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NI 43-101 TECHNICAL REPORT AND MINERAL RESOURCE ESTIMATE UPDATE FOR THE BASIN LITHIUM PROJECT

Arizona, USA

Prepared For
Bradda Head Lithium Ltd

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Report Date: August 12, 2024
Effective Date: July 2, 2024

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1. EXECUTIVE SUMMARY

1.1 Introduction

ABH Engineering Inc (ABH) was contracted by Bradda Head Lithium Ltd (the Company or BHL) to complete an updated Mineral Resource Estimate (MRE) NI 43-101 and JORC compliant Technical Report for the Basin Lithium Project in Arizona.

BHL is headquartered in Douglas, Isle of Man, United Kingdom. BHL is quoted on the AIM of the London Stock Exchange with the ticker of BHL, on the TSX-V as BHLI.

The scope of work assumed by the authors was to prepare an updated MRE for the Basin Project and provide recommendations on future work required to expand the project to Preliminary Economic Assessment (PEA) stage in the future which would be the next desirable step for the project.

1.1.1 Qualifications and Experience

The Qualified Person/Competent Person (QP/CP) responsible for this report are Damir Cukor, P. Geo. And Brent Hilscher, P.Eng. Damir has over 30 years' experience in the mining industry as an exploration geologist, exploration manager, resource geologist as well as being a QP on a number of projects. His most recent work was completing a Maiden Resource Estimate for Nevada Sunrise Metals at their Gemini Lithium Project. Brent has over 24 years of combined experience in process operations, engineering, economics, and design, on a variety of metals, including: lithium, gold, silver, copper, molybdenum, lead and zinc deposits located throughout the world.

1.1.2 Scope of Work and Limitations

The assessment of mineral resources has been based on various technical-economic conditions at the time of writing. Due diligence has been carried out to ensure that the values used reflect market conditions at the time of writing. These values can change significantly in short time spans which could materially affect the MRE. There are risks which are inherent in mining and not all risks are foreseeable. Certain risks may have an impact on the mining operation at all stages of a project. ABH does not guarantee that any of these events won't occur during the life of the mine, however, all actions have been carefully considered to mitigate the risks of events occurring.

1.2 Reliance on Other Experts

ABH depended on experts engaged by BHL, specifically Joey Wilkins, COO and Senior Project Manager, Hugo Zuniga.

A passive seismic survey was conducted by WIM in 2016. The data was then processed by Zenolith's geophysics consultant Resource Potentials based out of Perth, Australia.

BHL engaged Terravision Exploration to conduct a Ground Penetrating Radar (GPR) study on Basin East, West and North.

A gravity survey was also conducted over the entire project area by Tom Carpentar, a consultant with 35 years of experience in gravity data collection across North America.

Peter Guerrera of Lynker Corporation who conducted a Baseline Water Resources Report for the Basin Deposit as well as other areas surrounding the project area.

1.3 Property Description and Location

1.3.1 Property Description

The Basin Project is an exploration property focused on lithium clay, situated along the Basin-Wikieup clay belt in central western Arizona, USA, spanning approximately 50 km (30 mi). Originally named "Burro Creek," it is near a perennial stream. Located about 90 km northwest of Wickenburg in Yavapai County, the project comprises Basin East, the most developed section, with five drilling campaigns completed. An updated Mineral Resource Estimate (MRE), conducted by SRK and released on November 14, 2023, covers Basin East and the Basin East Extension under one Arizona State Mineral Lease (1.46 km^2) and two Arizona State Mineral Exploration Permits (2.33 km^2).

Additionally, BHLL holds 271 contiguous and overlapping placer and lode claims from the Bureau of Land Management (BLM) covering over 11.2 km^2, referred to as Basin West. Basin West Extension, further northwest, is also part of the holdings. Basin North, consisting of 55 claims totaling 2.27 km^2, lies immediately north of Basin East.

To date, no lithium mining operations have been conducted on the project. Nearby, BYK-Chemie GmbH operates a small quarry for specialty clays south of Basin East, while the Bagdad Mine, an active copper-molybdenum deposit operated by Freeport McMoRan, is located to the east of the claims. There are no known historical environmental liabilities associated with the Basin Project as of now.

1.3.2 Location

The project is located between Phoenix and Las Vegas in western Arizona, USA. The 3 areas that make up the project are Basin East including Extension, Basin West including Extension, and Basin North. The project coordinates are 34°34’00.0”N, 113°20’11.2”W (WGS84). The closest town is Bagdad which is 12.8 km (8.0 mi) to the East.

1.4 Accessibility, Climate, Local Resources, Infrastructure and Physiography

1.4.1 Accessibility

The Basin project can be accessed by a two-hour drive 120 kilometers (km) (75 miles (mi)) northwest from Wickenburg. Highway 93 can be taken for approximately 1 hour and then a dirt road south of Wikieup is taken east toward Six Mile Crossing on Burro Creek River

The closest major airport is Phoenix Sky Harbor International Airport located 200 km (125 mi) to the southeast.

1.4.2 Property Ownership

Basin Li Project comprises complex land position: Basin East is mostly located on Arizona State land; the 3 other project areas are located on Federal land administered by the BLM.

1.4.3 Climate

The project lies in the heart of the Sonoran Desert which registers on the Koppen Climate Classification as a subtropical steppe (BSh climate subtype). The climate is characterized by hot, dry summers and mild, slightly more humid winters making it a classic desert climate. The project location in the American Southwest significantly affects its temperature profile, precipitation patterns, daylight hours, sun exposure, and wind behavior.

1.4.4 Local Resources and Infrastructure

The Basin project is in a rural and desert region. There is a small quarry located to the south of Basin East license that is being operated on by a third-party. Burro Creek is a river that flows year-round in Arizona and a tributary of the Colorado River. Due to the isolation of the project, there aren't any local water users.

Bagdad Mine, operated by Freeport McMoRan, has a skilled workforce and the company town of Bagdad has around 2000 inhabitants. Wikieup is the second closest community with 135 locals.

The Bagdad Mine already has infrastructure in place such as a Tuscan Electric Co Inc. powerline, which could supply power to the project through an agreement with Freeport. There is also a 4-inch gas pipeline.

1.4.5 Physiography

The Basin East area features gently rolling hills with low to moderate relief, intersected by canyons and washes that flow into the Burro Creek valley. Elevations vary from 690 m (2,260 feet (ft)) above mean sea level along the riverbed to 810 m (2,660 ft) in the southeastern part of the Basin East area.

Being situated in a desert environment, the project has sparse surface water; thus, groundwater is the main source of water in the region. During previous drilling campaigns, the company had encountered groundwater upon intersecting basement rock. As an ongoing consideration, further studies will be conducted on groundwater distribution and flow. The neighboring mining operations may have had an effect on groundwater contamination - this will need to be taken into consideration in future baseline groundwater studies.

Burro Creek is a year-round stream and runs to the southwest eventually meeting up with the Colorado River.

1.5 History

Early exploration efforts in the region led to the identification of several different mineral deposits including copper, lead, zinc, silver, gold, tin, tungsten, molybdenum and uranium.

The Burro Creek Clay deposit, as it was then known as, is located on the western fringe of the Arizona Transition Zone and was discovered early in the 1900's. Portions of the area have been mined periodically since.

GSA Resources Inc did some exploration work on behalf of Vanderbilt Inc from April 1983 to September 1983. Thirty-two drill holes were sampled at the East Burro Creek clay deposit. And ten of these holes were on the current Basin East Lease area. The other holes were drilled on what is now BYK Chemie GmbH's specialty clay property. The mine produces small annual tonnages of cosmetic grade saponite clay.

None of these drill holes were reviewed by BHL or the QP, nor used in the resource estimate.

A 20-ton bulk sample was taken and sent to Vanderbilt's Murray Kentucky Plant for processing, however, ultimately hectorite from the Lyle deposit was chosen for their feed material instead.

Unilever and Proctor and Gamble (US) expressed interest in the clay for use in laundry detergents. Several samples were sent to Unilever, including a 544kg (1199 lb) from the upper part of historic drill hole BC-8-15-83. This hole was collared just to the west of the Basin East License area near the BYK mine.

1.5.2 Previous Mineral Resource Estimates (MRE)

BHL has conducted 5 drill programs at Basin East and Basin North.

From April-May 2018, BHL drilled 14 holes with a reverse circulation (RC) Drill rig for a total of 923.69 m (3030.47 ft). Drilling focused on the Basin East License area. The JORC compliant MRE was completed by Martin Pittuck of SRK (UK) who was the Competent Person (CP) responsible for the MRE. The effective date was September 21,2018. The resources of the JORC compliant MRE are given in Table 1-1 below:

Table 1-1: 2018 SRK MRE With a Cut-Off Grade of 300 ppm Li

Category	Tonnes (Mt)	Li (ppm)	Tonnes LCE
Measured	N/A	N/A	N/A
Indicated	N/A	N/A	N/A
Inferred	42.6	818	185,000

**Note that these resources are reported as undiluted without the consideration of recovery.*

During the first and second quarters of 2021, BHL expanded on the previous MRE by drilling an additional 10 holes using diamond drilling (DD) for a total length of 1110.47 m (3643.27 ft). The same CP from SRK (UK) was responsible for the second MRE. The effective date for the report was February 22, 2022. The results from the MRE are given in Table 1-2 below:

Table 1-2: 2022 MRE with a Cut-Off Grade of 300 ppm Li

Category	Tonnes (Mt)	Li (ppm)	Tonnes LCE
Measured	N/A	N/A	N/A
Indicated	17.6	912	86,000
Inferred	57.6	717	220,000

A third MRE at Basin East was produced by Dr. Kirsty Reynolds which was overseen by QP/CP Martin Pittuck, both employees of SRK. The effective date of this report was October 13, 2022. The estimate was prepared using a total of 3211.08 m (10,535 ft) of drilling for a total of 38 drill holes. A sonic drill rig was used for this drill program. The results of the MRE are given in Table 1-3 below.

Table 1-3: 2022 Updated MRE with a Cut-Off Grade of 300 ppm Li

Category	Tonnes (Mt)	Li (ppm)	Tonnes LCE
Measured	N/A	N/A	N/A
Indicated	21.2	891	63,000
Inferred	73.3	694	271,000

SRK completed a fourth MRE for the Basin East project in 2023 with an effective date of September 1, 2023, and in accordance with NI 43-101 and JORC reporting standards. The report was prepared this time by Dr. Kirsty Reynolds and Dr. Jamie Price under the supervision of Martin Pittuck. The estimate was based on 48 holes totaling 5,566.25 m (18,262.69 ft) Sonic Drilling was also used for this program. The results of the updated MRE are given in Table 1-4 below:

Table 1-4: 2023 Updated MRE with a Cut-Off Grade of 550 ppm Li

Category	Unit	Tonnes (Mt)	Li (ppm)	Tonnes LCE
Measured	N/A	N/A	N/A	N/A
Indicated	Upper Clay	11	720	42,000
	Upper Clay HG	6	1345	43,000
	Lower Clay	N/A	N/A	N/A
Inferred	Upper Clay	143	790	600,000
	Upper Clay HG	48	1290	330,000
	Lower Clay	19	690	70,000

1.6 Geologic Setting and Mineralization

1.6.1 Regional Geologic Setting

The project site is located in the Transition Zone where the Colorado Plateau and the Basin and Range provinces converge geologically. The geology of the Basin East – Bagdad area includes Pre-Cambrian granitic intrusions and metamorphic rocks as the foundational layer. These are overlain primarily by Tertiary sediments, along with pyroclastic rocks and lava flows.

The Yavapai Series Pre-Cambrian rocks are composed of Early and Middle Proterozoic granites, granodiorites, diorites, and gabbros, including several significant granitic plutons. Metamorphic rocks including mica schists, hornblendite, and orthoclase augen gneiss.

During the Late Cretaceous to Early Tertiary period, pyroclastic rocks known as the Greyback Mountain Tuff, occasionally intruded by rhyolite dykes, directly overlay the basement rocks. Quartz monzonite stocks also intruded during this period and an example of this is the copper-molybdenum mineralized porphyry that is mined at Bagdad mine.

During the Miocene and Oligocene epochs, a sequence of faults became active, leading to the formation of multiple basins in the region. These basins were initially filled with high-energy sediments, and subsequently, lacustrine and fluvial processes dominated and sandstones, siltstones, and a dolomitic layer were deposited above the conglomerate.

During the Pliocene epoch, the basins underwent a second episode of tilting and localized normal faulting. The Wilder Formation consisting of basalts, pyroclastic cones, and bedded tuffs were deposited predominantly in a lacustrine setting. During the Pliocene Epoch, the deposits experienced partial erosion by river channels followed by the Sanders basalt flows which filled the channels. These basalts can be found in the project area as caps on the top of the mesas that can be seen today.

Other volcano-sedimentary deposits appear to thicken towards the west. Intercalated tuff horizons contain zeolite, bentonite, magnesite and agate. These sediments were subject to hydrothermal and hot spring fluids localized near the faults. It is thought that this alteration event, likely associated with nearby rhyolite dome complexes, is potentially responsible for the introducing the lithium into clay alteration products.

1.6.2 Local Geology

In the Basin area, lithium clays are found within the Miocene-Pliocene Wilder Formation, which consists of basalts, sediments, lacustrine clays, and variably altered tuffs. The mineralized horizon present in the Basin East Project area lies above a unit of tuffs and fine to coarse-grained sediments that are exposed in the eastern and southern parts of the licensed area. These sediments rest upon the Proterozoic gneiss basement.

The clay-bearing unit exhibits a flat to gently dipping orientation and varies in thickness, ranging from a few meters to up to 136 m (446 ft).

The unit is slightly offset in places by several faults; the lithium grade varies according to the changing proportion of clay content in the unit which may be an original sedimentary feature or may be due to varying degrees of alteration associated with proximity to such faults or sedimentary basin margins.

The lithium unit is divided into an upper and lower clay layer by an important thin internal lapilli tuff marker horizon, which is non-to-weakly lithium-bearing, and is capped by a vesicular basalt flow.

1.6.3 Deposit Stratigraphy

Table 1-5:Stratigraphic Sequence at the Basin East Lithium Project.

Unit	Unit Code	True Thickness (m)	Age	Description
Stream/ wash alluvium	Qa	1 - 10	Pleistocene - Holocene	Younger gravel and sand deposited by water in modern stream drainages and dry washes
Older terrace alluvium	Qao	1 - 20	Pleistocene	Older stream-deposited gravel and sand in terrace deposits as much as 15 m above modern stream drainages; high-quality aggregate source in State Lease area; lithium values < 50 ppm
Toreva block landslides	Qlstb	1 - 20	Pleistocene - Pliocene	Large, cohesive landslide blocks consisting of unit Ttbxb that have slid down during periods of rapid erosion of the underlying low-friction lithium-clay unit
Lithic tuff	Tult	1-50	Pliocene-Miocene	Composite unit, stratified to unconsolidated lithic tuffs, pumice tuffs, volcaniclastics, intercalated pebble conglomerates, silty clay seams
Upper Basalt	Tub	1-10	Miocene	Vesicular to massive basalt flow, locally clay altered with green celadonite, weathers brown to red, basal debris flows
Lithic tuff/ Tuff-breccia/ basalt	Ttbxb	1 - 50		Composite unit, basal pumiceous lithic tuff, 0-10 m, with thin sandstone/mudstone interbeds; middle, thicker unit of tuff-breccia consisting of large clasts of mostly Tertiary rhyolite in a poorly consolidated ashy matrix; lithium values < 100 ppm
Lower Basalt	Tlb	1-20	Miocene	Vesicular to massive basalt flow, locally clay altered with green celadonite, calcite to zeolite filled vesicles. Lower and upper-most 1-3m can contain elevated lithium
Hot springs sinter deposits	Ts	1 - 4	Miocene - Pliocene	Bright white, irregularly textured, discontinuous deposits of hydrothermal carbonate, agate/chalcedony nodules, and waxy saponite clay; lithium values 150-1000 ppm; occurs mainly near upper and lower contacts of lithium clay unit
Lapilli tuff	Ttl	4-10	Miocene - Pliocene	Occurs as a sometimes-distinct layer within the Li-bearing clay unit; fine-grained, ash-rich, weakly bedded to massive tuff containing 3-15% round, black, glassy lapilli 3-20 mm in diameter; weakly to moderately welded; nearly white where strongly altered, light brown where less altered; lithium values <50 to 700 ppm
Clay (lithium-bearing)	Tclay	23 - 136	Miocene - Pliocene	Bentonitic clay-rich interbedded tuffs and tuffaceous sediments (claystone, mudstone) deposited sub-aqueously in a lacustrine environment, possibly with syn-depositional hydrothermal alteration related to hot springs sinter deposits; mostly light-green-grey in upper parts; darker green-grey and bluish grey in lower parts; lithium values 400–2775 ppm
Interbedded tuffs and tuffaceous sedimentary rocks	Tts	0-35	Miocene - Pliocene	Undifferentiated light-grey, green-grey, and light-brown tuffs and fine-grained tuffaceous sedimentary rocks; sediments are dominantly claystone, mudstone, "dirty" arkosic sandstone, and a few lenses of limestone ± dolostone 1-3 m thick; may be a less-altered protolith of the lithium-bearing clay unit; lithium values 100-500 ppm;
Red-brown sedimentary rocks	Tred seds	3-41	Miocene	Dark reddish-brown clastic sedimentary rocks interpreted to be derived from erosion of Proterozoic mafic gneiss and granite and deposition into a developing lacustrine basin and on an irregular erosional surface; gritty claystone, mudstone, sandstone, and conglomerate, generally fining upward; observed only in drillholes; lithium values 100-400 ppm
Conglomerate	Tcgl	29+	Miocene	Conglomerate containing clasts of Proterozoic mafic gneiss and granitic rocks in a red-brown matrix; occurs mainly as a basal conglomerate below the redbed unit along the major unconformity surface; lithium values <50 – 400 ppm
Mafic gneiss and granite	PCu	>100	Proterozoic	Undifferentiated Proterozoic basement rocks consisting mostly of mafic gneiss at the bottom of drillhole BCRC18-01; at the surface south and west of the State Lease area, granite masses have locally intruded gneissic rocks

Note: Unit Qlstb, toreva landslide blocks, above may actually be a mixed unit of quaternary sediments with smaller zones of landslide materials; mesas and bluffs, typically capped by more resistive tuffs and basalt units, comprising mainly of clays lacking rock competence; the mesas and bluffs form an environment conducive to periodic landslides and mass wasting .

1.6.4 Structural Geology

Significant felsic volcanic activity in the region coincided with structural down-dropping of the basin. Sediment filling the basin and sub-basins originated from erosion of adjacent highlands, interspersed with layers of water-deposited tuff resulting from periodic eruptions of local felsic and mafic volcanoes. Concurrently, or shortly after, deposition of basin fills, low-temperature hydrothermal solutions are believed to have enriched the area with lithium, potassium, magnesium, and locally with molybdenum. This process further altered the tuffs and sedimentary rocks, increasing their clay content.

Following basin formation and the deposition of basin fill, the strata underwent a gentle northward tilt. In 2016, a north-south oriented fault (referred to as the N-S fault) was mapped near the center of the State Lease area based on limited surface exposures, and its existence was confirmed by drilling in 2018.

To the east of the N-S fault, strata dip at angles of 4° to 10° towards the north and northeast, whereas to the west of the fault, strata dip at angles of 5° to 16° towards the northwest.

East of the N-S fault on the uplifted block, erosion has removed more of the upper part of the lithium-bearing clay deposit.

On the western side of the N-S fault, the lithium-bearing clay unit remains largely intact and uneroded, except where it dips northwest under Burro Creek.

A northwest-oriented fault was identified based on exposures observed in an active specialty clay mine adjacent to the State Lease area. This fault seems to have a maximum vertical displacement of only a few meters, although detailed drill data in this specific area are limited due to the license boundary constraints.

Together, the northwest-oriented fault and a north-oriented fault form the western and eastern boundaries, respectively, of a wedge-shaped central block. This block is further divided into two parts by a secondary north-northwest-trending fault, which was identified by observing stratigraphic offsets in drillhole logging data.

The general gentle northerly dip of the lithium clay deposit and Tertiary units was confirmed by the 2016 micro-seismic "Tromino" geophysical study. However, subsequent drilling revealed that the Tromino study had underestimated the depth from the surface to the Proterozoic basement beneath the State Lease area. Consequently, the initial estimate of the thickness of the lithium-bearing clay unit before drilling was also underestimated.

1.6.5 Mineralization

Lithium mineralization at Basin East comprises clay-rich fine-grained lacustrine tuffs and fine-grained tuffaceous sediments, reaching thicknesses of up to 136 meters (446 feet). Lithium is primarily found in smectite group minerals of the hectorite-type, particularly saponite and swinefordite, which make up 10% to 45% of the lithium-bearing clay samples.

Hyperspectral analysis conducted in 2018 revealed abundant saponite, montmorillonite, and talc in the lithium-bearing clays, with irregularly distributed and less abundant chlorite.

Additionally, the samples contain minerals such as magnesite, calcite, feldspar, mica, and dolomite.

The introduction of lithium is primarily attributed to alteration processes driven by the circulation of low-temperature hydrothermal fluids and hot springs. This alteration occurred after the deposition of sub-aqueously deposited tuffs and sediments but before the deposition of overlying, sub-aerially deposited coarse lithic tuff and basalt units (unit Ttl/Tlb).

During this alteration event, thin discontinuous lenses and layers of hot springs sinter (unit Ts) were deposited, ranging from 1 to 4 m (3 to 13 ft) in thickness. Sinter deposits are widespread across most of the State Lease area and are also common in the Company's Basin West target consisting of a large unpatented federal mining claim block west of the State lease area, where additional lithium-bearing clay has been identified through surface sampling.

Supergene and/or diagenetic processes may have also played a role in the alteration of clay and the enrichment of lithium and magnesium in the tuffs and tuffaceous sediments. These processes are similar to those believed to have contributed to the formation of lithium-bearing clays at Bacanora Minerals Ltd's Sonora Lithium Project in northern Mexico.

The lithium-bearing and magnesium-enriched clays in the area are predominantly bentonitic and have been characterized by chemical and X-ray diffraction analyses as high-magnesium trioctahedral smectites, specifically of the saponite-type, containing varying types and quantities of impurities.

1.7 Deposit Type

Lithium resources are abundant throughout the world and are primarily found in pegmatites and greisen veins as well as high-elevation evaporitic brines. There is a third type of lithium resource which exists as a volcanic-sedimentary origin. Three types of lithium clay deposit models are presented as typical deposit types:

1) Lyles Hectorite Mine 45 km (28 miles (mi)) east-southeast of the Basin Project and is operated by Vanderbilt Minerals LLC for the production of specialty clay products.
2) Lithium America's Thacker Pass (Nevada). sedimentary hosted lithium clay deposit with the clay mineral hectorite as part of the smectite clay family. The lithium enrichment at Thacker Pass is still up for debate, but it is thought to have come from parent rhyolitic magmas which got enriched due to the assimilation of the continental crust during magma genesis. Due to the eruption of tuff and the collapse of the McDermitt Caldera, a large volume of Li-enriched glass, pumice and ash was deposited on the surface of the earth in close proximity to the caldera. Chemical and physical weathering then transported lithium into a structurally controlled catchment basin. Hydrothermal fluids are thought to have contributed to the concentration of lithium.
3) Hector Mine in Southern California, where the mineral hectorite was named after. Several other companies are exploring for lithium clays in the region in proximity to the abandoned Hector Mine.

