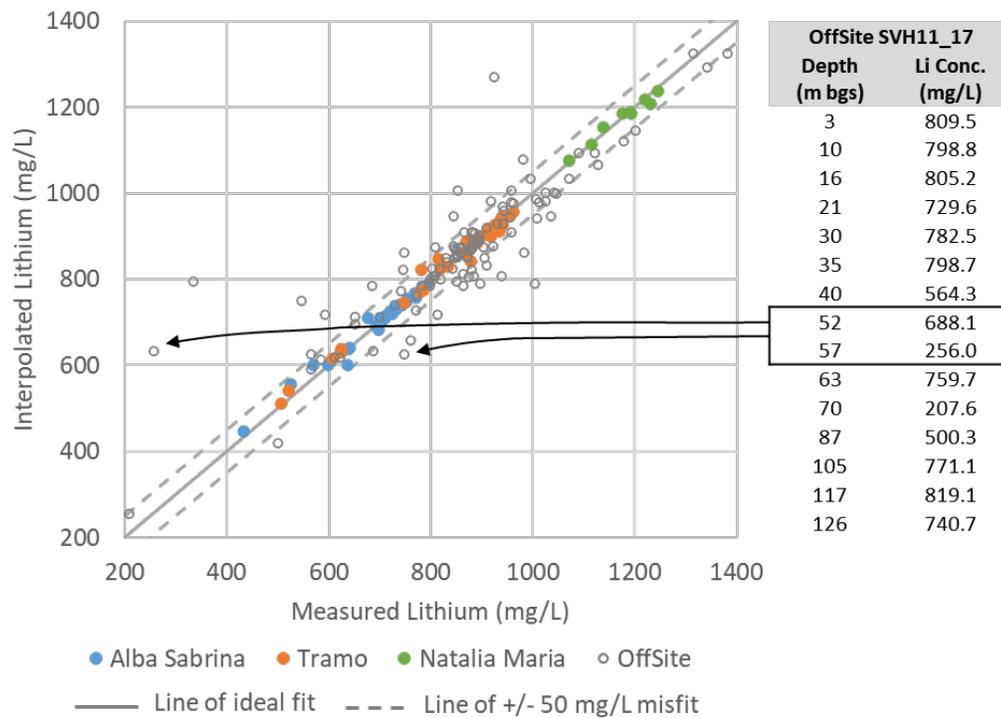
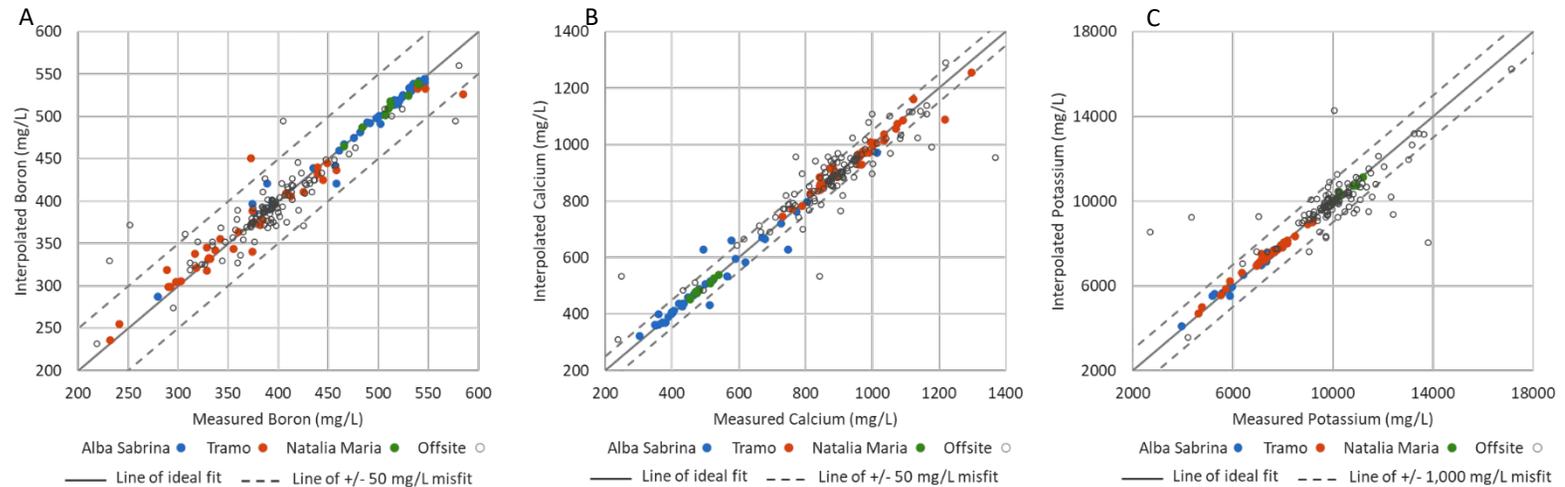