The US Geological Survey proposes a number of genetic models and processes which include the alteration of volcanic glass to lithium-rich smectite; Precipitation of lithium from lacustrine waters; incorporation of existing lithium into smectites.

The QP makes note that there is a lack of detailed understanding of the exact depositional environment at the Basin deposit.

1.8 Exploration

Relying on promising lithium grades that were encountered by GSA Resources Inc in the 1980's, Zenolith initiated field work at the Basin East area in March.

A 14-hole reverse-circulation (RC) drilling program was initiated in April and May of 2018 and was based on the positive results of geological mapping, rock-chip sampling and a passive seismic survey.

1.8.1 Surface Geochemical Sampling, 2016 and 2018

In total, 191 samples have been taken from the Basin East and Basin West areas. These samples were first sent to ALS Laboratories in Tucson, Arizona, and then were subsequently sent to ALS Laboratories in Vancouver, BC for geochemical analysis

1.8.2 Geological Mapping, 2016 and 2018

Surface sampling and mapping were conducted concurrently in 2016. The map was revised to integrate data from the 14 RC drillholes along with observations from drill roads, pads and sump construction. Field observations were noted in field notebooks and GPS waypoints were taken. The geological map was created using ESRI ArcGIS 10.1.

1.8.3 Passive Seismic Survey, 2016

WIM also conducted a passive seismic survey of the Basin East and Basin West project areas based on a recommendation by Zenolith. The survey was done using Tromino® instrumentation in the field.

The data was subsequently processed using Grilla® software by Zenolith's geophysics consultant Resource Potentials, of Perth, Australia.

Two lines were completed: Line BC-01, an east-west oriented line, stretched 4.8 km (3 miles) and included 33 recording stations covering Basin East, Basin West, and the intervening land. Line BC-02, a north-south oriented line, was 1.6km (1 mile) long with nine recording stations, spanning the Basin East state lease area.

1.8.4 Ground Penetrating Radar Survey, 2021 and 2022

Bradda Head Lithium engaged Terravision Exploration Ltd. (TVX) to conduct a ground penetrating radar (GPR) study on the Basin East, Basin West and Basin North claims. The GPR survey was split up into 3 different areas to gain an understanding of the subsurface geology.

The survey was conducted using an enhanced Ground Penetrating Radar (GPRplus) system.

Survey lines conducted over known drill holes in the central Basin East demonstrate a connection between a characteristic smooth, high-amplitude geophysical response and areas of deep, thick, upper TClay (the uppermost Li-bearing unit) found in drill holes.

TVX interpreted the presence of a deep high-amplitude response to indicate a thicker geological layer, with the wave travelling further to the base of the layer where it reverses polarity. This change is shown by the transition from a positive response (red) to a negative response (blue) at the lower boundary of the Upper Clay.

1.8.5 Gravity Survey, 2023

The gravity survey was completed in late 2023, and after the processing was finished a significant low was found and located within the Basin North project area. This has been interpreted as a deep, depositional centre for a sedimentary basin with a deep basement rock at depth. These results encouraged the company to stake 2.8 km^2 of new lode and placer claims to the north on open BLM land, which should have a significant impact on the projects clay potential.

The survey was conducted by Tom Carpenter, a consultant with 35 years of experience in gravity data collection across North America. The data was gathered using a LaCoste and Romberg Model-G gravity meter, number G-230. A total of 130 gravity station locations were recorded.

1.9 Drilling

To date, there have been 5 successful drilling programs conducted on Basin East and Basin North. Most of the focus has been expanding the resources at Basin East. The drill site was visited by the QP during the 2024 diamond drilling campaign to verify the drilling procedures and to ensure that industry best practices were being followed.

During the 2018 reverse circulation (RC) drill campaign, 14 holes were completed for a total of 923.69 m (3030.48 ft). A total of 10 drill holes were completed during the 2021 diamond drill program for a total of 1110.47 m (3643.27 ft). The project also saw 14 holes drilled during the 2022 sonic drill program totaling 1177.14 m (3862.01 ft), and 2355.17 m (7726.94 ft) in 2023. Most recently, there were 9 diamond drill holes that were completed in 2024. This drill program encompassed 2380.24 m (7809.19 ft). Hole number 17 was abandoned at 74.67 m (244.98 ft) due to poor drilling conditions. Vertical holes were drilled for every campaign; therefore, no down-hole surveys were needed

Recommendations were made by the QP during the site visit for the strategic placement of holes BND-22 and BND-23.

Table 1-6:Summary of Drilling from 2018-2024

Year	Method	Number of Holes	Length (m)	Length (ft)	Operator	Assay Total	Assay(m)
2018	RC	14	923.69	3030.48	HEX	605	919.6
2021	Diamond	10	1110.47	3643.27	GD/ADC	820	1016.88
2022	Sonic	14	1177.14	3862.01	BLL	700	1062.42
2023	Sonic	14	2355.17	7726.94	BLL	1400	1841.88
2024	Diamond	9	2380.24	7809.19	KPEX	773	971.81

HEX= Harris Exploration Drilling (California)
GD= Godbe Drilling (Colorado)
ADC= American Drilling Corp. (Washington)
BLL= Boart Longyear Ltd. (Arizona)
KPEX= KP Exploration Inc. (Arizona)

1.10 Sample Preparation, Analyses and Security

The Basin Lithium Project has undergone extensive exploration and analysis through multiple drilling campaigns from 2018 to 2024. These campaigns incorporated various drilling methods, including Reverse Circulation (RC), Diamond Drilling (DD), and Sonic Drilling, with rigorous sampling, preparation, and Quality Assurance Quality Control (QAQC) protocols. The project transitioned from using ALS Global laboratories to SGS laboratories for sample preparation and analysis starting in 2023, ensuring independent and high-quality assay results. The Mineral Resource estimates were classified following the JORC (2012) and NI 43-101 guidelines, reflecting significant increases in both Indicated and Inferred tonnage due to expanded drilling coverage and improved geological understanding.

BHL has implemented a robust QAQC program, consistently inserting Certified Reference Materials (CRMs), blanks, and duplicate samples into the sample stream to maintain the integrity and accuracy of the data. The overall insertion rate of QAQC samples was 11%, slightly below the industry standard of 15%, yet sufficient to demonstrate satisfactory levels of precision and accuracy. Recent improvements in density determination methods, particularly for swelling clays, have enhanced the reliability of the Mineral Resource estimates. Going forward, it is recommended to refine blank sample selection and increase the insertion rate of duplicates to further ensure data quality. The results confirm reasonable prospects for eventual economic extraction, underpinning the project's potential viability.

1.11 Data Verification

1.11.1 Introduction

During their site visit in April 23 and 24, 2024, the current QP along with 2 of ABH's geologists in training travelled to the site and reviewed the drilling, logging, sampling, density determination, and assaying procedures used at the Basin project. ABH confirms that the data acquired from these procedures is accurate and reliable.

1.11.2 Database Checks and Verification

BHL uploaded their entire Excel database to a cloud which was then downloaded onto ABH's server. ABH reviewed and verified the database. Assay CSV files were checked against their laboratory certificates. ABH is satisfied that the data was of sufficient quality for its use in the current MRE.

1.11.3 Twinned Hole Comparison

As part of the 2021 diamond drilling campaign, BHL completed three diamond drillholes as twins to three RC drillholes from the 2018 drilling program.

Similarly, BHLL used a drillhole from their 2022 sonic drilling program to twin another RC hole from 2018 which enables a comparison between RC and sonic drilling assays.

1.11.4 RC VS Diamond Comparison

The means, quartiles, and spread of Li grades are very similar for each dataset which confirms that both methods of drilling our valid and RC drilling can be used for future exploratory holes.

1.11.5 Laboratory Comparison

A comparison was made for the assay results between ALS that was used for the current verification samples and those of SGS that the client used in 2023. As shown in Figure 12-5 below, the lab assays correlate well between the two different labs. There is a slightly low bias

1.12 Mineral Processing and Metallurgical Testing

Test work was conducted and interpreted by J.E.Litz and Associates LLC and Hazen Research.

1.12.1 Mineralogy

The Basin East lithium mineralization comprises smectite group hectorite-type clays, particularly saponite ($(CaNaK,Li)_{0.25}(Mg,Fe)_3((Si,Al)_4O_{10})(OH, F)_2*nH_2O$) and swinefordite ($LiCa_{0.5}Na_{0.1}Al_{1.5}Mg_{0.5}Si_3O_{10}(OH)_{1.5}F_{0.5}*4(H_2O)$). Most of the deposit consists of different chemical species of hectorite that has been described in the past as "impure saponite".

Assay results from the 1980s demonstrated up to 0.77% Li_2O in the clay presumably in the Ca occupied 12-coordinated site. Beds of pure saponite in the southern part of the deposit are up to 3.5 m (11.5 ft) thick (World Industrial Minerals, 2016). Mineralogical analysis of the clay material has previously indicated the presence of magnesite, calcite, feldspar, mica and dolomite

To test the mineralogy of lithium-bearing clay, a 5-gallon (50 lb) pail of clay was sent from the project to J.E. Litz & Associates LLC and Hazen Research for analyses.

In the Hazen report, the main lithium containing mineral was determined to be 45% smectite. Whereas in the later SGS report, the principal lithium containing mineral is identified as swinefordite at 2-10%, and 10-30% within the clay sample material. This may be due to the similarity in the crystal structures.

1.12.2 Geometallurgy

Lithium in the Basin East mineralization is found within saponite. Extracting this lithium will necessitate roasting and/or strong acid leaching to dissolve it into solution. A notable challenge is the presence of magnesium (Mg), along with smaller amounts of calcium (Ca), sodium (Na), and potassium (K), as these elements can contaminate the lithium product, with magnesium being particularly problematic. This issue is further complicated by the presence of magnesite in the ore, which is likely to be more reactive than saponite.

1.12.3 Metallurgical Test Work

Metallurgical test work was performed for the years 2016, 2018, 2022 and 2023.

2016

J. E. Litz and Associates (2016) designed a series of diagnostic leach tests for a bulk clay sample provided by the Client. The first test used water leaching, the second test used a rinse with hydrochloric acid (HCl) and the third test involved a rinse with HCl.

The test results showed that less than 4% of the Li was recovered, indicating that the Li is largely resistant to acid leaching.

2017

The testing involved more aggressive leaching with strong sulfuric acid at elevated temperatures yielded higher Li extraction rates (78-91%). High sulfuric acid consumption indicates that the gangue minerals in the clay are significant acid consumers.

This test work focused on reducing acid consumption by using gypsum and pyrite as sulfurating agents in roast-leach processes. Gypsum-roast water-leach tests and pyrite-roast water-leach tests were conducted, demonstrating improved lithium recovery rates of 35-41% and 56-61% respectively. Further optimization tests revealed that using specific combinations of additives significantly enhanced lithium dissolution

Further optimization tests revealed that using specific combinations of additives significantly enhanced lithium dissolution. The best results for gypsum-based systems achieved 88.7% lithium extraction with additions of 15% gypsum, 7.5% sodium chloride, and 30% calcium carbonate, while pyrite-based systems achieved 86.8% extraction with 7.5% pyrite, 7.5% sodium chloride, and 40% calcium carbonate. These findings suggest that optimizing the roast-leach process with appropriate additives can greatly improve lithium recovery

2018

An additional metallurgical test work program was conducted in June 2018. This series of tests expanded on the roast-leach optimization experiments performed in 2017, aiming to evaluate both gypsum-based and pyrite-based roasting and water-leaching methods for high-grade and low-grade lithium-bearing clay samples.

There is no significant difference between Met #1 and Met #2, indicating that the efficiency of the roast-leach protocol is not dependent on the initial lithium content. For both samples, the highest lithium extractions were achieved using a gypsum-based roast-leach with 20% gypsum, 35% calcium carbonate, and 5% sodium chloride. Met #1 resulted in 85.3% soluble lithium and Met #2 yielded 83.7% soluble lithium.

2022

SGS Canada conducted sulfuric acid leach tests on lithium clay samples. The conditions included a clay-to-acid ratio of 1:0.85, a temperature of 90°C, and a 3-hour residence time. The tests showed that over 98% of lithium was leached within 1 hour. The reactions involved converting lithium oxide, iron oxide, magnesium oxide, potassium oxide, manganese oxide, sodium oxide, and calcium oxide into their respective sulfate forms.

2023

Further test work was conducted in 2023, focusing on HCl leaching tests. This phase aimed to explore alternative leaching methods to improve lithium extraction efficiency. The 2023 experiments built on previous findings, utilizing the high concentration of HCl to potentially overcome the limitations observed with sulfuric acid and water leaching in earlier tests.

Further testing is necessary to explore ways to reduce acid consumption, ensuring the process remains economically viable while maintaining high recovery rates. This will help in optimizing the leaching process and improving the overall efficiency of lithium extraction.

1.13 Mineral Resource Estimates

The 2024 Mineral Resource statement for the Basin Project is presented in Table 1-7. This estimate encompasses Basin East (the sole area included in the previous Mineral Resource Estimate), Basin East Extension, and the southern fringe of the Basin North license areas. The statement was prepared by Damir Cukor of ABH Engineering, a Competent Person with expertise in this type of mineralization. The report adheres to the terminology and definitions set forth in the JORC Code (2012).

Table 1-7: Mineral Resource Statement for Basin East, Basin East Extension and Basin North effective July 2, 2024

Classification	Domain	Tonnes (Mt)	Mean Grade Li (ppm)	Contained Metal LCE (kt)
Measured	**Upper Clay**	13	720	48
	Upper Clay HG	7	1,316	49
	Lower Clay	1	687	2
	SubTotal	**20**	**929**	**99**
Indicated	**Upper Clay**	90	794	382
	Upper Clay HG	18	1,302	126
	Lower Clay	14	713	52
	SubTotal	**122**	**860**	**560**
Inferred	**Upper Clay**	316	741	1,246
	Upper Clay HG	90	1,154	555
	Lower Clay	92	709	348
	SubTotal	**499**	**810**	**2,150**

- *Mineral Resource statement has an effective date of 2nd July 2024.*
- *The Mineral Resource is reported using a cut-off grade of 550 ppm Li and is constrained to an optimized open pit shell, which was generated using the following assumptions: lithium carbonate metal prices of 17,200 USD/tLCE; State of Arizona royalty (selling cost) of 6%; operating costs of 35 USD/ tore; Li recovery of 72%; mining dilution and recovery of 0% and 100%; and pit slope angle of 45°.*
- *Tonnages are reported in metric units.*
- *Rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade and contained metal content which are not considered material.*
- *Conversion factor of Li metal to lithium carbonate equivalent (LCE) = 5.323*
- *The figures above are reported on a gross basis given Bradda's 100% interest in the property*

1.14 Recommendations and Conclusions

Bradda Head's Basin Lithium Project comprises a significant lithium-bearing clay deposit. The Miocene clays are underlain by Proterozoic basement rocks; tuffs and tuffaceous sediment and basalt flows occur periodically at the base of the basin, as layers within and as capping to the basin-fill clay sedimentary units. Lithium grades correlate with stratigraphical units, forming a distinct gravity low and high-grade lithium zones, modelled as distinct domains. Deposit bounds are defined to the north and the south by Proterozoic outcropping units found in upland areas. Fault blocks are defined by normal and strike-slip faults; these have formed domain boundaries within the 3D model. Faulting is believed to have formed conduits for hydrothermal solutions derived from Miocene lithium-bearing tuffs.

Exploration methods thus far used on the project – seismic, gravity and GPR surveys, followed by geological mapping and surface sampling have proven very successful in identifying drill target areas. Geologic continuity of both lithologic units and lithium grades is very good in the areas thus far drilled. Drilling has comprised RC, sonic and diamond core methods.

Specific gravity and moisture content methods comprise a database of more than 700 samples; the methodology has improved to industry-leading standard for the 2023 and 2024 drill campaigns.

Metallurgical work thus far has indicated a potential recovery of about 75%, possibly higher. Several issues have been encountered, including high acid consumption rates and difficulties in separating out deleterious metals. Further test work is required.

Additional risks to the project comprise of environmental, social and governance factors. It should be noted that the Basin Li Project is in an early stage, at resource development, and that environmental studies and stakeholder consultation are planned at later stages of the project development, to be handled by experts in those fields. The issues currently identified include:

- Water necessary for processing - permits will need to be obtained.
- Any discharge of water will also require permitting; dry stacking of tailings would be advantageous.
- Water course diversion during the mining process – Burro creek and its tributaries will need to be studied for subsequent engineered diversion methodology.
- Proximity to ACEC areas – environmental studies will have to consider potential impact of the mining on the neighboring protected areas.
- Species at risk – necessary studies will include habitat identification for local species-at-risk, including the Sonoran Desert Tortoise and the Arizona Cliffrose. EPA's Section 7 will need to be addressed, in consultation with the Fish and Wildlife Service.
- Stakeholder consultation – several groups will need to be included in the consultation process, including local native tribes and several local NGO's (Arizona Wilderness Coalition and Arizona Mining Reform Coalition).

The issues above, managed and addressed in a timely manner, are not likely to constitute critical barriers to the project's advancement.

It is recommended to continue exploration of the Basin Lithium Project through drill target development and to plan for additional drilling to expand the resources. The areas of Basin West and Basin West Extension are both prospective for further target development; resources in Basin East are open to the west for step-out drilling. Secondarily, the resource will also need to be upgraded in stages to Indicated and Measured Classification. Permitting for the upcoming drill phases will be necessary. The following measures are recommended with the estimated costs stated in USD:

- **Metallurgical Testing**: **$ 175,000**
- **3-D seismic Survey: $ 300,000**
- **Geological mapping and surface rock sampling: $ 75,000**
- **Basin West Drilling**: A 24-hole program,
    - **Total Core/Sonic: $2,337,000**
    - (Or: Total RC: $1,057,000)
- **Basin North Drilling:** A 7-hole program,
    - **Total Core/Sonic: $1,032,000**
    - (Or: Total RC: $552,000)
- **Basin East Drilling:** A 3-to-4-hole program,
    - **Total RC: $67,700**

2. INTRODUCTION

2.1 Issuer and Terms of Reference

ABH Engineering Inc (ABH) was contracted by Bradda Head Lithium Ltd (the "Company","BHL") to complete an updated Mineral Resource Estimate (MRE) NI 43-101 Technical Report for the Basin Lithium Project in Arizona. This resource estimate is also in compliance with the Australasian Code for the Reporting of Exploration Results Mineral Resources, the JORC Code, 2012 Edition (JORC or JORC Code) Bradda Head Lithium Ltd. is a lithium exploration company with a diverse portfolio of assets. These include sedimentary lithium assets such as Wikieup, Burro Creek East, and Burro Creek West; a pegmatite asset called San Domingo; and brine assets including Wilson, Spencer, and the Pennsylvania brines. Founded on October 28, 2009, the company is headquartered in Douglas, Isle of Man, United Kingdom. BHL is quoted on the AIM of the London Stock Exchange with the ticker of BHL and on the TSX-V as BHLI.

Zenolith (USA) LLC (Zenolith) is the operating company for the Basin Lithium Project.

The Basin Lithium project has been subjected to five previous technical reports which can be accessed on Sedar:

- JORC Technical Report- Maiden Resource Estimate for Basin East- Effective date of September 21, 2018 (SRK Consulting (UK) Ltd)
- NI 43-101 Technical Report- Updated Resource Estimate for the Basin and Wikieup Lithium Clay Projects- Effective Date of June 10, 2022 (SRK Consulting (UK) Ltd)
- JORC Technical Report- Updated Mineral Resource Estimate for the Basin East Deposit- Effective Date of October 13, 2022 (SRK Consulting (UK) Ltd)
- JORC and NI 43-101 compliant Technical Report- Technical Report on the Mineral Resource and Exploration Target Estimates for the Basin Lithium Project, USA.- Effective Date of September 1, 2023 (SRK Consulting Ltd)

The scope of work assumed by the authors was to prepare an updated MRE for the Basin Project and provide recommendations on future work required to expand the project to Preliminary Economic Assessment (PEA) level in the future which would be the next desirable step for the project.

This report is an updated MRE of, ABH has tried to follow along with the contents of the previous report. All material, assumptions, data, tables, figures, equations, sampling techniques, resource estimations, opinions and recommendations have been independently verified by ABH Engineering. ABH Engineering takes responsibility for every aspect of this Technical Report.

2.2 Qualifications and Experience

The Qualified Persons (QP) Responsible for this report are Damir Cukor, P. Geo. And Brent Hilscher, P.Eng.

Damir Cukor is a Senior Resource Geologist, and the VP of Geology; Brent Hilscher is a Senior Process Engineer and VP Mineral Processing; both are with ABH Engineering Inc. Damir and Brent both act independently of BHL and neither of them, nor any of their colleagues, are shareholders of BHL.

Damir has over 30 years' experience in the mining industry as an exploration geologist, exploration manager, resource geologist as well as being a QP on numerous projects. His most recent work was completing a Maiden Resource Estimate for Nevada Sunrise Metals. He acts independently of BHL and neither he nor any of his colleagues are shareholders.

Brent has over 24 years of combined experience in process operations, engineering, economics, and design. Projects have included a variety of operations and engineering studies for lithium, gold, silver, copper, molybdenum, lead and zinc deposits throughout the world.

2.3 Scope of Work and Limitations

ABH Engineering has independently assessed the project, and all opinions, findings and conclusions expressed are those of ABH.

The Effective Date of the report is July 2nd,2024 regarding the MRE. The opinion of the QP's is based on information that BHL has disclosed to ABH prior to, or on the Effective Date.

There is no reason to believe that BHL has held back any pertinent information and all information that is material to carry out the purpose of this report has been disclosed.

The assessment of mineral resources has been based on various technical-economic conditions at the time of writing. Due diligence has been carried out to ensure that the values used reflect market conditions at the time of writing. These values can change significantly in short time spans which could materially affect the MRE. There are risks which are inherent in mining and not all risks are foreseeable. Certain risks may have an impact on the mining operation at all stages of a project. ABH does not guarantee that any of these events won't occur during the life of the mine, however, all actions have been carefully considered to mitigate the risks of events occurring.

2.4 Abbreviations and Units of Measure

BLM	U. S. Bureau of Land Management
clyst	Claystone
cm^3	Cubic centimeter
CIM	Canadian Institute of Mining, Metallurgy and Petroleum
EA	Environmental Assessment
EIS	Environmental Impact Statement
g	Gram
gal	Gallons
H_2SO_4	Sulfuric Acid
hP	horsepower
HVAC	Heating, ventilation, and air conditioning
IRR	Internal Rate of Return
kg	Kilogram
km	Kilometres
LCE	Lithium Carbonate Equivalent
Li	Chemical symbol for lithium
Li_2CO_3	Lithium carbonate chemical formula
m^3	Cubic meters
mdst	Mudstone
Mg	Chemical symbol for magnesium
NI 43-101	National Instrument 43-101 Technical Report
NOI	Notice of Intent
NVC	Nevada Mining Claims
NVP	Net Present Value
ORP	Oxidation-Reduction Potential
PEA	Preliminary Economic Assessment
PFS	Preliminary Feasibility Study
PoO	Mine Plan of Operations
PPM	Parts per million
QA/QC	Quality Assurance/Quality Control
ROM	Run of Mine
RQD	Rock quality designation
sq. kms	Square kilometres
tpd	Tonnes per day
wt%	Weight Percentage
XRD	X-Ray Diffraction
yr	years

3. RELIANCE ON OTHER EXPERTS

ABH relied on information and data provided by BHL and, where possible, independently verified this data. ABH also conducted a site visit to review physical evidence for the Project.

For Section 4 of this report, ABH depended on experts engaged by BHL, specifically Jim Guilinger of World Industrial Minerals (WIM) and Al Burch of Burch Consulting Services (BCS). This reliance was evidenced by numerous email exchanges between BHLL, WIM and BCS since 2016. These experts represent BHLL for their licensing and permitting arrangements; the details are described in Section 4 of the report.

While ABH did its best to independently confirm tenure, licenses and permits comprising Basin Li Project, D. Cukor and ABH explicitly refrain from any responsibility over the validity of the tenures, licenses and permits therein. D. Cukor and ABH have no expertise in United States land laws.

4. PROJECT DESCRIPTION AND LOCATION

4.1 Property Description and Ownership

The Basin Project is a lithium clay exploration property located along the 50 km (30 mile) long, curved Basin-Wickiup clay belt in central western Arizona, USA. The project was previously referred to as "Burro Creek" due to its proximity to a local perennial stream.

The project is situated approximately 90 km northwest of the town of Wickenburg, Yavapai County. Basin East is the most advanced part of the property and has been subject to 5 different campaigns of drilling. An updated MRE was completed by SRK and published November 14, 2023.

The last MRE was based on drilling over a large area which is known as the Basin East Extension license area, which along with Basin East comprise one Arizona State Mineral Lease covering 1.46 km^2 (0.56 mi^2), and two Arizona State Mineral Exploration Permits covering 2.33 km^2 (0.90 mi^2).

BHL holds 408 contiguous and overlapping placer and lode claims from the Bureau of Land Management (BLM) which cover an area larger than 11.34 km^2 (4.38 mi^2); these claims lie approximately 2 km (1.2 mi) west of Basin East. This area will be referred to as Basin West for the remainder of this report. There is also an area referred to as Basin West Extension which lies further west and northwest of Basin West.

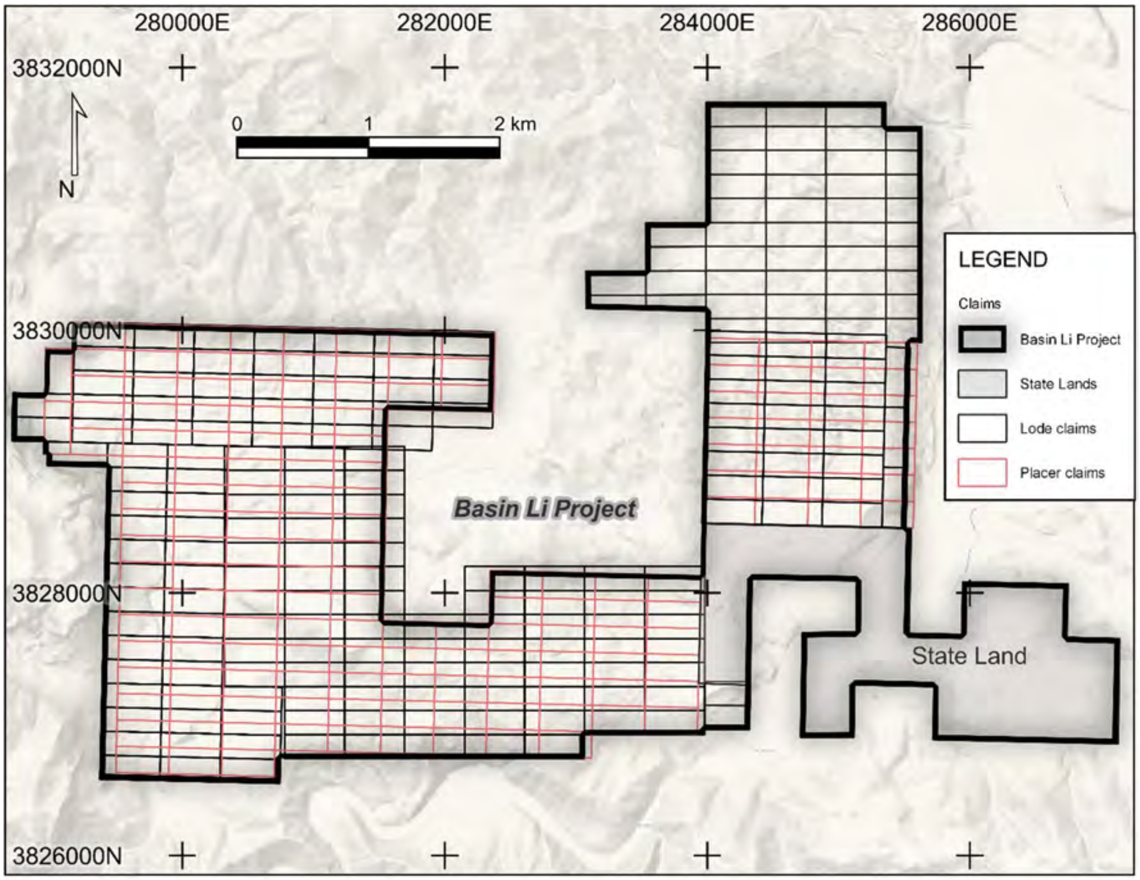

Figure 4-1 Claim Map, Basin Li Project

BHL holds 139 more contiguous and overlapping Placer and Lode claims which cover a total area of 5.57 km^2 (2.15 mi^2) that are immediately north of the Basin East Licenses, referred to as Basin North.

No mining operations for lithium have been carried out on the project to date. There is a small quarry that is being excavated for specialty clays which is operated by BYK-Chemie GmbH and is located directly to the south of Basin East. There is also the Bagdad Mine which is a copper-molybdenum porphyry deposit operated by Freeport McMoRan to the east of the claims.

There are no known historical environmental liabilities associated with the project known to date.

4.2 Location

The Basin project is located between Phoenix and Las Vegas in western Arizona, USA. The site straddles between the County borders of Mohave to the west and Yavapai to the east. There are three license areas:

- Basin East including the Basin East extension,
- Basin West including Basin West extension and
- Basin North

The project coordinates are 34°34’00.0”N, 113°20’11.2”W (WGS84). The area is remote due to it being in a desert setting. There are two small towns nearby; Bagdad is located about 12.8 km (8.0 mi) East, and Wikieup which is approximately 30.0 km (18.0 mi) northwest. The nearest major settlements are Wickenburg at 85.0 km (53 mi) southeast, Phoenix at 200.0 km (125.0 mi) southeast, and Las Vegas at 300.0 km (185.0 mi) northwest.

4.2.1 Coordinate System

All coordinates are reported in UTM NAD 83 Zone 12, unless otherwise reported.

4.3 Licenses and Permits

Arizona historically has been recognized as a thriving mining region, with its significance persisting even today. This is evidenced by the mining sector's provision of over 47,650 jobs in 2020. The direct and indirect economic ramifications of mining in Arizona were approximately valued at USD 15.4 billion in the same year.

4.3.1 Regulatory Environment

Acquisition of mineral exploration rights and mining licensing in Arizona is overseen by both the State of Arizona and the U.S. federal government through a multifaceted legal system. This system entails complex regulations and processes contingent upon the ownership status of the land, whether privately owned, state-owned, Arizona State Trust Land, or federal land. Each type of land ownership has its own regulations and procedures for exploration and mining activities. Moreover, political dynamics can influence the permitting process for exploration and mining activities.

The information below has been summarized from numerous electronic sources, which are publicly available:

- Special Report 12, Laws and Regulations Governing Mineral Rights in Arizona, 9th Edition, 2001., entitled Mining Laws and Regulations.
- Changes and Revision Circular 104, August 2003, Revised July 2014 Rev. 16;
- Manual for Determination of Status and Ownership, Arizona Mineral and Water Rights 2011.
- Arizona Office of the Bureau of Land Management (BLM) Mining Permitting Guide.
- Arizona Geological Study (AZGS) www.azgs.arizona.edu/minerals/mineral-rights.

If there are Federal lands, they are generally open for mineral entry to American Citizens under the *General Mining Law* (1872), unless deemed otherwise. Part of the reason for enactment was to give citizens the opportunity to explore for, discover, and purchase certain valuable mineral deposits on federal lands that are open for location and patent.[1] Mining claims, leases, and mineral material sales are regulated federally. However, mineral leases, material leases and exploration permits can be applied to Arizona State Trust Land.

The law and regulations are somewhat different for private land ownership. Mineral rights can be acquired by leases, options or purchase. Private agreements commonly are negotiated such that

[1] U.S. Department of the Interior, Bureau of Land Management Mining law of 1872

the landowner can obtain a royalty, which is usually a payment at pre-determined dates, for an agreed upon duration. The terms of royalty agreements vary and can be negotiated between the parties involved in the mining operation. Other considerations for private land ownership include minimum annual payments, responsibilities for site permitting under various regulatory agencies, surface disturbance considerations, reclamation of the site when material is removed, access, insurance, limits of liability, guarantee of ownership, ownership of waste or by-products, etc. These private arrangements can vary from a “handshake deal”, to formal contractual obligations.[2]

Federal mineral rights obtained through mining claims are privileges which can be granted to U.S. citizens and corporations through legislation enacted by the U.S. Congress. These rights confer legality to mineral exploration and extraction but are distinct from licenses or permits as defined by U.S. law. While mining claims establish the right to access the land, separate permits are necessary for activities that disturb the land beyond casual use. Such activities, which involve the use of earth-moving equipment like drilling, surpass casual use and therefore require permitting.

[2] (AZ Mining permitting guide)

4.3.2 State Mineral Rights, Leases and Mineral Exploration Permits

Table 4-1:Key Information for Mineral Rights on Arizona State Land

Item	Mineral Exploration Permit	Mineral Lease – Locatable Minerals
Application Fees	USD 500*	USD 500*
First Renewal Fee	USD 500*	USD 500*
Second Renewal Fee	USD 500*	USD 500*
Annual Maintenance Fee	Rent is USD 2.00 per acre for first year which includes the second year and USD1.00 per acre per year for years three through five.	Dependant on Mine Development Report ("MDR")
Minimum Annual Expenditure	USD 10 per acre per year for years 1-2; and USD 20 per acre per year for years 3-5	Dependant on MDR
Min Size	20 acres	20 acres
Max size	640 acres per application	No limitation
Reporting requirements	Exploration Plan of Operation must be submitted annually and approved by the Arizona State Land Department (ASLD) prior to startup of exploration activities.	MDR on application approved by the Arizona State Land Department (ASLD)
Initial term	1 year	20 years
Renewals	5 (annually)	20 years
Royalties	N/A	a. Defined at public auction. Fixed rate subject to annual adjustment based on the U.S. Dept. of Labor Producer Price Index; or b. a sliding-scale rate which is linked to the commodity price and the operation's break-even price. There is a statutory minimum royalty rate of 2% of gross value; however, most royalties are established at 5% to 6%.
Area Relinquished Upon Renewal	Not applicable	Not applicable
Notes	USD 3,000.00 bond is required for a single permit or a blanket bond of USD 15,000.00 for five or more permits held by an individual or company.	A bond is established based upon the mining plan of operation as required within the MDR.

Mineral Exploration permits (MEP's) grant the holder the right to explore for hard rock minerals on Arizona State Trust Land. Hard rock minerals are typically found in solid rock formations as opposed to minerals found in sedimentary rocks or in solution. There is still debate on whether lithium clays are considered hard rock or soft rock. For the purposes of this report, the clays are considered hard rock. Some lithium clay deposits have associated brine like those at Albemarle, which are considered placer. However, both placer and lode claims have been staked in case the debate is settled.

MEPs are issued for 1 year and are subject to renewal on an annual basis and for an aggregate period up to 5 years in total. Once approved, the permittee has the exclusive right to conduct exploration type activities on the land which is covered by the permit.

An Exploration Plan of Operation must be submitted and approved by the Arizona State Land Department annually. Native plant and archaeological clearances may be needed depending on the proposed activity.

State Mineral Leases (ML)

These Leases grant the right to mine materials under a MEP. They are issued for 20 years; however, they can also be renewed for an additional 20 years. MLs give the lessee the exclusive right to conduct mining operations on land that is covered by the ML. A Mineral Development Report (MDL), which is a comprehensive document, comprised of a geologic evaluation, economic feasibility, environmental assessment, mine operating plan and reclamation and closure plan must be submitted and included in the MDL application. Climate and soil surveys need to be included as well as archaeological surveys and biological evaluation as part of the MDL. The ML is then issued after completion of the ASLD review, upon verification that a valuable mineral deposit has been discovered as documented in the MDL, and after appraisal and negotiation of the royalty rate for the commodity type.

Prior to commencing mining operation on land that is covered by the lease, prior authorization from the ASLD is required in the form of an approved Mine Operation and Reclamation and Closure Plans.

Geological Field Operations Permit

To carry on any work that is not considered casual use, such as drilling, drill site preparation or road building, must be approved by the ASLD. A Geological Field Operations Permit (GFOP) can be obtained from the ASLD and requires some level of biological and cultural evaluation.

4.3.3 Federal Mineral Rights

There are 2 different categories for mineral rights: Patented and unpatented mining claims. Under the Federal Licensing system, there are no exploration claims and permits.

Patented Mining Claim

These types of mining claims, which are granted under federal law, give the claimant full legal title to both the land and the mineral resources on or beneath the surface. Patented mining claims also gives the owner title to the surface and other resources needed to develop the mining claim. A person can mine and remove materials from a mining claim without a patent; however, a mineral patent gives the owner exclusive title to the locatable minerals. Most patented claims were granted under the *General Mining Law* (1872).

The patent holder gains full control and ownership of the land, has the potential for land value appreciation and the freedom to develop the land for other purposes beyond mining. If the minerals on the patented land have been previously conveyed to a third party or encumbered in some other way.

The pros for patented mining claims are that it gives the holder absolute title, they don’t have associated claim maintenance fees nor annual expenditure requirements for labour and/or improvement. However, these claims are subject to county property taxes, which can be quite high.

Mining on patented land theoretically could be accomplished without the need for permits. However, mining activities and the disturbance of the land could trigger the requirement for additional state issued environmental permits prior to mining-related activities being carried out.

The patented claim system ceased under an act of Congress; however, existing claims retained their private land status and are held in perpetuity.

Unpatented Mining Claims

An unpatented mining claim or site location is an individual parcel of Federal land, which contains valuable mineral deposit(s) for which the claim holder has rights for the extraction and development once all other requirements of law are met. The land within the boundary of location is considered property and can therefore be bought or sold in the marketplace.

Location boundaries, once properly located, establish a claimant's mineral rights and give notice to the federal government of the claim. It also serves to give notice to competitors that the land has been embraced for mineral exploration and development, however, no land ownership is conveyed by virtue of the location.

Unpatented mining claims can be of the lode or placer type.

Lode Claims: The first mining law was the *Lode Law* (1866) confirming the right to locate claims on lodes. These claims are specific to deposits that are in veins, lodes or other rock formations. Lodes or veins are mineral-bearing rock in place between country rock with reasonably distinct boundaries on either side. *The General Mining Law* (1872) allows the location of mining claims that encompass "veins or lodes of quartz or other rock in place bearing gold, silver, cinnabar, lead, tin, copper or other valuable deposits".

Descriptions of lode claims are made by metes and bounds surveys (which define the length and direction of each boundary line). Their size is limited by Federal Statute to a maximum of 457.2 m (or 1,500 ft) in length along the vein or lode. The claim widths have a maximum distance of 91.44m (300 ft) on either side of the centreline of the vein or lode. The total width, therefore, must not exceed a maximum of 182.88m (600 ft). The end lines of the claim must be parallel to qualify for underground extra lateral rights, which are the rights to minerals that extend at depth beyond the vertical boundaries of the claim.

Placer Claims: Since the *Lode Law* (1866) did not authorize the patenting of placer claims, Congress passed the *Placer Act* (1870) to extend the location system to placers which include any mineral deposits which are not lodes or veins of minerals in place between reasonably distinct boundaries on either side. The traditional placer deposits are ones in which metals are washed down from a vein or lode into the beds of an ancient river system or settled among the alluvium in beds of active streams as well as deposits fixed between rock in place, but which lack reasonable trend and continuity, and reasonable segregation from the neighboring country rock.

By numerous Congressional Acts and judicial interpretations, minerals and layered sedimentary deposits such as clay, gypsum, limestone are also considered as placer deposits. The placer claims are located by legal subdivision of land. Total size of placer claims can be up to 20 acres; however, associations of locators may locate placer mining claims up to a maximum of 160 acres with no more than 20 acres per locator.

4.3.4 Environmental Permitting and Approvals

State Land Exploration and Mining Permits

Numerous permits, authorizations and notices are key to obtaining a MEP or ML for State Trust Land before conducting activities which may disturb the surrounding surface. The number of permits required, and the types of permits needed vary depending on the jurisdiction of issuance, the location, and the type of operation, which takes into account environmental and cultural/socioeconomic aspects.

In Arizona, environmental legislation is largely enforced through the requirement of permits. For a Mineral Exploration Permit (MEP), the types of permits required are established within the 'Exploration Plan Operations Report,' which must be submitted at the time of the MEP application. A similar system applies for a Mineral Lease (ML), which requires an environmental assessment as part of the Mineral Development Lease (MDL) application process, submitted at the time of the lease application. Without the correct permits in place, an MEP or ML will not be granted.

For reference, the following notices and authorizations were obtained for drilling and exploration on the Basin East Arizona State ML 11-86283 completed to date The GFOP for drilling and geophysics were finalized and received approval from the Arizona State Land Department (ASLD).

- A Notice of Intent to Clear Land was submitted to the Arizona Department of Agriculture (AZDA) to authorize the preparation of drill pads and access roads, accompanied by a botanical/native plant survey. Due to the presence of sensitive plant habitats in several areas, the company adjusted its drilling program to avoid these habitats. The plant survey also facilitated the plant valuation required for the GFOP by the ASLD.
- A Notice of Intention to Drill an Exploration/Specialty Well was filed with the Arizona Department of Water Resources (ADWR). Upon completion, the drill holes were abandoned following the procedures outlined in the ADWR 'Abandonment Handbook'. After drilling was finished, a 'Project Completion Report for Exploration Drilling' was submitted to ADWR.
- The initiation of the project filing with the State Museum, in collaboration with the ASLD Cultural Resources team, was completed to conduct archaeological surveys on state land. These surveys were carried out, and the report was reviewed and approved by the ASLD and the State Historic Preservation Office (SHPO).
- BHL obtained drill hole permits for 120 sites on the MEP from the State of Arizona at BEE, prior to sonic drilling. The company also obtained permission to drill an additional 10 holes on its BN claim on BLM land.

- BHL is in the process of permitting exploratory drilling at BW and BWE through an Exploration Plan of Operations (EPO) with the BLM.
- Results from a gravity survey prompted the company to stake 2.8 km^2 of additional lode and placer claims to the north on open BLM land.

No other permits were necessary for the mineral disturbance and environmental effects of exploration. Moving into development and mining will require a more detailed and extensive environmental review. Other permits will be needed for advanced stage projects as well.

Federal Land Environmental Review and Other Assessments

State and federal laws that govern the permit process and are not included in this report because they are outside of the scope of this report. The major federals laws that affect the permitting of mining activities can be found in the Arizona Mining Permitting Guide by the Arizona BLM (2017) online. Topics which are included in the guide are listed below, but are not limited to those listed:

- *Migratory Bird Treaty Act* (1918)
- *Bald and Gold Eagle Protection Act* (1940)
- *National Environmental Policy Act* (1969) (NEPA)
- *Clean Air Act* (1970) with Amendments in 1977 and 1990.
- *Federal Water Pollution Control Act* (1972) also known as the Clean Water Act (CWA).
- *Endangered Species Act* (1973).
- *Safe Drinking Water Act* (1974).
- *Federal Land Policy Management Act* (1976) (FLPMA).
- *Resource Conservation and Recovery Act* (1976).
- *Surface Mining Control and Reclamation Act* (1977) (SMCRA).
- *Archaeological Resources Protection Act* (1979).
- *Comprehensive Environmental Response, Compensation, and Liability Act* (1980) (CERCLA).
- *Native American Graves Protection and Repatriation Act* (1990) (NAGPRA).

NEPA

The following description was taken from the Arizona BLM Permitting Guide (2017).

NEPA, which was enacted in 1969, has an important role in the protection of the environmental protection and applies to projects which are subject to a federal decision such as the approval of Plan of Operations. NEPA was considered a landmark in environmental legislation.[3]

NEPA's purpose is to declare a national policy which will 'encourage productive and enjoyable harmony between man and his environment and to establish a Council of Environmental Quality'. The legislation forms a basis for the federal government's decision-making process by requiring federal agencies to consider the effects of a proposed action which could cause

[3] Deloitte Article on Navigating the Nuances of the NEPA Process

disturbances of the human environment and to give notice to the public about their decision process.

Enforcement is done by the U.S. Environmental Protection Agency (EPA).

The process starts with an initial review of the project. There are 3 ways in which a NEPA analysis can take:

1. A Categorical Exclusion (CATEX): A CATEX is issued by lead agencies to projects which are considered not to pose a significant harm to the environment.[4] The projects which fall into this category are excluded from any further detailed environmental analysis. If a federal agency knows a particular type of action will not generate a significant environmental impact which the agency knows from experience the project will be CATEX.[5] Agencies create specific lists of CATEXs, and these lists are used to evaluate an exclusion if it is listed in their NEPA implementing procedures.
2. Environmental Assessment (EA): An EA is a short and concise evaluation which is completed by the agency to determine if an activity will have a significant impact on the environment,[6] If a project does not meet the criteria needed for a CATEX, an EA must be initiated and prepared by the applicant within 1 year of the start of the project, which describes the proposed activity, the potential environmental effects, and potential alternatives.[7] Lead agencies must review EA's within 1 year of submission. If the National Institute of Justice (NIJ) finds that there are no significant impacts or that mitigation can avoid or minimize the impacts below a significant level, then the NIJ can issue a Finding of No Significant Impact (FONSI).[8] If significant impacts to the environment are likely, then the NIJ will need to issue a Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS).
3. Environmental Impact Statement: This stage is required if a project poses significant adverse effects to the environment which requires a more extensive public comment period and further analysis of proposed mitigation measures and monitoring activities.[9] The steps that are involved in the EIS are outlined below:
    a. The federal agency publishes a NOI in the Federal Register, which then informs the public of the upcoming evaluation and describes to the public how they can be involved.
    b. A draft EIS is prepared and published which is then made available for public comment for at least 45 days, with notification of this publication in the Federal Register. At the end of the comment stage, the agency will consider any substantive comments and adjust the EIS accordingly.

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[4] Ibid.
[5] National Institute of Justice, Funding National Environmental Policy Act (NEPA)
[6] Ibid.
[7] Ibid (3).
[8] ibid (5).
[9] Ibid (3).

c. The final version of the EIS is published and made available with responses to the substantive comments. Public notification is then made in the Federal Register. A 30-day waiting period commenced.
d. The agency then publishes a Record of Decision (ROD) which explains the decision, describing the alternatives that were considered, and any plans to monitor and mitigate if necessary.

It is probable that BHLL will need to engage with the federal agency if the project advances to the mining and permitting stage. The company will most likely need to carry out an EIS to be approved by the agency due to the probable scale and location of the project. The EIS will be centered on environmental and social impact assessment (ESIA).