Figure C.1: Variograms for boron, calcium, potassium, sodium, magnesium, and sulphate.

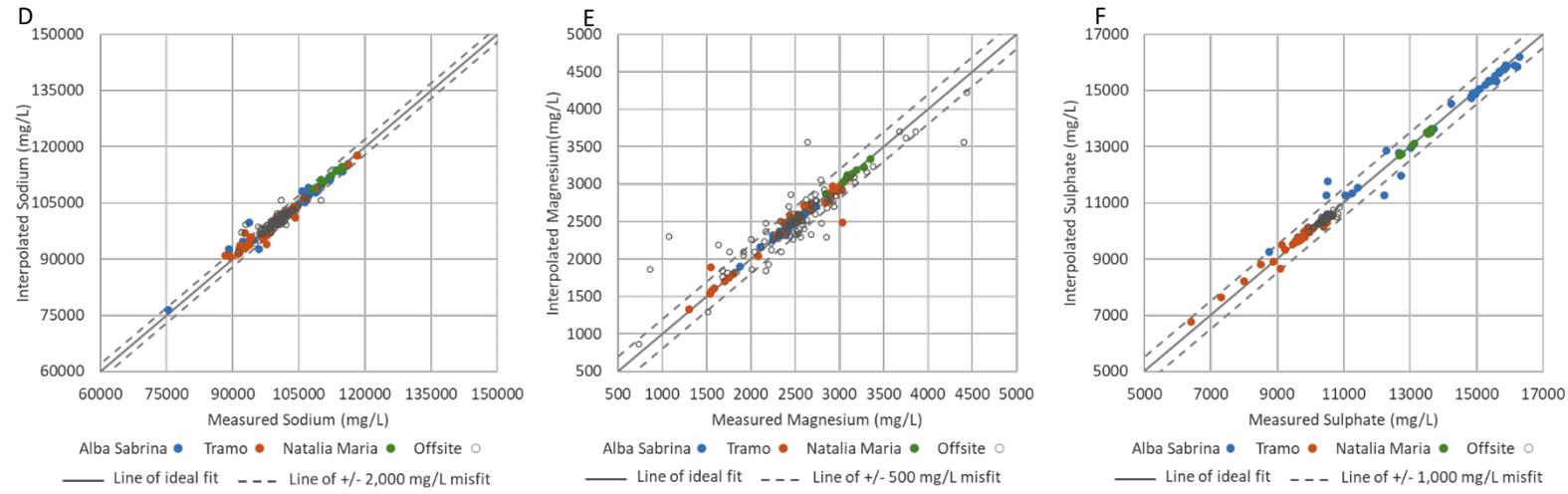


Note: Scatter plot shows a greater localized misfit for off-site data. Misfit is greatest where multiple lithium samples having a large variability in concentration were within the same (or adjacent) calculation cells of Resource Model. For example, at SVH11_17 samples for depth intervals of 52 m bgs and 57 m bgs were within the same calculation cell, which results in that cell having an interpolated value (of 633 mg/L) that is a blend concentration of these samples.

Figure C.2: Fit between measured and 3D interpolated concentrations at sample locations for lithium.



Note: Measured concentrations were not available at offsite sample locations; measured values were estimated based on their relationship to the trend of lithium concentrations at coincident site sample locations..



Note: Measured concentrations were not available at offsite sample locations; measured values were estimated based on their relationship to the trend of lithium concentrations at coincident site sample locations..