Water Permitting

The 1980 Arizona Groundwater Code recognized that water resources in Arizona are scarce and need to be aggressively managed because of the finite groundwater resources to support the growing economy.[10]

Areas which are heavily reliant on mined groundwater were designated as Active Management Areas including Prescott, Phoenix, Pinal, Tucson, and Santa Cruz. There are five-member advisory councils that are appointed by the governor established by the Groundwater Code. These cities are subject to regulations pursuant to the Groundwater Code. Each of the AMAs carry out programs in a procedure consistent with these goals while considering and incorporating the unique character of each AMA and its water uses.

Large projects including mines have large demands for water. The Arizona Department of Water Resources (ADWR) is the agency responsible for the regulation of the appropriation of surface water and the abstraction of groundwater. AMA have been designated and three farming areas have been designated as Irrigation Non-Expansion Areas (INE).

Outside of the AMAs, the use of groundwater may be used for any reasonable and beneficial use. Without a permit. However, use of this groundwater does require filing with the ADWR a NOI to drill in the specified area. Any water that is withdrawn from trust lands likely will require a lease or contract with the ASLD for use of the water for exploration or mining. The project area so far has been outside all areas covered by AMAs and IMAs. If there is a plan to use groundwater to supply the projects and anticipated mining activities, more extensive research into the laws and regulations may be required.

An Aquifer Protection Permit which can be obtained from the Arizona Department of Environmental Quality (ADEQ). The permit governs the use of groundwater and is tailored to the mining industry. The adjacent Bagdad open pit copper mine produced over 216 million pounds of copper metal in 2020. The company managed to secure water

[10] https://www.azwater.gov/ama/active-management-area-overview

rights which were sufficient for their mining and processing. Any proposed mining operation will be reviewed by ADEQ to determine whether an APP is required.

Other Permits

Throughout the lifetime of the project, several other permits and approvals will be required prior to commencing mining operations are included (but not limited to) the following:

- Air Quality Control Permit (Authority: ADEQ)- This may be required if either a EA or EIS process establishes that air quality around the operation is an issue.
- Arizona Antiquities Act Permit (Authority: Arizona State Museum)- Consultants that are performing a cultural resources evaluation will need to acquire this permit. This permit was in place when the cultural survey was completed for the MEPs.
- Cultural Resources Use Permit (Authority: BLM)- This will be required if or when BLM administered land is used or disturbed.
- Hazardous Waste, Treatment, Storage and Disposal Permit (Authority: ADEQ)- This permit will be necessary and required for the handling of waste created by the mining operation.
- County zoning and flood control permits.
- Permits from several federal and state agencies if explosives will be used in the mining operations.
- Drainage control and storm water permits through ADEQ.
- Mining Reclamation Plan approval from the Office of the Arizona State Mine Inspector for operations on State Land Trust.

4.4 Biodiversity and Habitats

Although the project is in a desert environment, Burro Creek provides a riparian zone where there are some habitats for animals and plants. There are vulnerable or threatened species in the region, so care must be taken when conducting ground disturbance or mining activities. The following species are in the project area:

- Sonoran Desert Tortoise (Gopherus Agassizii): Considered to be ‘Critically Endangered’ by the International Union for the Conservation of Nature Red List (IUCN, 2022) and ‘Threatened’ by the US Fish and Wildlife Service (FWS, 2022A). This tortoise is terrestrial with a domed shell and round, stumpy hind legs.
- Arizona Cliffrose (Purshia (=Cowania) subintegra): Considered as ‘Endangered’ by the US Fish and Wildlife Service (FWS, 2022b)

The Endangered Species Act (1973) is the primary Act in the US which serves to protect and conserve habitat for imperiled species. The law was established for the protection of fish, wildlife, and plants that are listed as threatened or endangered. Another purpose of the Act is to allow for interagency cooperation and issuing permits for otherwise prohibited activities.

A biodiversity study has not been completed on the project to date.

4.5 Areas of Critical Importance (ACEC)

ACEC is a federal designation for land use planning which applies to federal land only. Therefore, the provisions do not apply to private or state ownership. ACECs are public lands where special management is needed to protect important resources and scenic landscapes, or to protect people and property from hazards.[11] There are two overlapping protected areas that are adjacent to the Basin Project. There are also two additional protected areas which lie outside the Basin project area within a 5 km (3 mile) radius. Where there is overlap between the claims area and Clay Hills Research Natural Area ACEC, exploration and mining activity is unpermitted. The part of the Burro Creek Riparian and Cultural ACEC that overlaps with Basin West will require additional permitting for these activities.

The Burro Creek Riparian and Cultural ACEC covers 22,682 acres and features scenic attractions like riparian vegetation, cliffs, and shorelines.[12] It's a hub for water-based recreation and offers serene spots for solitude. The area is home to various wildlife, including raptors. However, historical contamination from mine wastes has harmed aquatic life, affecting higher-level species like raptors and hindering water recreation. It also hosts historical and prehistorical sites, providing obsidian for tools and petroglyphs. Currently, there are 53.44 miles of BLM motorized routes within the area. To preserve its delicate ecosystem, the RMP suggests limiting off-highway vehicle use in certain riparian areas.

The Clay Hills Research Natural Area ACEC, also known as the Clay Hills ACEC, is situated adjacent to and partially overlapping the northwest area of the Basin East license zone. It spans 1,114 acres (450 hectares) and serves as vital habitat for the Arizona cliffrose, an endangered and protected plant species. This area is completely withdrawn from location and mineral entry.

The Poachie Desert Tortoise ACEC spans 32,752 acres and offers Category I habitat for the desert tortoise. Its distinct transitional vegetation between Mohave and Sonoran Desert scrub, along with boulder piles, provides scenic vistas and opportunities for backcountry recreation. Presently, there are 80.54 miles of BLM motorized routes within the ACEC. The Resource Management Plan (RMP) advises restricting off-highway vehicle use to existing roads and trails to preserve the area's ecological integrity.

The Claims which are situated at Basin West are partially superimposed on the Burro Creek Riparian and Cultural ACECs. Drilling operations at this part of the property requires submission of a Plan of Operations to the BLM to conduct exploration, regardless of the total disturbed land and must involve a more detailed environmental analysis and review than a NOI. BHL foresees those additional requirements for drilling activities in this area will not have a significant impact on the timing for drill programs. Restrictions on this part of the property will not prohibit mining. There will be a requirement to modify the mine plan to protect the riparian habitat and cultural resources to mitigate the disturbance and protect the resources that the ACEC was designed for.

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[11] U.S Department of the Interior, Bureau of Land Management, Areas of Critical Environmental Concern

[12] Appendix L of the Bureau of Land Management for Area of Critical Concern (ACECs) Descriptions

Drilling and mining are forbidden in the Clay Hills ACEC. There are some parts of the lode and placer claims that partially overlap the ACEC and are not valid, but the parts of the claims that lie outside the ACEC are valid.

At one point, parts of the land along Burro Creek River and within the Burro Creek Riparian and Cultural ACEC were withdrawn from location and entry under US mining laws by the BLM. However, the BLM never completed this withdrawal and so the area remains open to BHL for exploration and potential mining.

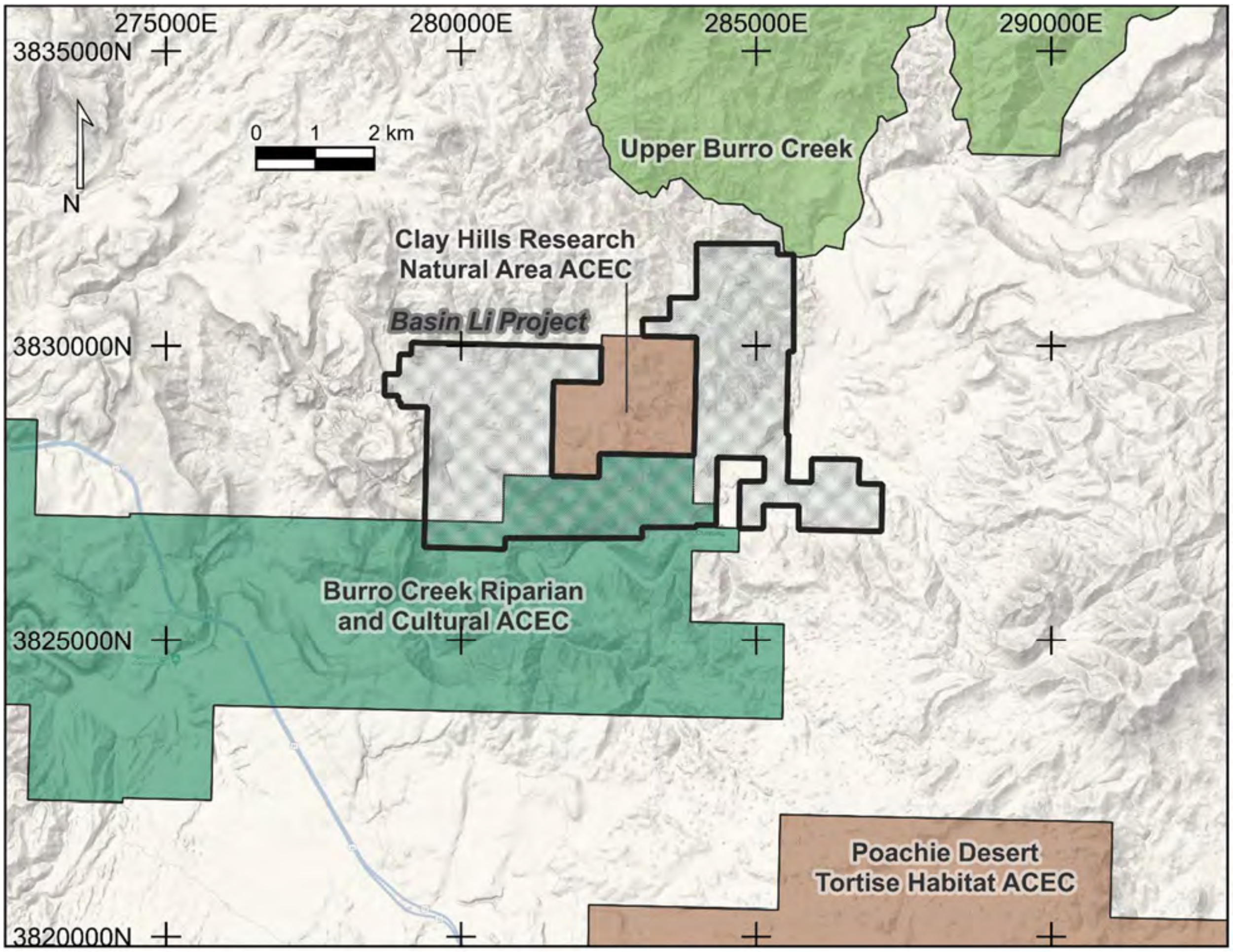

Figure 4-2: ACEC and Other Protected Areas Relative to the Basin Project Areas

4.6 Cultural Heritage

Many of Bradda Head's licensee areas overlap known areas of importance. BHL had completed mapping an archaeological survey within the project area which identified any Native American sites, but none were classified as major sites. BHL is committed to working with the Bureau of Indian Affairs and the local communities. The Burro Creek area represents the westernmost known occurrence of the Prescott culture. Stonewalls of Prescott pueblos stall stand more than 2.4 m (8 feet) in height.

There are Native American Reservations in the County, but none occur within the project area. The closest known reserve is in the town of Wikieup.

4.7 Current Permitting Status

4.7.1 Basin East and East Extension

Basin East and Basin East Extension are situated on State-owned land, thus negating the need for Federal Mining Claims, see Figure 4-3:Basin East Land Ownership and Neighboring Properties. The mineral claims are detailed as follows:

- Arizona State Mineral Lease 11-086283: Covers 360.00 acres (146 ha), approved in 1983, and is valid until 31 March 2026 (part of Basin East).

- Arizona State MEP 008-120901: Encompasses 339.14 acres (137.24 ha), approved on 21 June 2019, expiring on 21 June 2024 (Basin East Extension).

- Arizona State MEP 008-120903: Includes 240.00 acres (97 hectares), also approved on 21 June 2019, expiring on 21 June 2024 (part of Basin East).

- Arizona State MEP 08-120901 Tract 1 and Tract 2 was replaced by MEP 08-125020 Tract 1 and Tract 2: Approved on July 23, 2024.
- Arizona State MEP 008-120903 Tract 2 was replaced by MEP 008-125021 Tract 2: Covers 79.50 acres (32.17), approved on July 23, 2024.
    - It is noted that Freeport-McMoRan exercised their right of first refusal and gained the surface rights to 08-120903 Tract 1, therefore, BHL no longer holds the mineral rights for this area.

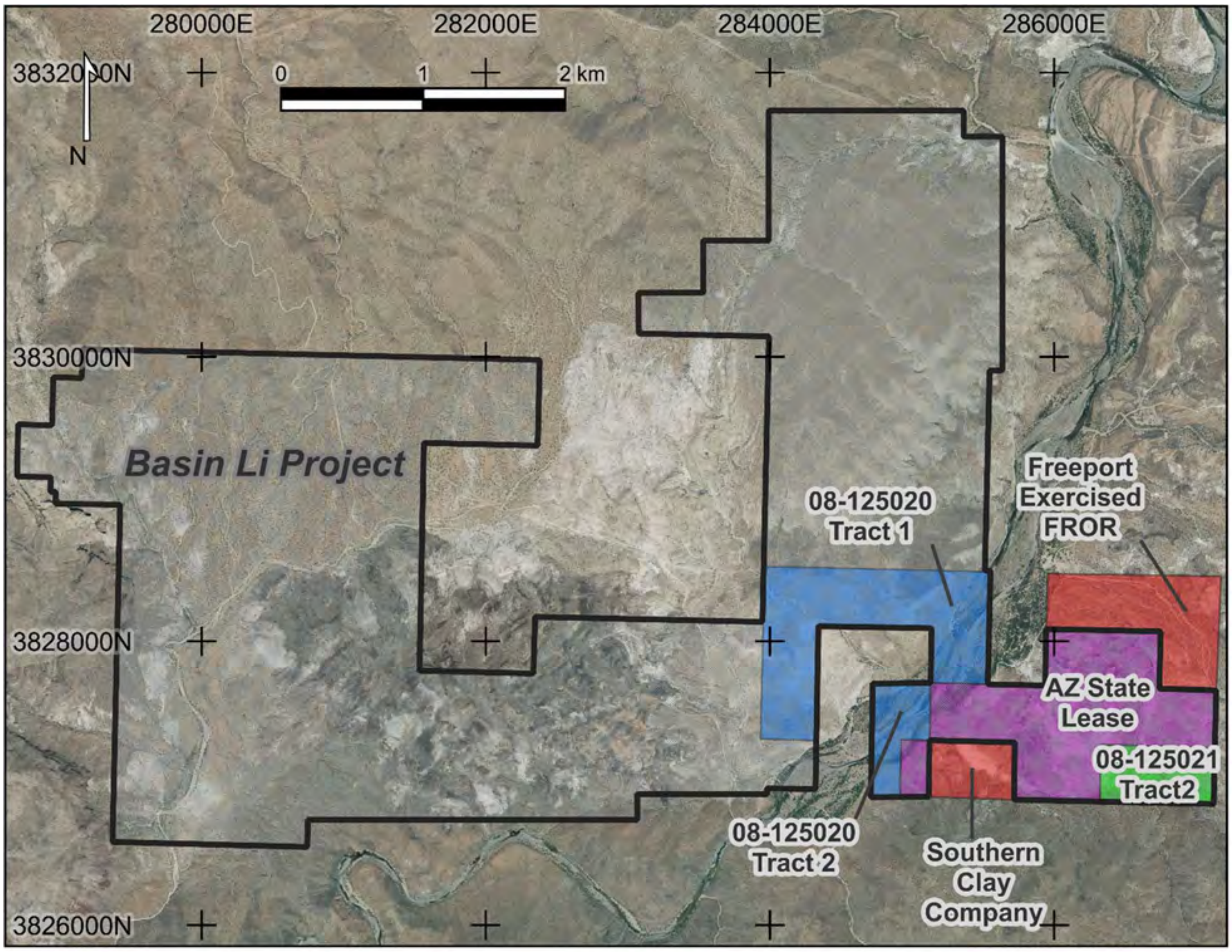

Figure 4-3:Basin East Land Ownership and Neighboring Properties

Originally granted in 1983, the State Mineral Leases at Basin East were awarded to a combination of Cheto Partners LLC ("Cheto") and St Cloud Mining Company ("St Cloud").

Cheto leases one of its adjacent leases, contiguous to the Basin East Project claims, to Southern Clay Company. Southern Clay Company mines specialty clay (zeolite) from the same sedimentary horizon that contains the lithium clays.

In October 2016, Zenolith entered into an exclusive option agreement to acquire 100% ownership of the State Mineral Lease properties, excluding the claim leased to BYK-Chemie GmbH. The agreement also provided that additional land within one mile of the existing tenements would be included if Zenolith, St Cloud, or Cheto acquired water or mineral rights in this expanded area. Any such acquisitions require mutual agreement among all parties and would be financed by Zenolith.

In early 2022, the Cheto Option was exercised under the agreement by fulfilling the necessary payment conditions. As a result, ownership of the State Mineral Leases at Basin East was transferred to Zenolith in August 2022.

Further notifications and authorizations have been secured for the drilling and exploration activities as follows:

- GFOP for drilling and geophysics were completed and approved by the ASLD. The GFOP for MEP 11-086283 was issued on June 26, 2021, and is valid until March 30, 2026.
- An additional GFOP for planned drilling in MEP Permit 008-120901 (Basin East Extension) was approved in August 2022 and remains effective until June 2024. ABH acknowledges that the necessary renewal application for the Basin East Extension GFOP was submitted by the deadline of June 20, 2023.
- Zenolith has undertaken various regulatory procedures and approvals for its drilling and exploration activities:
- A Notice of Intent to Clear Land was submitted to the Arizona Department of Agriculture (AZDA) to prepare drill pads and access roads, including a botanical/native plant survey. Due to sensitive plant habitats in several areas, Zenolith adjusted its drilling plans to avoid these habitats. The plant survey also provided the necessary plant valuation required for the Geological Field Operations Plan (GFOP) by the Arizona State Land Department (ASLD).
- A Notice of Intention to Drill an Exploration/Specialty well was filed with the Arizona Department of Water Resources (ADWR). After completion, drill holes were abandoned following procedures outlined in the ADWR's 'Abandonment Handbook', and a 'Project Completion Report for Exploration Drilling' was submitted to ADWR.
- Watercourses within the Basin East Extension, classified as waters of the U.S. under the Clean Water Act, were addressed. Zenolith obtained authorization from the Army Corps of Engineers for activities that would temporarily impact these waters within Burro Creek. Compliance with Nationwide Permits (NWP) 6 and 33 under Section 404 of the Clean Water Act was confirmed for activities such as constructing temporary drill pads and river crossings.
- Protected native plants in Arizona were identified and valued in accordance with the Native Plant Disposition and Valuation protocol provided by ASLD. An independent contractor conducted a botanical report listing plants that would be affected by Zenolith's activities under the GFOP. Each plant species was assigned a removal cost, and Zenolith paid for their removal prior to commencing activities, as required for all GFOPs to date.
- Zenolith initiated a project filing with the State Museum in collaboration with the Arizona State Land Department's Cultural Resources team. This step was taken to conduct archaeological surveys on State land, with a commitment to avoid all recorded sites during the exploration program.

These measures highlight Zenolith's compliance with environmental and regulatory requirements in its exploration and drilling operations in Arizona.

Zenolith conducted vegetation and wildlife biological surveys across the property before developing access roads, aiming to identify any federally or state listed threatened or endangered species present. The findings of these surveys, along with others commissioned, are detailed in Chapter 20 of the report.

4.7.2 Basin North

Basin North, situated entirely on BLM-managed land, consists of federal mining claims owned entirely by Zenolith (USA) LLC. These claims include 63 placer claims and 72 lode claims, with significant overlap. Placer claims (W-678 to W-740) and lode claims (X-436 to X-507) were staked in 2021, 2023, and 2024. The total area covered by placer claims is 1,265 acres (512 hectares, 5.12 square kilometers), and for lode claims, it is 1,376 acres (557 hectares, 5.57 square kilometers). The mineral rights boundaries for Basin North are delineated in Figure 4-4

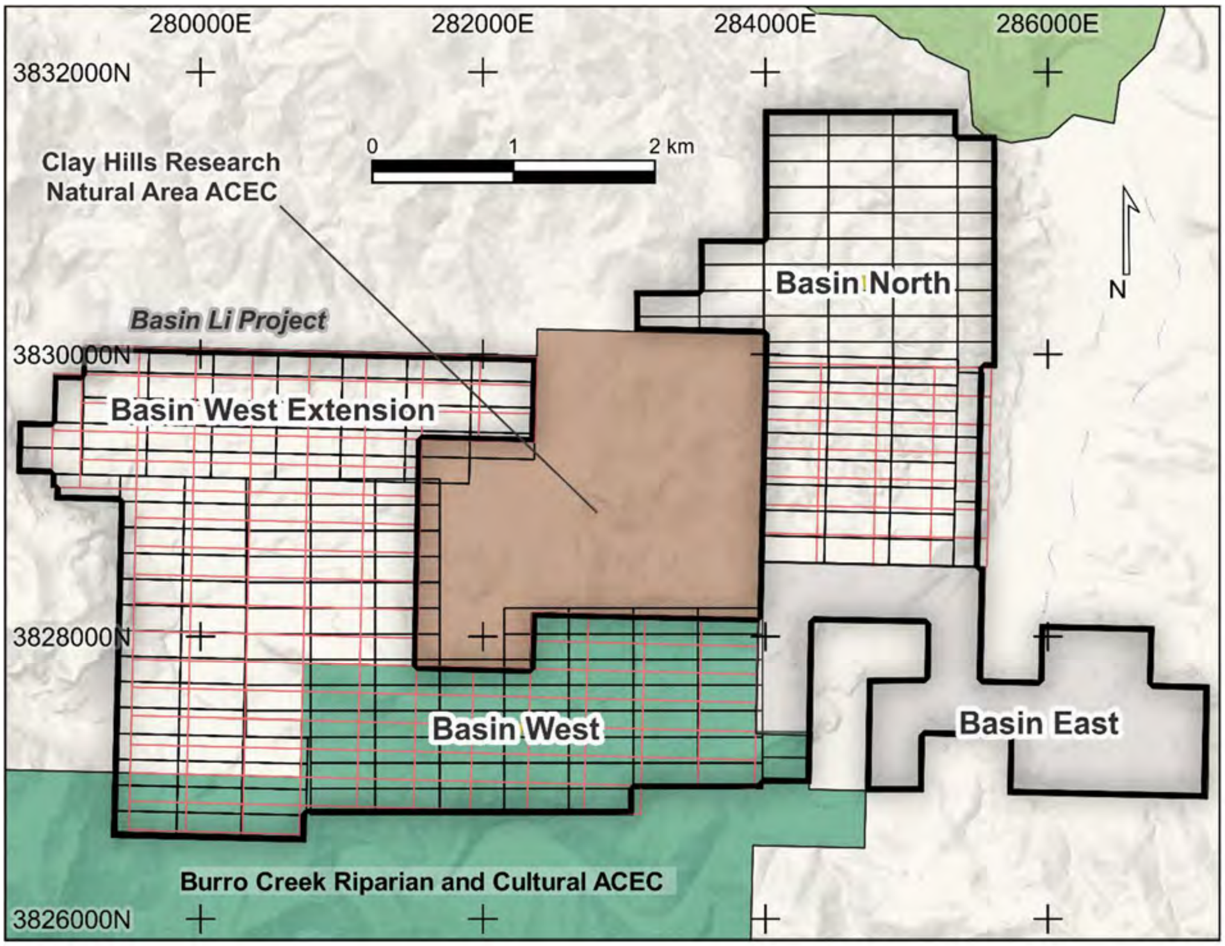

Figure 4-4 Basin North, Basin West and Basin West Extension Claims Map

To maintain these lode and placer claims, Zenolith must annually pay the BLM a maintenance fee of USD 200 per claim and file a certification of payment with the corresponding county, affirming its intention to hold each claim for the upcoming assessment year. Fulfillment of these obligations allows Zenolith to retain these claims indefinitely without further encumbrances such as royalties or back-in payments.

Zenolith submitted a Notice of Intent (NOI) for exploratory drilling in the Basin North area, which was approved by the BLM in May 2022. This approval is valid for a two-year period. As part of the approval process, Zenolith has provided a financial guarantee bond to cover anticipated reclamation costs associated with the project.

The Basin North NOI has been integrated into the Basin West Exploration Plan of Operations (EPO). Despite being part of the EPO process, the NOI remains effective, allowing Zenolith to conduct exploration activities while the broader operational plan is finalized.

4.7.3 Basin West and West Extension

Basin West, situated entirely on BLM-managed land, comprises 130 placer mining claims and 141 overlapping lode claims owned entirely by Zenolith (USA) LLC. Placer claims (ZL-1 to ZL-46, CP-1 to CP-12, BH-1 to BH-7) were staked between 2018 and 2021, covering a total area of 2,599 acres (1,052 hectares, 10.52 square kilometers). Lode claims (SM-1 to SM-74 at Basin West and X-367 to X-435 at Basin West Extension) were staked in 2019, 2021, and 2024 totaling 2,802 acres (1,134 hectares, 11.34 square kilometers).

A portion of the northern edge of Basin West claims marginally overlaps with the Clay Hills Area of Critical Environmental Concern (ACEC). This overlap restricts exploration and mine development in that specific area. However, areas of Basin West overlapping with the Burro Creek ACEC are available for exploration and potential mining activities, subject to BLM stipulations. These requirements include submitting an Environmental Plan of Operation (EPO) alongside a Notice of Intent. Additionally, baseline studies such as vegetation and wildlife assessments must be conducted, and appropriate management measures must be implemented as specified by the BLM.

The obligations and fees for lode and placer claims at Basin West mirror those outlined for Basin North. These include paying an annual maintenance fee of USD 200 to the BLM and filing a certification with the corresponding county each year to retain the claims indefinitely.

In areas where Basin West claims overlap with the Burro Creek Riparian and Cultural Area of Critical Environmental Concern (ACEC), mineral exploration and eventual extraction are permitted but require the submission of an Environmental Plan of Operation (EPO) rather than a Notice of Intent (NOI). This reflects a higher level of scrutiny concerning cultural and biological baseline information. Zenolith (USA) LLC has already addressed these requirements through comprehensive baseline studies.

Figure 4-3 illustrates the boundaries of the Basin West claims, providing context with reference to the Basin North and East leases.

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

5.1 Accessibility

The Basin project can be accessed by a two-hour drive 120 km (75 mi) northwest from Wickenburg. Highway 93 can be taken for approximately 1 hour and then a dirt road south of Wikieup is taken east toward Six Mile Crossing on Burro Creek.

National and International flights can be taken to Phoenix Sky Harbor International Airport, which is then a short 70-minute trip to Wickenburg. (200 km or 125 miles)

5.2 Property Ownership

Figure 5-1 illustrates the land ownership status of the Basin Projects from the BLM (in yellow). The Basin East claims are mostly located on Arizona State land (in green); adjacent privately held land is shown in blue. The three other project areas are located on Federal land administered by the BLM.

The surface mineral rights allow for exploration activities including drilling to be carried out after submitting a drilling plan to the authorities.

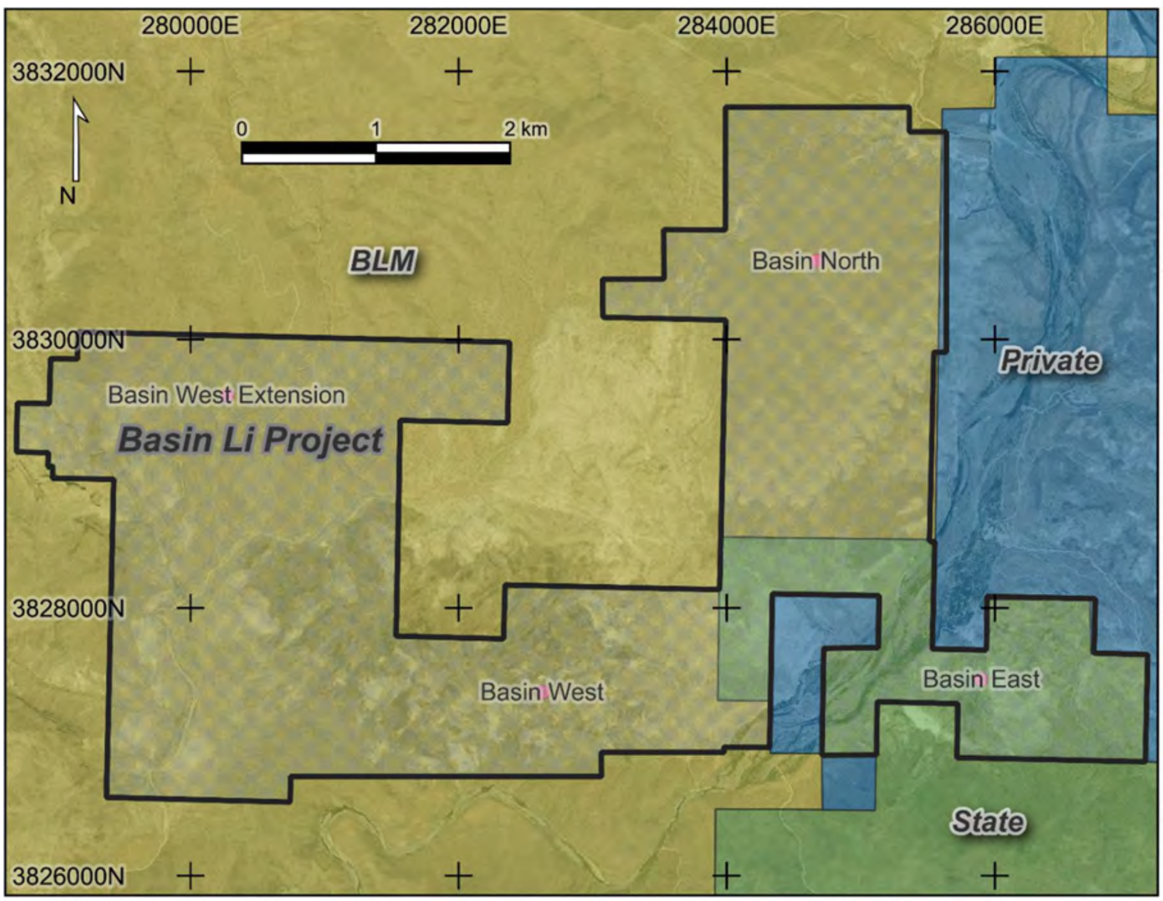

Figure 5-1: Basin Li Project Land Ownership Map

5.3 Climate

The project lies in the heart of the Sonoran Desert which registers on the Koppen Climate Classification as a subtropical steppe (BSh climate subtype).[13] The climate is characterized by hot, dry summers and mild, slightly more humid winters making it a classic desert climate. The project location in the American Southwest significantly affects its temperature profile, precipitation patterns, daylight hours, sun exposure, and wind behavior.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Nov	Oct	Dec	Year
Record high °C (°F)	23.0 (73.4)	23.0 (73.4)	29.0 (84.2)	35.0 (95.0)	40.0 (104.0)	40.0 (104.0)	43.0 (109.4)	42.0 (107.6)	39.0 (102.2)	37.0 (98.6)	31.0 (87.8)	22.0 (71.6)	43.0 (109.4)
Average high °C (°F)	16.03 (60.85)	14.44 (57.99)	19.03 (66.25)	26.09 (78.96)	29.75 (85.55)	35.73 (96.31)	38.08 (100.54)	37.62 (99.72)	33.96 (93.13)	26.52 (79.74)	20.76 (69.37)	14.81 (58.66)	26.07 (78.93)
Daily mean °C (°F)	12.08 (53.74)	10.86 (51.55)	15.16 (59.29)	21.28 (70.3)	24.52 (76.14)	29.86 (85.75)	32.68 (90.82)	32.62 (90.72)	29.74 (85.53)	22.52 (72.54)	16.69 (62.04)	11.1 (51.98)	21.59 (70.86)
Average low °C (°F)	7.7 (45.86)	6.82 (44.28)	10.33 (50.59)	15.31 (59.56)	17.83 (64.09)	21.46 (70.63)	26.17 (79.11)	27.49 (81.48)	24.59 (76.26)	16.98 (62.56)	11.72 (53.1)	7.04 (44.67)	16.12 (61.02)
Record low °C (°F)	-4.0 (24.8)	0.0 (0)	4.0 (39.2)	7.0 (44.6)	10.0 (50.0)	16.0 (60.8)	17.0 (62.6)	21.0 (69.8)	17.0 (62.6)	4.0 (39.2)	4.0 (39.2)	0.0 (0)	-4.0 (24.8)
Average precipitation mm (inches)	9.71 (0.38)	19.86 (0.78)	14.23 (0.56)	1.58 (0.06)	2.62 (0.1)	2.72 (0.11)	19.55 (0.77)	15.25 (0.6)	10.9 (0.43)	14.77 (0.58)	14.44 (0.57)	10.44 (0.41)	11.34 (0.45)
Average precipitation days (≥ 1.0 mm)	0.73	1.73	1.36	0.64	0.73	0.55	2.82	3.09	1.36	1.18	0.64	1.36	1.35
Average relative humidity (%)	40.0	42.62	38.65	24.19	21.67	16.91	27.17	30.35	28.72	29.48	31.19	41.01	31.0
Mean monthly sunshine hours	8.39	10.26	10.6	12.25	13.83	13.93	14.02	13.17	11.51	9.64	8.45	7.88	11.16

Figure 5-2: Wickenburg Climate by Month

The temperature ranges for the region are mild winters with the coldest months in December and January. The average highs for these months are approximately 15°C (59°F), while the average lows are 11.5°C (52.7°F). The warmest months are in July and August, with the average high temperature reaching 37.8°C (100°F) and an average low temperature of 26.5°C (79.7°F). Annual precipitation in the region is low with as little as 1.58 mm (0.06 inches) in April. The month with the highest rainfall is February with an average of 19.9 mm (0.78 inches). Average precipitation for the town of Wickenburg and Yavapai County in general is 160 mm (6.3inches). Most of this occurs between January and March. There is real potential for flash flooding, especially from July through September due to local intense rainfall from thunderstorms which can be common during these months.

5.4 Local Resources and Infrastructure

The Basin project is in a rural and desert region. There is a small quarry located to the south of Basin East license that is being operated on by a third-party. Burro Creek is a river that flows year-round in Arizona and a tributary of the Colorado River. Due to the isolation of the project, there aren't any local water users.

[13] Climate and Monthly Weather Forecast for Wickenburg, Arizona. Retrieved From Weather Atlas Website.

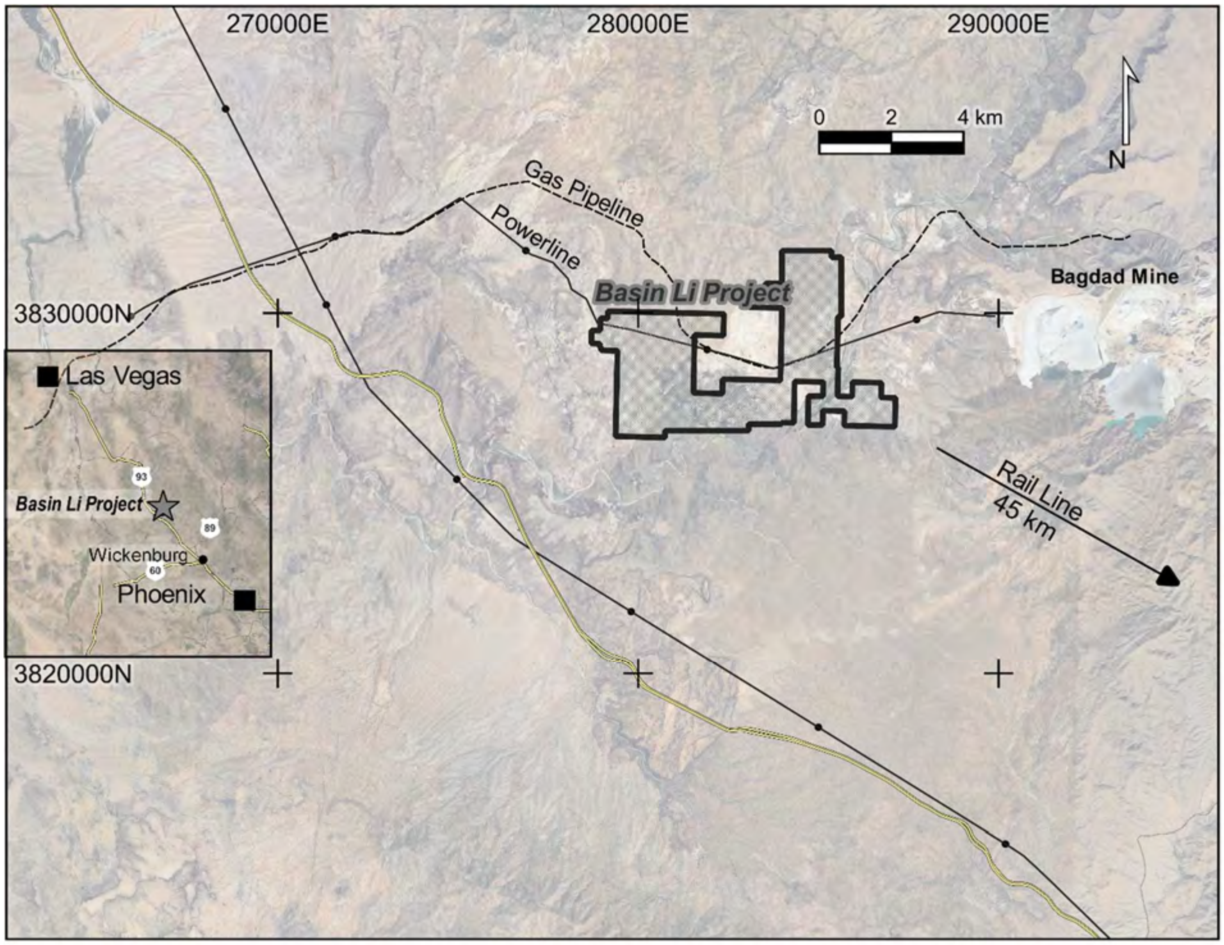

Figure 5-3: Location of the Basin Lithium Project

Nearby, Freeport's Bagdad mine already has a skilled workforce; the company town, also named Bagdad, is approximately 12 km (8 miles) to the east with a population of 2,000 inhabitants. Wikieup is the second closest community, 30 km (19 miles) northwest of the project area with 135 local people; Wickenburg is approximately 95 km to the southeast, along highway 93. Wickenburg, with a population of 7,920 inhabitants, is the closest centre with services: hotels, restaurants, gas stations, food stores and banks.

The Bagdad mine already has infrastructure in place such as a Tuscan Electric Company Inc powerline. This could provide electricity to the project as there is sufficient load to carry substation. There is also a 4-inch gas pipeline operated by UniSource Energy Services Inc. Rail lines are approximately 45 kilometres to the southeast of the project area.

5.5 Physiography

5.5.1 Topography and Relief

As can be seen from Figure 5-4 below, The Basin East area features gently rolling hills with low to moderate relief, intersected by canyons and washes that flow into the Burro Creek valley.

Elevations vary from 690 meters (2,260 feet) above mean sea level along the riverbed to 810 meters (2,660 feet) in the southeastern part of the Basin East area.

Figure 5-4: Topography of the Basin Project (Taken from company website)

5.5.2 Water

Being situated in a desert environment, the project has sparse surface water so that groundwater is the main source of water in the region. During the previous drilling campaigns, the company had intersected groundwater upon intersecting the basement rock.

The neighboring mining operations at Bagdad may have had an effect on groundwater contamination and will need to be taken into consideration in future studies.

The company had carried out a comprehensive water study for exploration and possibly mining. More details about the study can be found in chapter 20 of this report.

In Arizona, Burro Creek stands out as one of the few rivers with year-round flow. It runs southwest, joining the Big Sandy Wash before continuing southward to Alamo Lake. From there, it turns westward as the Bill Williams River, which eventually feeds into the Colorado River (see Figure 5-5). Additionally, Boulder Creek, which passes by the Bagdad Mine, merges with Burro Creek just upstream of the Project site. Consequently, future surface water quality studies must account for pre-existing contamination in their baseline assessments.

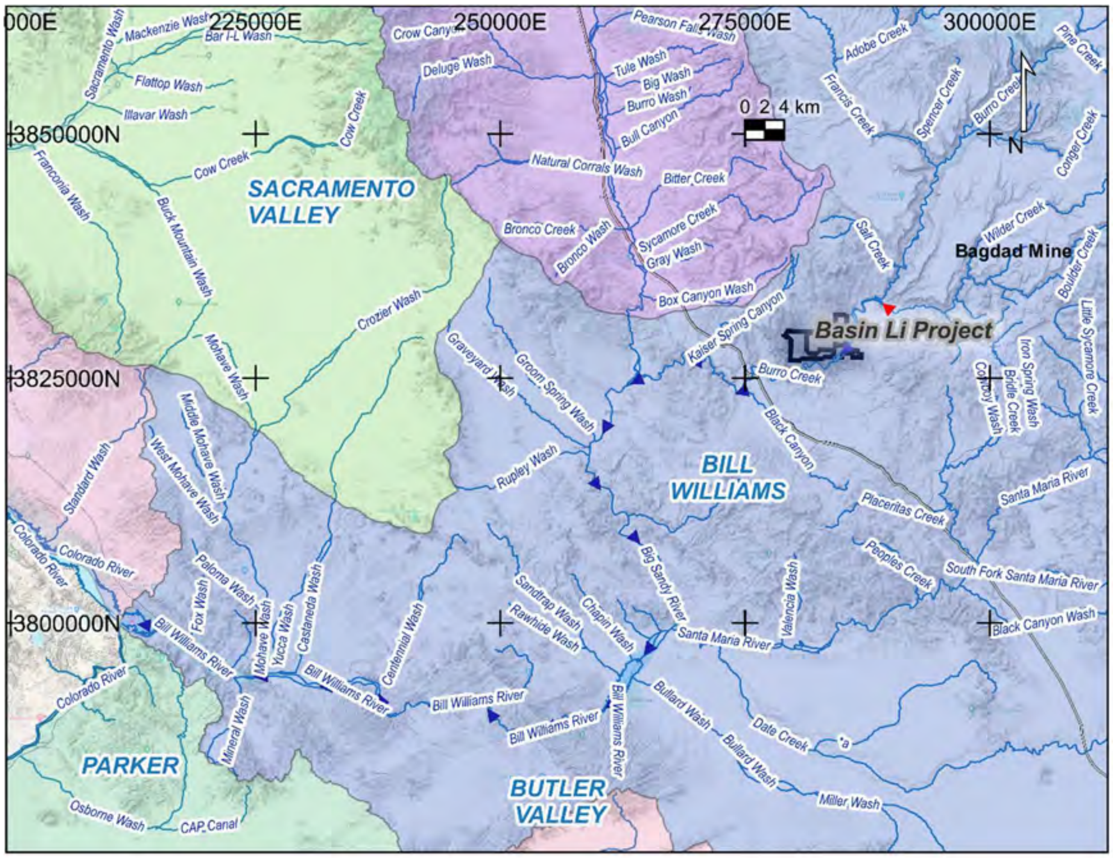

Figure 5-5: Basins and Watercourses in the Project Area

6. PROJECT HISTORY

Initial exploration efforts in the region led to the identification of various metallic mineral deposits, encompassing copper (Cu), lead (Pb), zinc (Zn), silver (Ag), gold (Au), tin (Sn), tungsten (W), molybdenum (Mo), and uranium (U).

The Burro Creek clay deposit, located on the western fringe of the Arizona Transition Zone physiographic province, was uncovered in the mid-1900s while prospecting for metallic resources in the area between Wikieup and Bagdad, Arizona. Portions of the deposit have been periodically mined since the 1980s and remain under continued exploration for specialized clay resources.[14]

GSA Resources Inc. conducted exploration, drilling, sampling, and acquisition on behalf of R.T. Vanderbilt Inc from April 1983 to September 1983 based on the results from the outcrop samples, a vacuum drilling program was carried out. This was part of the Southwest Magnesium Smectite Exploration Project. A total of 32 rotary/core/vacuum drill holes were sampled at the East Burro Creek clay deposit. Ten of these holes were drilled on the Current Basin East Lease Area. The other holes were drilled on what is now BYK Chemie GmbH's (BYK) specialty clay property. This mine produces small annual tonnages of cosmetic grade saponite clay from a high purity, high-brightness beige and white clay. None of these drill holes have been reviewed in detail and have not been verified by either BHL or the QP. Only a few of these drill holes were assayed for lithium and returned the following results.

- BCS-8-12-83 returned 1.2 m (4 feet) with an average grade of 3,577 Li
- BCS-8-20-83 returned 1.5 m (5 feet) with an average of grade of 465 ppm Li
- BCS08-21-83 returned 1.5 m (5 feet) with an average grade of 1,022 ppm Li
- BCS-8-22-83 returned 3.0 m (10 feet) with an average grade of 929 ppm Li
- BCS-8-23-83 returned 1.5 m (5 feet) with an average grade of 1,765 ppm Li

These state mining claims filed during this period were eventually converted into state mineral leases.

A 20-ton bulk sample collected from the property and sent to Vanderbilt's Murray Kentucky plant for processing. The saponite was evaluated, however, Vanderbilt decided to go with hectorite from the Lyle deposit because it was more suitable for their product line.

Unilever and Proctor and Gamble (USA) expressed interest in the high-purity white Ca-bearing montmorillonite for use in laundry detergents. Several samples were shipped to Unilever including a 544 kg (1199 lb.) from the upper part of historical drill hole BC-8-15-83. This hole was collared just to the west of the Basin East License area near the BYK mine.

[14] Mineral Development Report by Cheto Partners

6.2 Previous Mineral Resource Estimates

6.2.1 SRK Maiden MRE 2018

In 2018, SRK conducted a Maiden MRE and Exploration Target for Basin East. The effective date of the report was September 21, 2018. The MRE was compliant with the rules, reporting standards and the terms and definitions established under the JORC Code.

Mr. Martin Pittuck was the Competent Person (CP) for SRK and the MRE was completed under his supervision. Mr. Pittuck (CEng) is a full-time employee of SRK and a Chartered Engineer with the Institute of Materials Minerals and Mining.