Figure C.3: Fit between measured and 3D interpolated concentrations at sample locations for A) boron, B) calcium, C) potassium, D) sodium, E) magnesium, and F) sulphate.

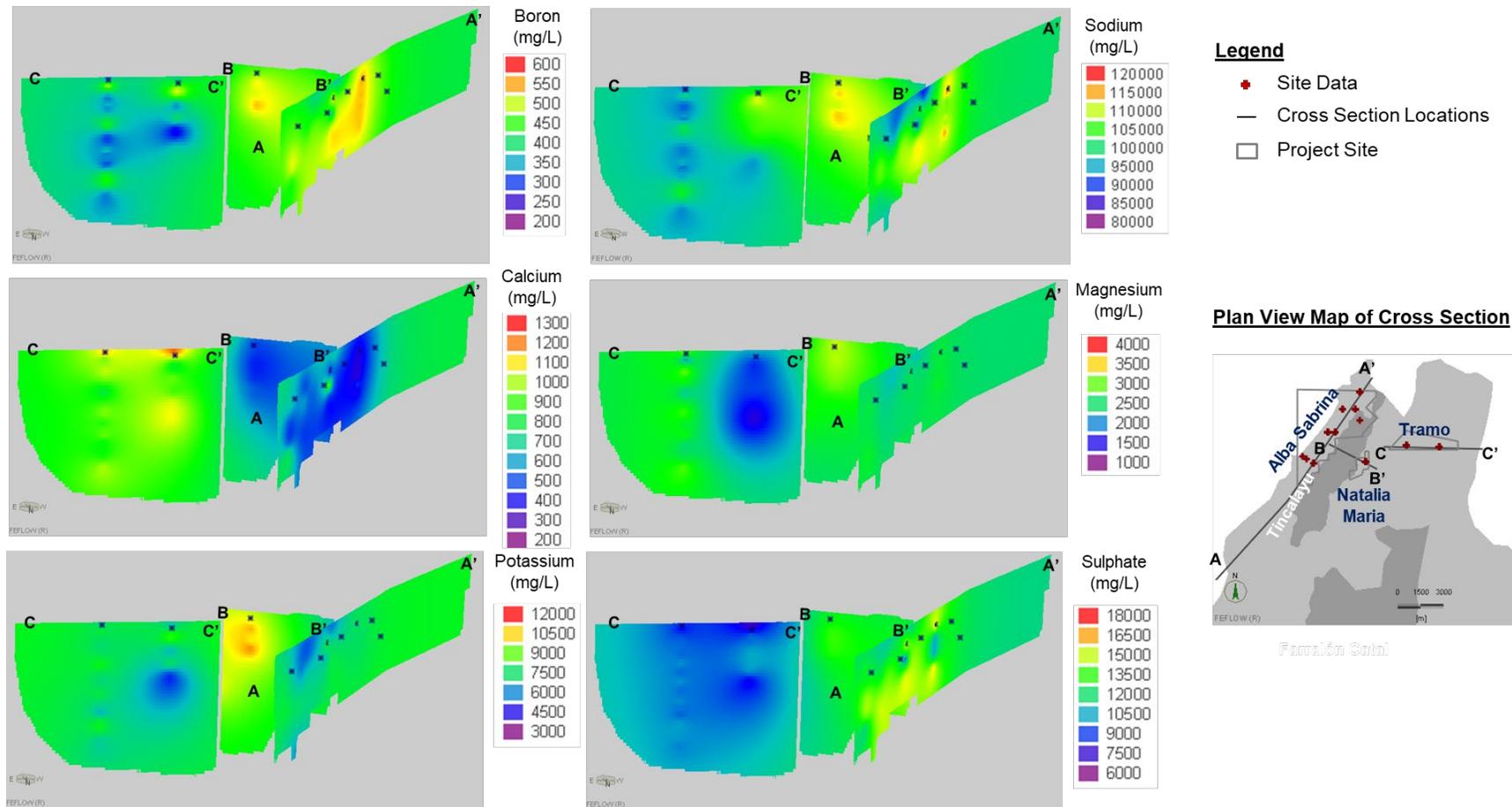


Figure C.4: 3D view of interpolated concentrations for boron, calcium, potassium, sodium, magnesium, sulphate at cross sections through Project site areas.