The resource model was based on the data from the 2018 RC drilling campaign (14 drill holes) for a total of 923.69 m (3030.47 ft) and contained updated maps and cross-sections that were provided by BHL. The Geological software that was used was Leapfrog Geo 4.3.1 software and was based on four modelled fault blocks and eight major stratigraphic units to constrain the resource estimate.

The SRK Mineral Resource Classification is given in Table 6-1:

Table 6-1: 2018 SRK Mineral Resource Classification with a Cut-Off Grade of 300 ppm Li

Category	Tonnes (Mt)	Li (ppm)	Tonnes LCE
Measured	N/A	N/A	N/A
Indicated	N/A	N/A	N/A
Inferred	42.6	818	185,000

These Mineral Resources are reported as undiluted without mining recovery. The units above are reported as metric. Also, the conversion factor of Li metal to lithium carbonate equivalent (LCE)= 5.323

6.2.2 SRK Updated MRE 2022 Q1

During the first and second quarters of 2021, SRK generated a revised Mineral Resource Estimate (MRE) based on 10 diamond drill holes for a total of 1110.47 m (3643.27 ft) and outlined an Exploration Target for Basin East, with an effective date of February 22, 2022 (SRK, 2022). The MRE adhered to the guidelines, reporting standards, and terminology outlined in the JORC Code. The CP responsible for the supervision and content of the report was again, Martin Pittuck of SRK.

The model was built by SRK based on the new diamond drill holes (10 holes) in addition to the 2018 and 2021 holes for a total of 2,034 m (6,673.74 ft) along with updated geological maps and cross-sections supplied by BHL.

SRK utilized Leapfrog Geo software to develop an updated geological model. Infill diamond drilling confirmed previous geological interpretations and facilitated the partitioning of the central deposit area due to the identification of a newly discovered fault. Additionally, it delineated a high-grade subdomain, extending towards the northwest and remaining open for further exploration. The infill drilling produced an indicated mineral category that could be added to the total resource.

Table 6-2: 2022 Q1 SRK Mineral Resource Classification with a Cut-Off Grade of 300 ppm Li

Category	Tonnes (Mt)	Li (ppm)	Tonnes LCE
Measured	N/A	N/A	N/A
Indicated	17.6	912	86,000
Inferred	57.6	717	220,000

6.2.3 SRK Updated MRE 2022 Q4

SRK produced another updated MRE, with an effective date of October 14, 2022, for the Basin East project prepared in accordance with NI 43-101 reporting standards. This time, Dr. Kirsty Reynolds produced the MRE and was overseen by QP/CP Martin Pittuck who are both employees of SRK. The estimate was prepared using 3211.08 m (10,535.75 ft) of drilling for a total of 38 drill holes. The new holes for this estimate were based on sonic drill holes.

Table 6-3: 2022 Q4 SRK Mineral Resource Classification with a Cut-Off Grade of 300 ppm Li

Category	Tonnes (Mt)	Li (ppm)	Tonnes LCE
Measured	N/A	N/A	N/A
Indicated	21.2	891	63,000
Inferred	73.3	694	271,000

6.2.4 SRK Updated MRE Q4 2023

SRK did a final updated MRE for the Basin East project and was prepared in accordance with NI 43-101 and JORC reporting standards. The effective date for this MRE was September 1, 2023.

The report was prepared by Dr Kirsty Reynolds and Dr Jamie Price who are both Consultant Resource Geologists for SRK. Martin Pittuck was the QP/CP who oversaw and managed the consultants. The estimate was based on 48 holes totaling 5,566.25 m (18,262.69 ft). Sonic drilling was also used for this drill program.

Table 6-4: 2023 Q4 SRK Mineral Resource Classification with a Cut-Off Grade of 550 ppm Li

Category	Unit	Tonnes (Mt)	Li (ppm)	Tonnes LCE
Measured	N/A	N/A	N/A	N/A
Indicated	Upper Clay	11	720	42,000
	Upper Clay HG	6	1345	43,000
	Lower Clay	N/A	N/A	N/A
Inferred	Upper Clay	143	790	600,000
	Upper Clay HG	48	1290	330,000
	Lower Clay	19	690	70,000

7. GEOLOGICAL SETTING AND MINERALIZATION

7.1 Regional Geologic History

In terms of geology, the project site is situated within the Transition Zone where the Colorado Plateau meets the Basin and Range provinces. The geology of the Basin East – Bagdad area consists of Pre-Cambrian granitic intrusions and metamorphic rocks, overlain predominantly by Tertiary sediments, pyroclastic rocks, and lava flows.

The Yavapai Series Pre-Cambrian rocks are comprised of Early and Middle Proterozoic granites, granodiorites, diorites, and gabbros, including several significant granitic plutons. Metamorphism has led to the formation of mica schists, hornblendite, and orthoclase augen gneiss in certain areas. These basement rocks display an upper contact which has been carved out by erosion.

During the Late Cretaceous to Early Tertiary period, pyroclastic rocks known as the Greyback Mountain Tuff, occasionally intruded by rhyolite dykes, directly overlay the basement rocks. This layer can reach thicknesses of up to 150 m (500 ft). Quartz monzonite stocks, formed during this period, include the copper-mineralized porphyry that is mined at the Bagdad porphyry copper-molybdenum mine, and likely also contributed to the formation of the Lawler Peak Granite.

During the Miocene and Oligocene epochs, a sequence of faults became active, leading to the formation of multiple basins in the region. Initially, these basins were filled with high-energy sediments like the Gila Conglomerate. Subsequently, lacustrine and fluvial processes deposited sandstones, siltstones, and a dolomitic layer above the conglomerate. This basin fill package also includes intercalated tuff horizons.

During the Pliocene epoch, the basins underwent a second episode of tilting and localized normal faulting. Subsequently, the Wilder Formation was deposited, consisting of basalts, pyroclastic cones, and bedded tuffs, predominantly in a lacustrine setting. Moving into the Pleistocene, these deposits experienced partial erosion by river channels, followed by Sanders basalt flows, which filled the channels and extended over much of the region. These basalts now form the cap on the mesas visible across the landscape today.

The Tertiary volcano-sedimentary deposits typically show a thickening trend towards the west. Intercalated tuff horizons within these deposits contain occurrences of zeolite, bentonite, magnesite, and agate. These minerals formed through later alteration by hydrothermal and hot spring fluids. This alteration event, likely responsible for introducing lithium into clay alteration products, appears to have been localized along faults that commonly trend north-south or east-west.

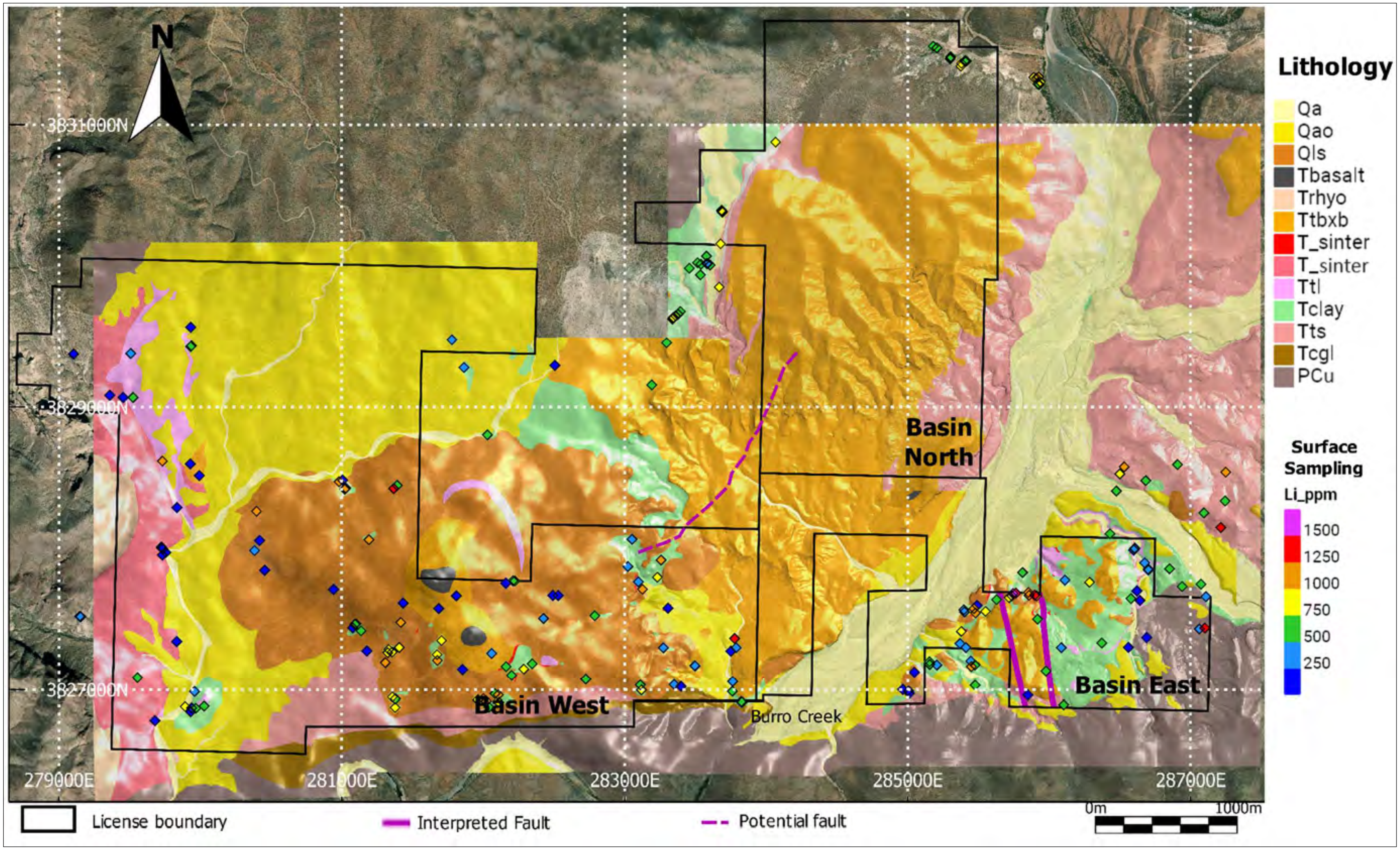

Figure 7-1: Geological Map of the Basin Project Area

7.2 Local Geology

The local geology of the Basin Project Area is shown in Figure 7-1.

In the Basin area, lithium-bearing clays are found within the Miocene-Pliocene Wilder Formation, which consists of basalts, sediments, lacustrine clays, and variably altered tuffs. The mineralized horizon present in the Basin East Project area lies above a unit of tuffs and fine to coarse-grained sediments that are exposed in the eastern and southern parts of the licensed area. These sediments rest upon the Proterozoic gneiss basement. Typically, the mineralized unit is covered by basalts, occasionally overlain by superficial sands, gravels, and conglomerates.

In certain areas, particularly in the western part of Basin East, the tuffs and clays have undergone further alteration due to magnesium to calcic metasomatism.

The clay-bearing unit exhibits a flat to gently dipping orientation and varies in thickness, ranging from a few meters to up to 136 m (446 ft). The variability in thickness can be attributed to several factors: original filling of channels and depressions leading to occasional greater thicknesses, post-sedimentary washouts reducing thickness in some areas, or recent erosion of the deposit and overlying basalts to the current land surface. This erosion has resulted in a variable remnant thickness of the exposed shallowly dipping beds.

The unit is slightly offset in places by several faults; the lithium grade varies according to the changing proportion of clay content in the unit which may be an original sedimentary feature or may be due to varying degrees of alteration associated with proximity to such faults.

The lithium unit is divided into an upper and lower clay layer by an important thin internal lapilli tuff marker horizon, which is non-to-weakly lithium-bearing, and is capped by a vesicular basalt flow. It outcrops in multiple locations and generally shows a sub-horizontal to shallowly dipping orientation. This suggests that it likely extends across much of the Project area at relatively shallow depths. However, in some stream gullies and the far eastern part of the area, the unit may have been locally eroded away.

7.3 Deposit Stratigraphy

Table 7-1: Stratigraphic Sequence at the Basin East Lithium Project

Unit	Unit Code	True Thickness (m)	Age	Description
Stream/ wash alluvium	Qa	1 - 10	Pleistocene - Holocene	Younger gravel and sand deposited by water in modern stream drainages and dry washes
Older terrace alluvium	Qao	1 - 20	Pleistocene	Older stream-deposited gravel and sand in terrace deposits as much as 15 m above modern stream drainages; high-quality aggregate source in State Lease area; lithium values < 50 ppm
Toreva block landslides	Qlstb	1 - 20	Pleistocene - Pliocene	Large, cohesive landslide blocks consisting of unit Ttbxb that have slid down during periods of rapid erosion of the underlying low-friction lithium-clay unit
Lithic tuff	Tult	1-50	Pliocene-Miocene	Composite unit, stratified to unconsolidated lithic tuffs, pumice tuffs, volcaniclastics, intercalated pebble conglomerates, silty clay seams
Upper Basalt	Tub	1-10	Miocene	Vesicular to massive basalt flow, locally clay altered with green celadonite, weathers brown to red, basal debris flows
Lithic tuff/ Tuff-breccia/ basalt	Ttbxb	1 - 50		Composite unit; basal pumiceous lithic tuff, 0-10 m, with thin sandstone/mudstone interbeds; middle, thicker unit of tuff-breccia consisting of large clasts of mostly Tertiary rhyolite in a poorly consolidated ashy matrix; lithium values < 100 ppm
Lower Basalt	Tlb	1-20	Miocene	Vesicular to massive basalt flow, locally clay altered with green celadonite, calcite to zeolite filled vesicles. Lower and upper-most 1-3m can contain elevated lithium
Hot springs sinter deposits	Ts	1 - 4	Miocene - Pliocene	Bright white, irregularly textured, discontinuous deposits of hydrothermal carbonate, agate/chalcedony nodules, and waxy saponite clay; lithium values 150-1000 ppm; occurs mainly near upper and lower contacts of lithium clay unit
Lapilli tuff	Ttl	4-10	Miocene - Pliocene	Occurs as a sometimes-distinct layer within the Li-bearing clay unit; fine-grained, ash-rich, weakly bedded to massive tuff containing 3-15% round, black, glassy lapilli 3-20 mm in diameter; weakly to moderately welded; nearly white where strongly altered, light brown where less altered; lithium values <50 to 700 ppm
Clay (lithium-bearing)	Tclay	23 - 136	Miocene - Pliocene	Bentonitic clay-rich interbedded tuffs and tuffaceous sediments (claystone, mudstone) deposited sub-aqueously in a lacustrine environment, possibly with syn-depositional hydrothermal alteration related to hot springs sinter deposits; mostly light-green-grey in upper parts; darker green-grey and bluish grey in lower parts; lithium values 400–2775 ppm
Interbedded tuffs and tuffaceous sedimentary rocks	Tts	0-35	Miocene - Pliocene	Undifferentiated light-grey, green-grey, and light-brown tuffs and fine-grained tuffaceous sedimentary rocks; sediments are dominantly claystone, mudstone, "dirty" arkosic sandstone, and a few lenses of limestone ± dolostone 1-3 m thick; may be a less-altered protolith of the lithium-bearing clay unit; lithium values 100-500 ppm;
Red-brown sedimentary rocks	Tred seds	3-41	Miocene	Dark reddish-brown clastic sedimentary rocks interpreted to be derived from erosion of Proterozoic mafic gneiss and granite and deposition into a developing lacustrine basin and on an irregular erosional surface; gritty claystone, mudstone, sandstone, and conglomerate, generally fining upward; observed only in drillholes; lithium values 100-400 ppm
Conglomerate	Tcgl	29+	Miocene	Conglomerate containing clasts of Proterozoic mafic gneiss and granitic rocks in a red-brown matrix; occurs mainly as a basal conglomerate below the redbed unit along the major unconformity surface; lithium values <50 – 400 ppm
Mafic gneiss and granite	PCu	>100	Proterozoic	Undifferentiated Proterozoic basement rocks consisting mostly of mafic gneiss at the bottom of drillhole BCRC18-01; at the surface south and west of the State Lease area, granite masses have locally intruded gneissic rocks

7.4 Structural Geology

Surface mapping and recent drill data indicate that the lithium-bearing clay deposit at Basin East formed within a closed depositional basin. Previous reports and maps by the US Geological Survey (Anderson et al., 1955; Sheppard and Gude, 1972; Miller et al., 1987) suggest that deposition occurred during either the Miocene or Pliocene epochs. The basin thickens rapidly northwards from its margin, where it contacts Proterozoic basement rocks along the base of the highland south of the property line.

Significant felsic volcanic activity in the region coincided with structural down-dropping of the basin. Sediment filling the basin and sub-basins originated from erosion of adjacent highlands, interspersed with layers of water-deposited tuff resulting from periodic eruptions of local felsic and mafic volcanoes. Concurrently, or shortly after, deposition of basin fills, low-temperature hydrothermal solutions are believed to have enriched the area with lithium, potassium, magnesium, and locally with molybdenum. This process further altered the tuffs and sedimentary rocks, increasing their clay content.

Scattered deposits from hot springs, including banded agate and chalcedony nodules, spider-web silica veinlets, and carbonate bands and nodules, are mostly found near the upper and lower contacts with the lithium-bearing clay. These deposits also contain elevated levels of lithium and magnesium. Their presence across the property indicates widespread hydrothermal activity. Additionally, the tuffs frequently contain abundant zeolite minerals, providing further evidence of hydrothermal alteration processes.

Following basin formation and the deposition of basin fill, the strata underwent a gentle northward tilt. In 2016, a north-south oriented fault (referred to as the N-S fault) was mapped near the center of the State Lease area based on limited surface exposures, and its existence was confirmed by drilling in 2018. Although the fault itself was not intersected in drillholes, straightforward stratigraphic analysis indicates that it has an up-to-the-east displacement ranging from 40 to 80 m (130 to 260 ft).

To the east of the N-S fault, strata dip at angles of 4° to 10° towards the north and northeast, whereas to the west of the fault, strata dip at angles of 5° to 16° towards the northwest. The precise subsurface orientation of the fault has not been fully determined yet; however based on the limited field evidence and the approximate trace observed on the surface, it is believed to be sub-vertical.

East of the N-S fault on the uplifted block, erosion has removed more of the upper part of the lithium-bearing clay deposit. It is possible that the lower part of the lithium-rich clay, situated below the lapilli tuff (unit Ttl), may still be present in the eastern and east-central parts of the State Lease area.

On the western side of the N-S fault, the lithium-bearing clay unit remains largely intact and uneroded, except where it dips northwest under Burro Creek. In this area, some of the clay has likely been eroded by fluvial action during the Quaternary period by Burro Creek and its small tributaries.

A northwest-oriented fault was identified based on exposures observed in an active specialty clay mine adjacent to the State Lease area. This fault seems to have a maximum vertical displacement of only a few meters, although detailed drill data in this specific area are limited due to the license boundary constraints.

Together, the northwest-oriented fault and a north-oriented fault form the western and eastern boundaries, respectively, of a wedge-shaped central block. This block is further divided into two parts by a secondary north-northwest-trending fault, which was identified by observing stratigraphic offsets in drillhole logging data.

Early surface mapping in 2016 indicated the possibility of numerous faults in the area along the southeast bank of Burro Creek due to the presence of steep dips measured in thin sedimentary interbeds within unit Ttbxb, as well as apparent dips of the thin basalt layer in that unit. However, drilling northwest of Burro Creek demonstrates that the lithium clays are continuous down-dip to the northwest, running under Burro Creek and into the Basin North license area, precluding the presence of a northwest trending fault.

The general gentle northerly dip of the lithium clay deposit and Tertiary units was confirmed by the 2016 micro-seismic "Tromino" geophysical study. However, subsequent drilling revealed that the Tromino study had underestimated the depth from the surface to the Proterozoic basement beneath the State Lease area. Consequently, the initial estimate of the thickness of the lithium-bearing clay unit before drilling was also underestimated.

7.6 Mineralization

Lithium mineralization at Basin East comprises clay-rich fine-grained lacustrine tuffs and fine-grained tuffaceous sediments, reaching thicknesses of up to 136 meters (446 feet). Lithium is primarily found in smectite group minerals of the hectorite-type, particularly saponite and swinefordite, which make up 10% to 45% of the lithium-bearing clay samples.

Hyperspectral analysis conducted in 2018 revealed abundant saponite, montmorillonite, and talc in the lithium-bearing clays, with irregularly distributed and less abundant chlorite. Subsequent X-Ray Diffraction analysis of an upper clay sample drilled in 2021 showed that the majority of the lithium in that sample was contained within the mineral swinefordite, with a smaller portion present in the mineral petalite.

Additionally, the samples contain minerals such as magnesite, calcite, feldspar, mica, and dolomite.

The introduction of lithium is primarily attributed to alteration processes driven by the circulation of low-temperature hydrothermal fluids and hot springs, potentially derived from peripheral rhyolite domes. This alteration occurred after the deposition of sub-aqueously deposited tuffs and sediments but before the deposition of overlying, sub-aerially deposited coarse lithic tuff and basalt units (unit Ttl/Tlb).

During this alteration event, thin discontinuous lenses and layers of hot springs sinter (unit Ts) were deposited, ranging from 1 to 4 m (3 to 13 ft) in thickness. Sinter deposits are widespread across most of the State Lease area and are also common in the Company’s large block of unpatented federal mining claims west of the State lease area, where additional lithium-bearing clay has been identified through surface sampling.

Sinter deposits are most frequently found along the upper and lower contacts of the lithium-bearing clay unit and along the upper and lower contacts of the lapilli tuff bed (unit Ttl), which is enclosed within the clay unit.

Supergene and/or diagenetic processes may have also played a role in the alteration of clay and the enrichment of lithium and magnesium in the tuffs and tuffaceous sediments. These processes are similar to those believed to have contributed to the formation of lithium-bearing clays at Bacanora Minerals Ltd.'s Sonora Lithium Project in northern Mexico.

Hyperspectral analyses conducted by ALS Tucson on reject material from the 2018 drill program indicate that talc comprises 5% to 35% of most lithium-bearing samples (locally reaching up to 45%). Talc is commonly found in other clay-rich sedimentary rocks, likely formed as an alteration product of high-magnesium clays and carbonates.

The lithium-bearing and magnesium-enriched clays in the area are predominantly bentonitic and have been characterized by chemical and X-ray diffraction analyses as high-magnesium trioctahedral smectites, specifically of the saponite-type, containing varying types and quantities of impurities.

Adjacent to the Company's State Lease area, the specialty clay mine owned by BYK Chemie GmbH produces small annual quantities of cosmetics-grade saponite clay. This clay is sourced from a white-weathering beige clay layer several meters thick, likely corresponding to the highest-purity beige and white clay identified by Schreiner as occurring approximately 7 m (23 ft) below a tuff layer. However, this high-purity clay represents only a fraction of the total bedded sequence of lithium-bearing clay, which exhibits variations in color and impurity content.

Contrary to initial assumptions, there is no evidence suggesting that the specialty clay contains higher lithium content compared to other parts of the clay sequence. In fact, the Company's drilling and surface sampling activities indicate that light greenish-grey clay often exhibits higher lithium grades than the bright white/beige clay like what is mined in BYK's pit. Figure 7-2 depicts an RC chip tray with samples from the lithium-rich clay zone.

Figure 7-2: RC Chip Samples from BCRC18-04 and BCRC19-13 Showing Li Grades in Permanent Marker

8. DEPOSIT TYPE

Lithium resources are abundant throughout the world and are primarily found in pegmatites and greisen veins as well as high-elevation evaporitic brines. There is a third type of lithium resource which exists as volcanic-sedimentary.

These clay deposits (also known as sediment-hosted deposits) are found in the Basin-Wikieup belt and serve as a prime illustration of the "Lithium in Smectites of Closed Basins", Descriptive Model 25lc of the USGS'S Cox-Singer classification scheme of clay deposit models (Asher-Bolinder, 1991). Three lithium clay deposit models are presented as typical deposit types:

1) Lyle's Hectorite Mine, located in Yavapai County Arizona lies approximately 45 km (28 miles) east-southeast of the Basin Project and is operated by Vanderbilt Minerals LLC for the production of specialty clay products. This deposit was discovered by Joseph Lyle in the mid-1950s which were referred to as the "White Hills" deposits. These clay deposits contain hectorite and bentonite (montmorillonite).
2) Lithium America's Thacker Pass (Nevada) sedimentary hosted lithium clay deposit with the clay mineral hectorite as part of the smectite clay family.[15] Thacker Pass has been evaluated to be the largest Measured and Indicated Li resource in North America. Lithium America is planning on moving the project into production. The lithium enrichment at Thacker Pass is still up for debate, but it is thought to have come from parent rhyolitic magmas which got enriched due to the assimilation of the continental crust during magma genesis. Due to the eruption of tuff and the collapse of the McDermitt Caldera, a large volume of Li-enriched glass, pumice and ash was deposited on the surface of the earth in close proximity to the caldera. Chemical and physical weathering then transported lithium into a structurally controlled catchment basin. Hydrothermal fluids are thought to have contributed to the concentration of lithium. The higher illiltic parts of the sedimentary sequence formed when a hot, low-pH, Li- and F-rich fluid altered the smectite to illite.
3) Hector Mine in Southern California, where the mineral hectorite was named after. Several other companies are exploring for lithium clays in the region in proximity to the abandoned Hector Mine.

The US Geological Survey proposes several genetic models and processes which include the alteration of volcanic glass to lithium-rich smectite; Precipitation of lithium from lacustrine waters; incorporation of existing lithium into smectites.

Each of these depositional/diagenetic models are characterized by abundant magnesium, silicic volcanics, and an arid region.

The QP makes note that there is a lack of detailed understanding of the exact depositional environment at the Basin deposit.

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[15] Lithium America's Thacker Pass FS

9. EXPLORATION

9.1 Introduction

Relying on promising lithium grades that were encountered by GSA Resources Inc in the 1980's, Zenolith initiated field work at the Basin East area in March 2016. Positive assay results led Zenolith to acquire the mineral rights through its US-based consulting firm, World Industrial Minerals (WIM). WIM conducted more exploration work in September and December of 2016. A 14-hole reverse-circulation (RC) drilling program was initiated in April and May of 2018. The drilling program was based on positive results from the 2016 geological mapping, rock-chip sampling and a passive seismic survey.

9.2 Surface Geochemical Sampling, 2016 and 2018

Surface geochemical sampling of rocks and soils was conducted by Zenolith through WIM from 2016-2024. WIM sampled both the Basin East state lease area and Basin West. In total, 191 samples were taken and analyzed by ALS Minerals in Vancouver, Canada. The analysis method used was multi-element ICP-MS with four-acid digestion.

Samples were first taken to ALS for preparation including crushing, pulverizing and homogenization at their facility in Tucson, Arizona. Geochemical results of the sampling are as follows:

Table 9-1: Summary of Surface Samples Taken from 2016-2024 (Source: WIM, 2018)

Material Type	Basin East		Basin West		Basin North	
	No. of Samples	Average Li Grade (ppm)	No. of Samples	Average Li Grade (ppm)	No. of Samples	Average Li Grade (ppm)
Clay	80	760.53125	82	678.128049	41	741.56
Altered Tuff (In or Below Clay)	11	282.72727	33	273.315152	0	N/A
Sedimentary Rocks (Tuffaceous)	3	151.7333	7	149.128571	0	N/A
Sinter	2	725	0	N/A	0	N/A
Lithic Tuff/Tuff Breccia/Basalt	1	69.8	4	131.7	0	N/A
Old Rotary Drill Cuttings Collected from Piles at Surface	4	1,132.50	0	N/A	0	N/A

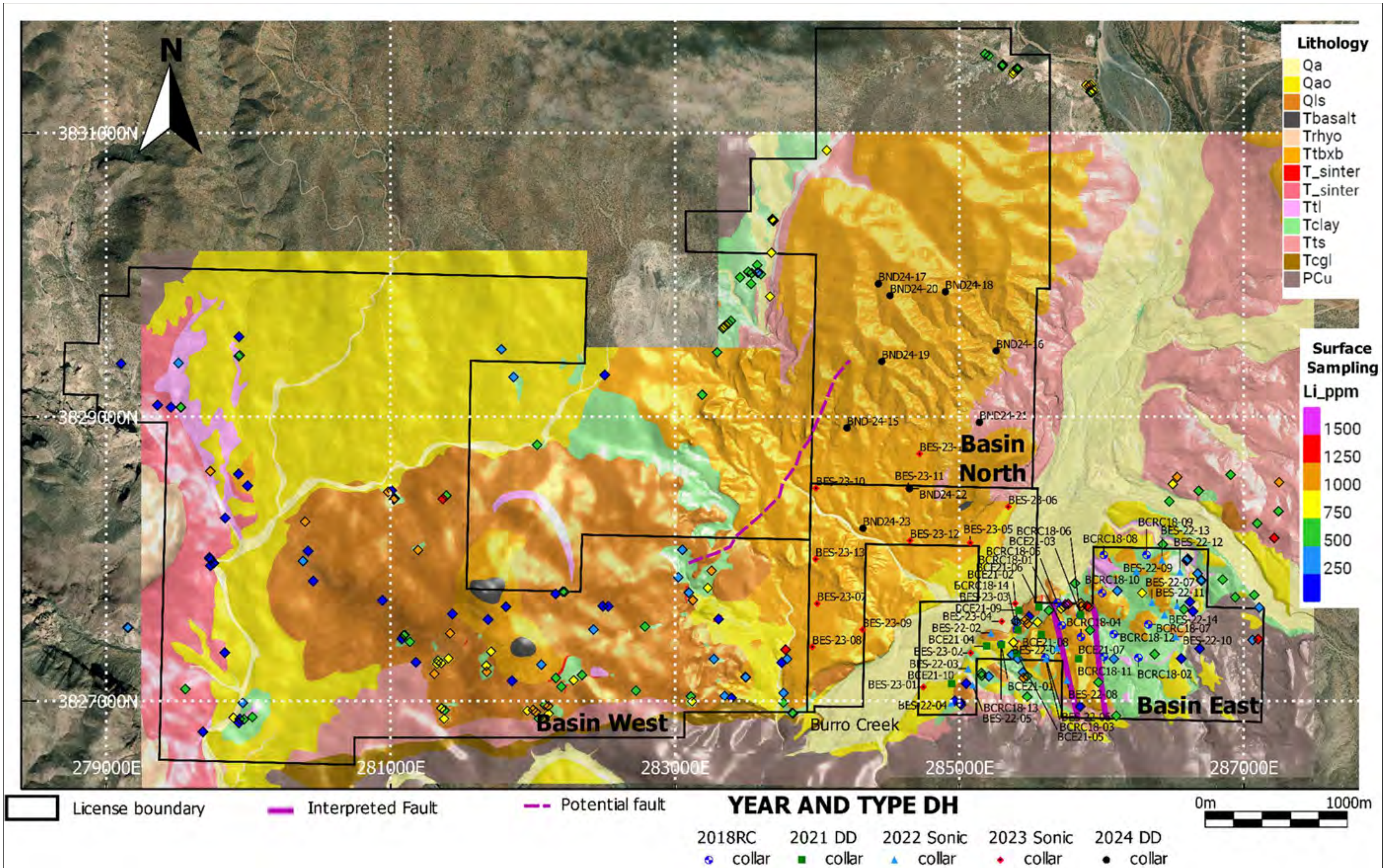

Figure 9-1: Surface Samples Collected from Basin East, West and North

9.3 Geological Mapping, 2016 and 2018

The geological mapping of the Basin East state lease area commenced alongside surface geochemical sampling in 2016. It underwent a revision in 2018, integrating data from 14 RC drillholes and observations from drill roads, pads, and sump construction. Field observations were recorded in notebooks, and positions were marked using handheld GPS devices. The geological map was conducted using ESRI ArcGIS 10.1 software, with additional data from the March and September 2016 sampling campaigns. Figure 7-1 displays the updated geological map of the Basin East state lease area.

The previous authors that completed the last MRE for the Company stated that there were three key findings that weren't understood when the geological map was originally completed in 2016:

1. The authors reported that the steep and chaotic dips found in the northern area are attributed to the presence of large, rotated, cohesive landslide blocks (aka Toreva Blocks) which were composed of lithic tuff-tuff breccia-basalt composite unit that overlies the lithium-bearing clay unit. The chaotic dips were earlier accredited to tectonic faults.

Further investigation during the present MRE has indicated that the Toreva Block interpretation may be incorrect. Through further dialogue with the onsite geologists, it is believed that the project area lies within a broad syncline with very shallow dips that has been rotated causing drag folding to occur in an extensional environment.

2. There are 2 large tectonic faults that run SW to NE on the property. The North-South fault that runs through the middle of the property is the most important structurally. The displacement along the fault is approximately 40-80 m (130-260 ft), see Figure 14-14. The bedding located on the east side of the fault dips at 4-10° to the north and northeast. Bedding that is located on the west side of the fault dips 5-16° to the northwest.

3. While mapping, it was noted that there is erosional detritus consisting of colluvium and sheetwash from the lithic tuff-tuff breccia-basalt composite unit overlying the lithium clay unit. This is most common where there are moderate and steep slopes. The overlying layer weathers and hides the soft lithium bearing clay unit below.

9.4 Passive Seismic Survey, 2016

While geological mapping and geochemical sampling were taking place in 2016, WIM conducted a passive seismic survey of the Basin East and Basin West project areas based on a recommendation from Zenolith. The survey was conducted using Tromino® instrumentation in the field which is shown in Figure 9-2. The Tromino is a compact and lightweight passive seismic survey instrument that is approximately the size of a small brick.[16] The data was subsequently processed using Grilla® software by Zenolith's geophysics consultant Resource Potentials, of Perth, Australia.

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[16] British Geological Survey Website, Passive Seismic Surveying

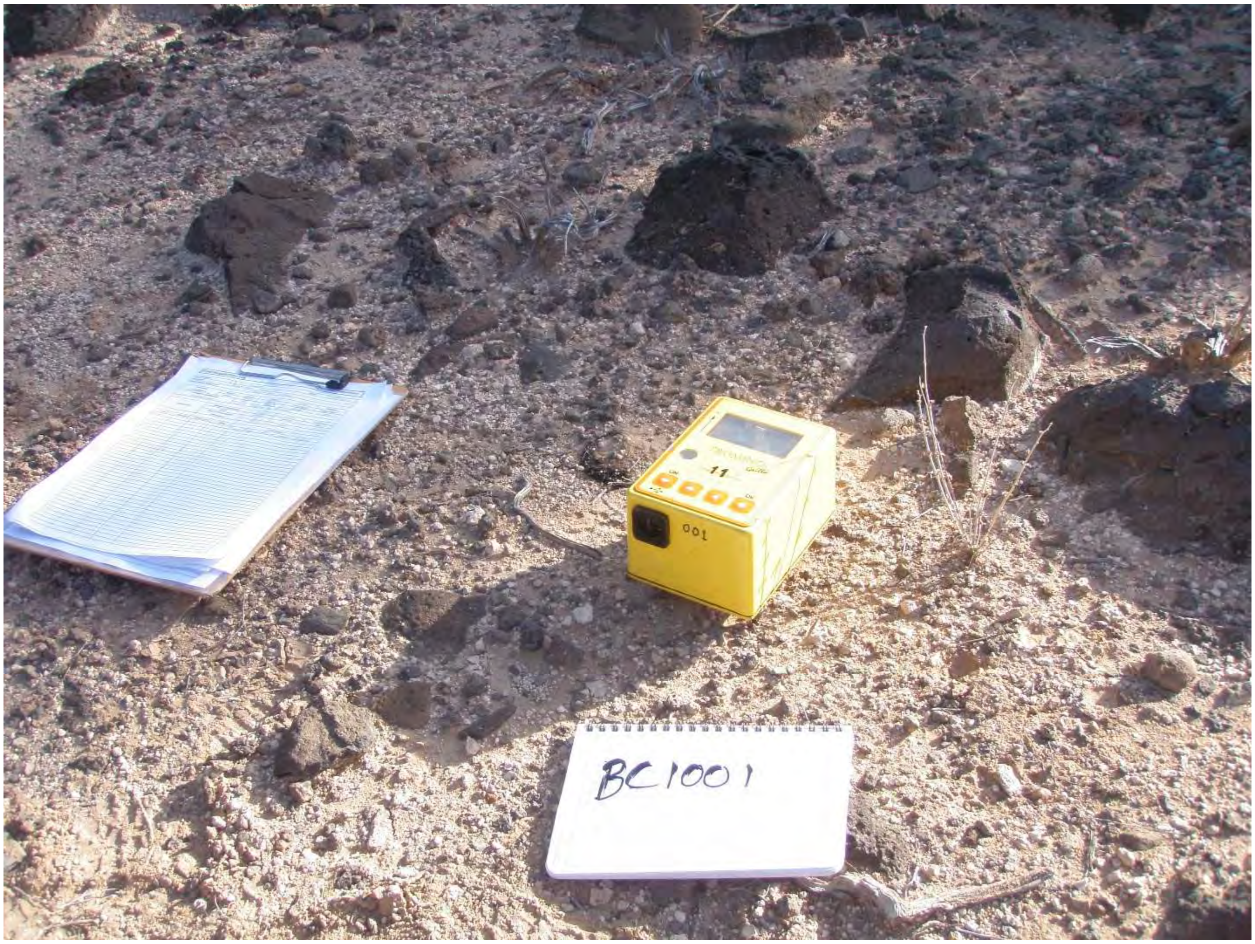

Figure 9-2: A Tromino Mobile Passive Seismic Surveying Instrument

Two lines were completed: Line BC-01, an east-west oriented line, stretched 4.8 km (3 miles) and included 33 recording stations covering Basin East, Basin West, and the intervening land. Line BC-02, a north-south oriented line, was 1.6km (1 mile) long with nine recording stations, spanning the Basin East state lease area. The locations of the Tromino stations are shown in Figure 9-3.

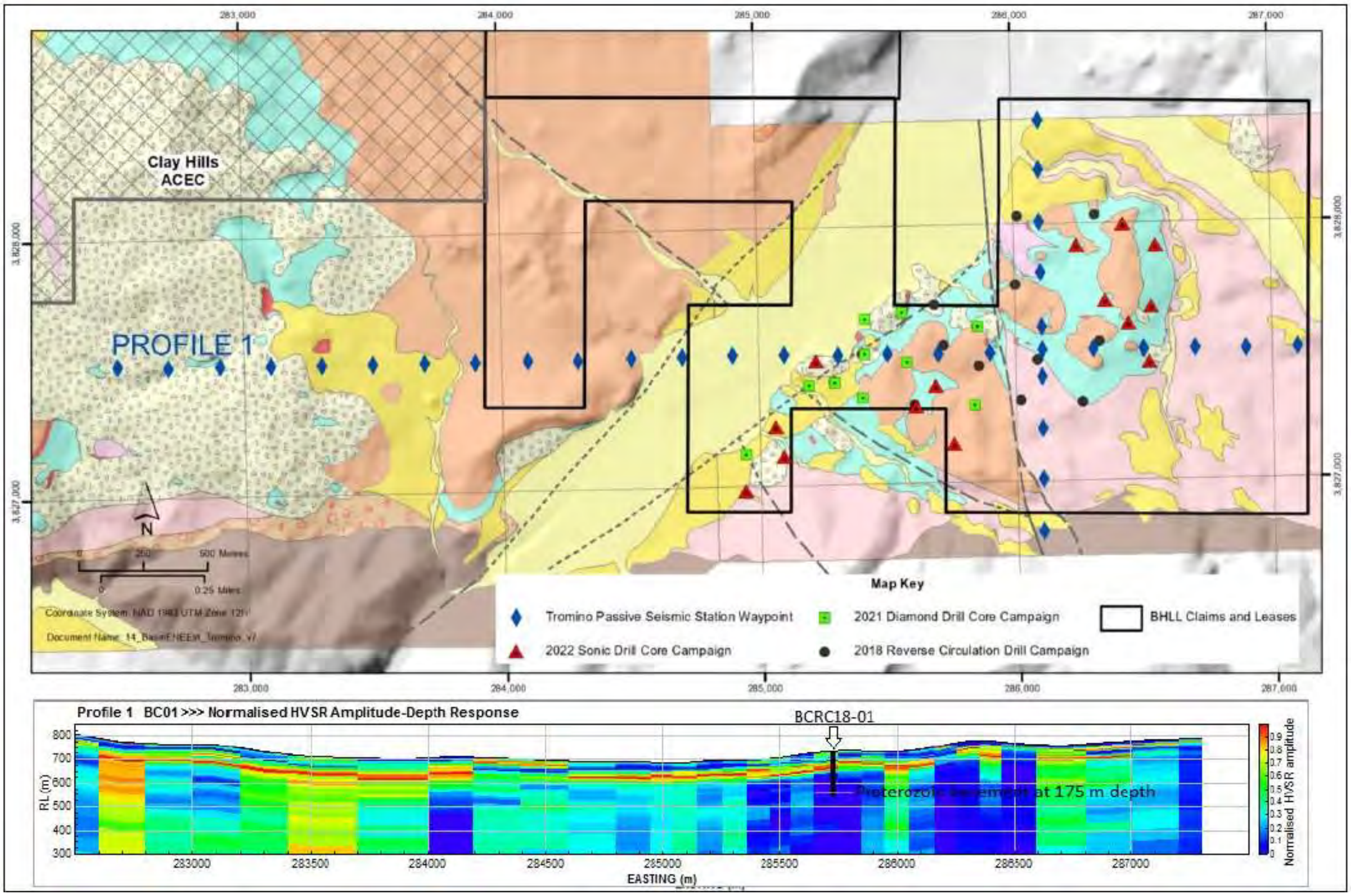

Figure 9-3: Locations of Passive Seismic Stations and Profile of Passive Sesmic Line East-West BC-01, Looking North

Although explicitly correlating features in the passive seismic profile with mapped and downhole geology projections is challenging, there appears to be a significant seismic response contrast in the profile of line BC-01 (indicated by bright red and orange zones in Figure 9--3). This contrast seems to align with the lapilli tuff unit (Ttl) identified in the drilling.

The results of the survey were initially interpreted by SGS following the last MRE update suggests that the Tertiary volcanic and sedimentary strata defined at Basin East continues under Burro Creek and further into the Basin West project area.

9.5 Ground Penetrating Radar Survey, 2021 and 2022

Bradda Head Lithium engaged Terravision Exploration Ltd. (TVX) to conduct a ground penetrating radar (GPR) study on the Basin East, Basin West and Basin North claims. The GPR survey was split up into 3 different areas to gain an understanding of the subsurface geology.

GPR measures the strength of the signal coming from reflected electromagnetic pulses transmitted into the subsurface.[17] A pulse is a travelling disturbance of the electromagnetic field

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[17] https://www.terravisionradar.com/local-in

in the subsurface which is then reflected at the interface between contrasting mediums. Using this method allows the different layers of rock in the subsurface to be distinguished by their physical properties up to depths of 200 m (656 ft).

The survey was conducted using an enhanced Ground Penetrating Radar (GPRplus) system. The system involved two people. The field operator dragged the data acquisition unit and the associated antenna with an onboard GPS unit, ensuring that the data signals were accurately recorded to the location.

Table 9-2: A Summary of GPRplus undertaken at Bradda Head Lithium's Basin Projects

Area	Zone	Number of Lines	Total (m)
Basin	Basin West	9	16,594
	Basin North	11	15,521
	Basin East	22	20,564
	Total	42	52,679

Survey lines conducted over known drill holes in the central Basin East demonstrate a connection between a characteristic smooth, high-amplitude geophysical response and areas of deep, thick, upper TClay (the uppermost Li-bearing unit) found in drill holes. This correlation is further clarified through geological modelling detailed in subsequent sections of this report.

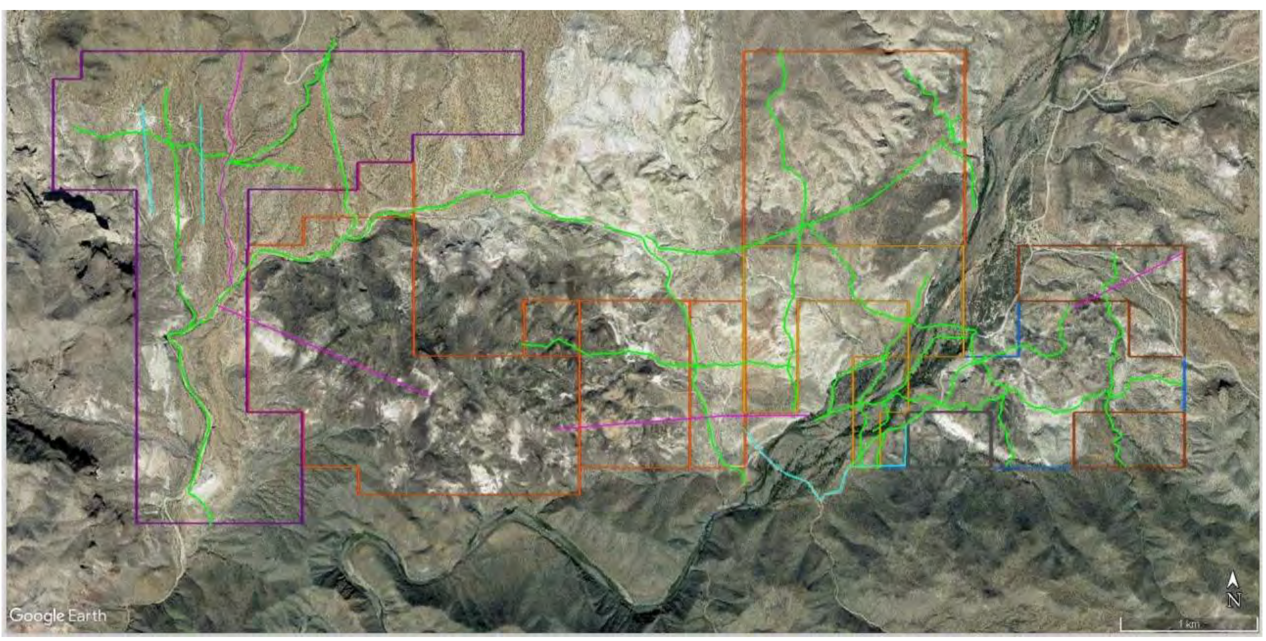


Figure 9-4: GPR Lines at Basin West, Basin North and Basin East

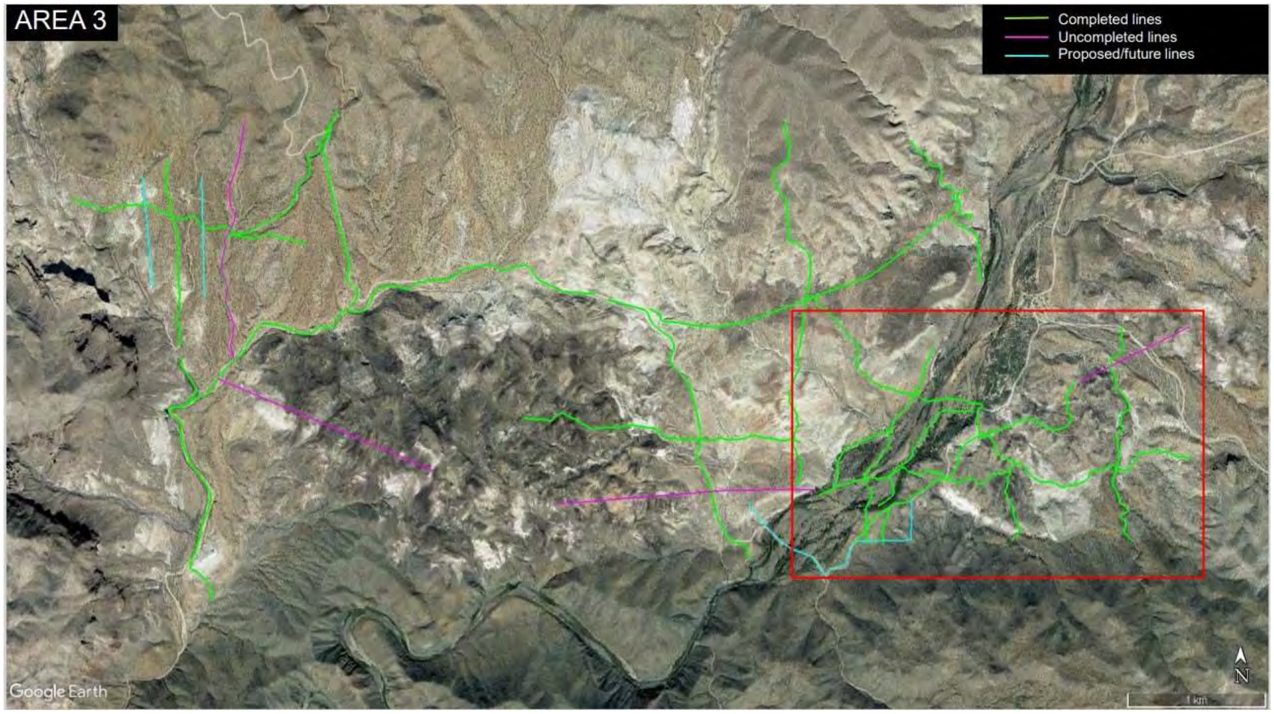


Figure 9-5: GPR Lines at Basin East

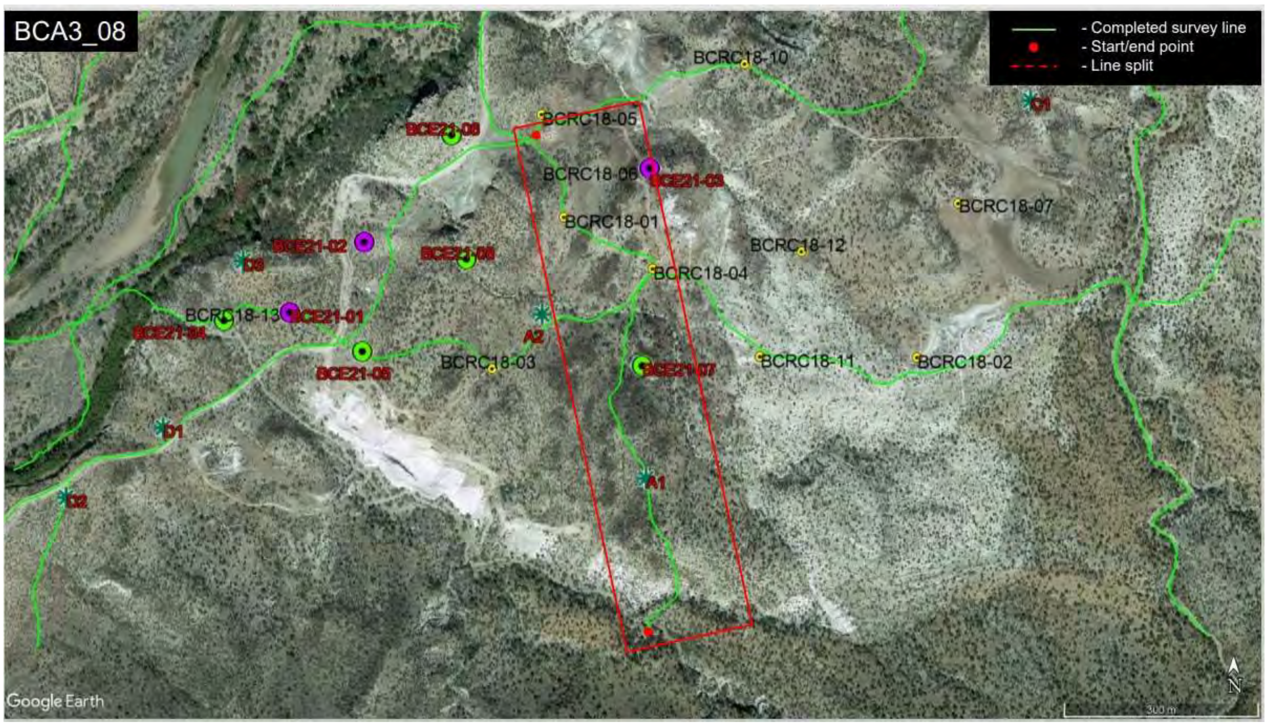


Figure 9-6: Section Start and End Points for Basin East

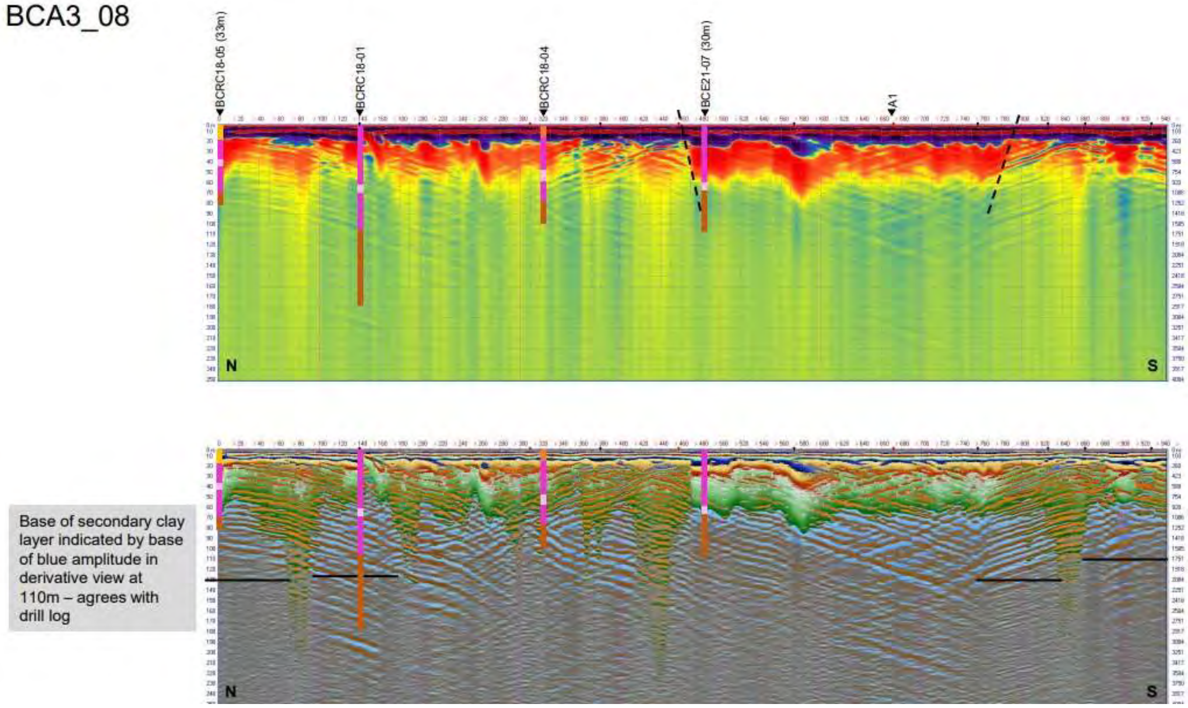


Figure 9-7:GPRplus Cross-Section BCA3_08 Compared to Drill Hole Data Showing Good Correlation

TVX interpreted the presence of a deep high-amplitude response to indicate a thicker geological layer, with the wave travelling further to the base of the layer where it reverses polarity. This change is shown by the transition from a positive response (red) to a negative response (blue) at the lower boundary of the Upper Clay. The high-amplitude signal suggests homogenous material, as opposed to more interbedded and mixed (heterogenous) material, where the wave encounters multiple transitions and loses energy. A high-amplitude response indicates a uniform unit with minimal interference from sub-layers within it.

Because the geological units that make up the Basin area are consistent and predictable, and the same stratigraphic layering throughout the Basin license areas, ABH Engineering agrees with the company that the GPRplus results can be used to infer prospectivity for the upper clay layers beyond Basin East. This will be a good starting point, along with surficial mapping and sampling of lithium-bearing clays.

The GPRplus results also showed where the faults could be corroborated with surficial mapping and drilling as part of this MRE, as well as in the future.

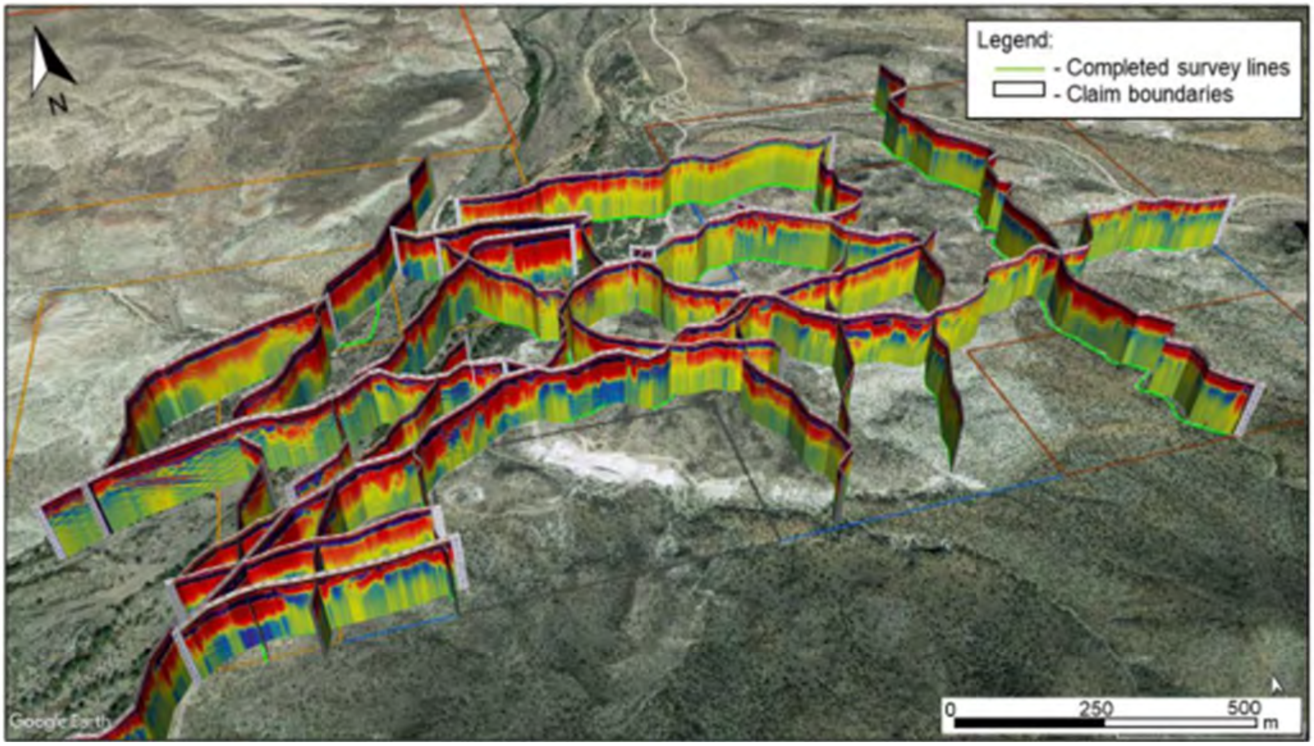


Figure 9-8: Plan and Oblique Views of GPR Results at Basin East

9.6 Gravity Survey, 2023

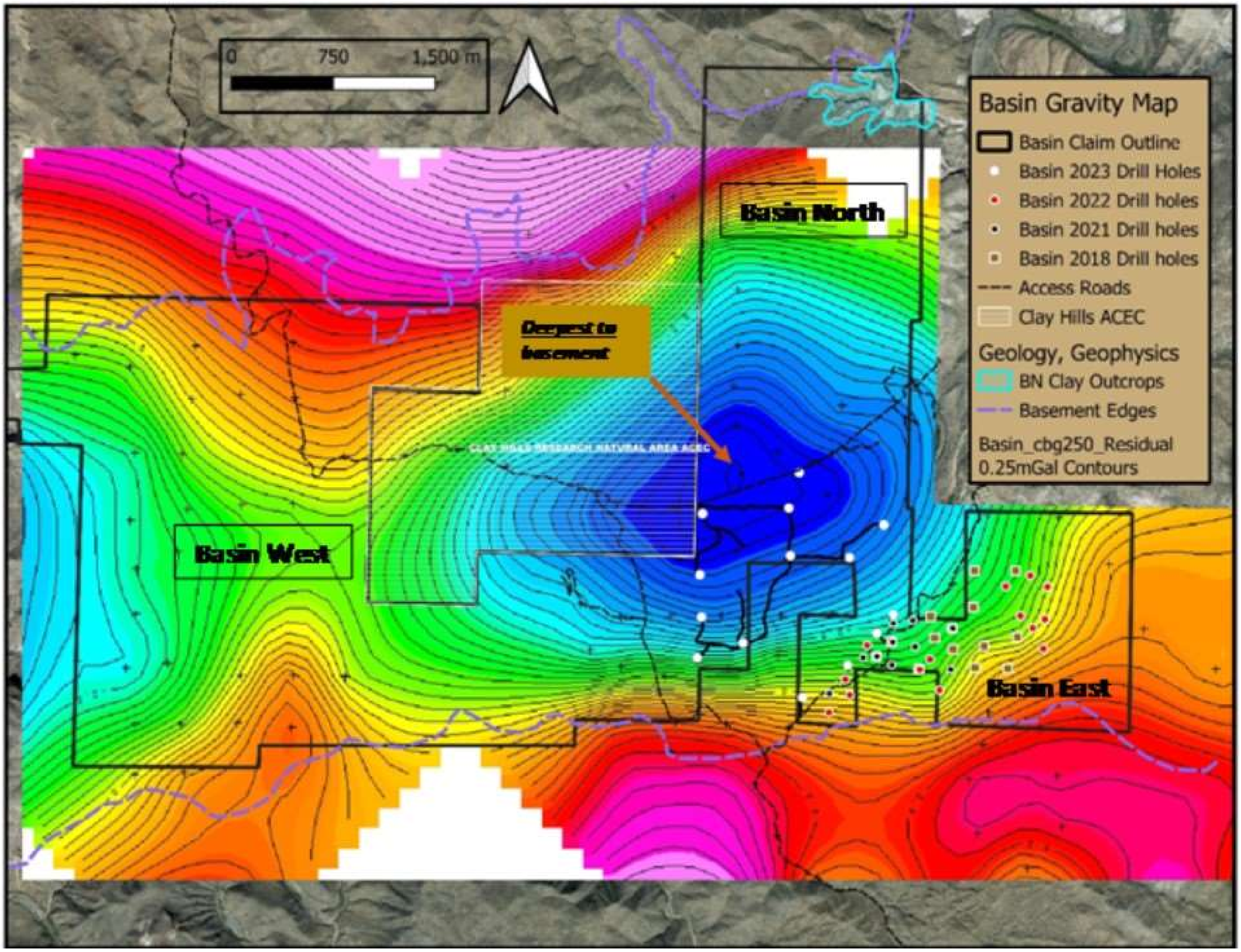


Figure 9-9: Gravity Survey Over the Project Area

The gravity survey was completed in late 2023, and after the processing was finished a significant low was found and located within the Basin North project area. This has been interpreted as a deep, depositional centre for a sedimentary basin with a deep basement rock at depth. In Figure 9-9, the dark blue colour corresponds to thickening of the Upper Clay unit. Red colours correspond to basement rock, Precambrian granodiorite and granitic rocks. These results encouraged the company to stake 2.8 km^2 of new lode and placer claims to the north on open BLM land, which should have a significant impact on the project's clay potential.

The results also led to the reconnaissance on ground 1.6 km to the north but contiguous to the existing Basin licenses where new clay and key marker beds consisting of silica nodules were found, indicating that the entire clay sequence sits in a shallow setting below post-mineral tuffs and basalt layers.

The survey was conducted by Tom Carpenter, a consultant with 35 years of experience in gravity data collection across North America. The data was gathered using a LaCoste and Romberg Model-G gravity meter, number G-230, which has a sensitivity of +/- 0.005 mGal and demonstrated excellent repeatability at 8 stations. A total of 130 gravity station locations were recorded using a Leica GPS Model GS15, with accuracy ranging from +/- 0.001 to 0.032 meters, providing excellent elevation control data. Mr. Carpenter processed and reduced all the data using his expertise and Geosoft Oasis Montaj software. He corrected for terrain (elevation changes) and removed regional effects to create complete bouguer and residual gravity maps at various densities, accurately reflecting the property's variable lithologic host rocks.

10. DRILLING

To date, there have been 5 successful drilling programs conducted on Basin East and Basin North. Most of the focus has been on expanding the resources at Basin East. The drill site was visited by the QP during the 2024 diamond drilling campaign to verify the drilling procedures and to ensure that industry best practices were being followed. Table 10-1 shows the number of drill holes, length and the number of assays submitted for each drill campaign. Figure 10-1 shows the drilling locations on the project.

During the 2018 reverse circulation (RC) drill campaign, 14 holes were completed for a total of 923.69 m (3030.48 ft). A total of 10 drill holes were completed during the 2021 diamond drill program for a total of 1110.47 m (3643.27 ft). The project also saw 14 holes drilled during the 2022 sonic drill program totaling 1177.14 m (3862.01 ft), and 2355.17 m (7726.94 ft) in 2023. Most recently, 9 diamond core holes were drilled, 8 of which were completed in 2024. This drill program encompassed 2380.24 m (7809.19 ft). Hole number 17 was abandoned at 74.67 m (244.98 ft) due to poor drilling conditions. Vertical holes were drilled for every campaign; therefore, no down-hole surveys were needed.

Recommendations were made by the QP during the site visit for the strategic placement of holes BND24-22 and BND24-23.

Table 10-1: Summary of Drilling from 2018-2024

Year	Method	Number of Holes	Length (m)	Length (ft)	Operator	Assay Total	Assay(m)
2018	RC	14	923.69	3030.48	HEX	605	919.6
2021	Diamond	10	1110.47	3643.27	GD/ADC	820	1016.88
2022	Sonic	14	1177.14	3862.01	BLL	700	1062.42
2023	Sonic	14	2355.17	7726.94	BLL	1400	1841.88
2024	Diamond	9	2380.24	7809.19	KPEX	773	971.81

HEX= Harris Exploration Drilling (California)
GD= Godbe Drilling (Colorado)
ADC= American Drilling Corp. (Washington)
BLL= Boart Longyear Ltd. (Arizona)
KP EX= KP Exploration Inc. (Arizona)

Table 10-2: Drill Hole Locations (UTM NAD 83, Zone 12)

HOLE-ID	UTM E	UTM N	Elevation (m)	Elevation (feet)
BCRC18-01	285720	3827533	733.60	2406.82
BCRC18-02	286259	3827306	768.64	2521.77
BCRC18-03	285604	3827304	727.16	2385.68
BCRC18-04	285855	3827451	735.93	2414.46
BCRC18-05	285689	3827688	714.54	2344.28
BCRC18-06	285849	3827603	730.49	2396.63
BCRC18-07	286328	3827540	781.71	2564.67
BCRC18-08	286015	3828029	721.00	2365.49
BCRC18-09	286316	3828029	748.90	2457.01
BCRC18-10	286004	3827761	742.03	2434.47
BCRC18-11	286017	3827313	752.48	2468.75
BCRC18-12	286085	3827472	741.21	2431.79
BCRC18-13	285292	3827400	706.00	2316.27
BCRC18-14	285403	3827505	700.07	2296.80
BCE21-01	285294	3827397	706.00	2316.27
BCE21-02	285411	3827502	701.96	2303.01
BCE21-03	285854	3827605	729.82	2394.41
BCE21-04	285192	3827387	696.52	2285.19
BCE21-05	285404	3827335	710.62	2331.44
BCE21-06	285559	3827664	714.17	2343.07
BCE21-07	285838	3827300	740.58	2429.71
BCE21-08	285576	3827468	714.21	2343.22
BCE21-09	285416	3827640	695.64	2282.29
BCE21-10	284944	3827123	696.00	2283.46
BES-23-05	285076.02	3828113.31	695.89	2283.10
BES-23-04	285297.87	3827560.91	689.82	2263.19
BES-23-03	285391.84	3827686.42	691.12	2267.45
BES-23-02	285078	3827339	692.99	2273.59
BES-23-01	284746.5	3827098.57	689.02	2260.56
BES-23-09	284319	3827502	702.92	2306.17
BES-23-08	283966	3827382	715.89	2348.72
BES-23-07	284000	3827687	705.49	2314.60
BES-23-06	285343	3828368	696.65	2285.60
BES-23-11	284640	3828497	715.02	2345.87
BES-23-10	283991	3828498	716.39	2350.36
BES-23-12	284653	3828129	703.10	2306.76
BES-23-14	284720	3828740	726.13	2382.32
BES-23-13	283989	3827999	724.48	2376.90
BES-22-01	285686	3827376	721.61	2367.49
BES-22-02	285222	3827480	706.31	2317.29

HOLE-ID	UTM E	UTM N	Elevation (m)	Elevation (feet)
BES-22-03	285061	3827229	699.64	2295.41
BES-22-04	284942	3826984	699.66	2295.47
BES-22-05	285093	3827113	707.45	2321.03
BES-22-06	285610	3827299	728.15	2388.94
BES-22-07	286353	3827696	769.97	2526.15
BES-22-08	285756	3827149	750.28	2461.55
BES-22-09	286245	3827914	745.20	2444.88
BES-22-10	286521	3827455	764.18	2507.15
BES-22-11	286531	3827671	769.58	2524.87
BES-22-12	286551	3827910	755.44	2478.48
BES-22-13	286424	3827994	765.00	2509.84
BES-22-14	286442	3827607	780.26	2559.91
BND-24-15	284209	3828922	738.00	2421.26
BND24-16	285258	3829466	734.00	2408.14
BND24-17	284430	3829939	807.00	2647.64
BND24-18	284901	3829883	807.00	2647.64
BND24-19	284454	3829390	806.00	2644.36
BND24-20	284512	3829856	817.00	2680.45
BND24-21	285141	3828962	726.00	2381.89
BND24-22	284649	3828495	715.10	2346.13
BND24-23	284321	3828216	707.60	2321.52

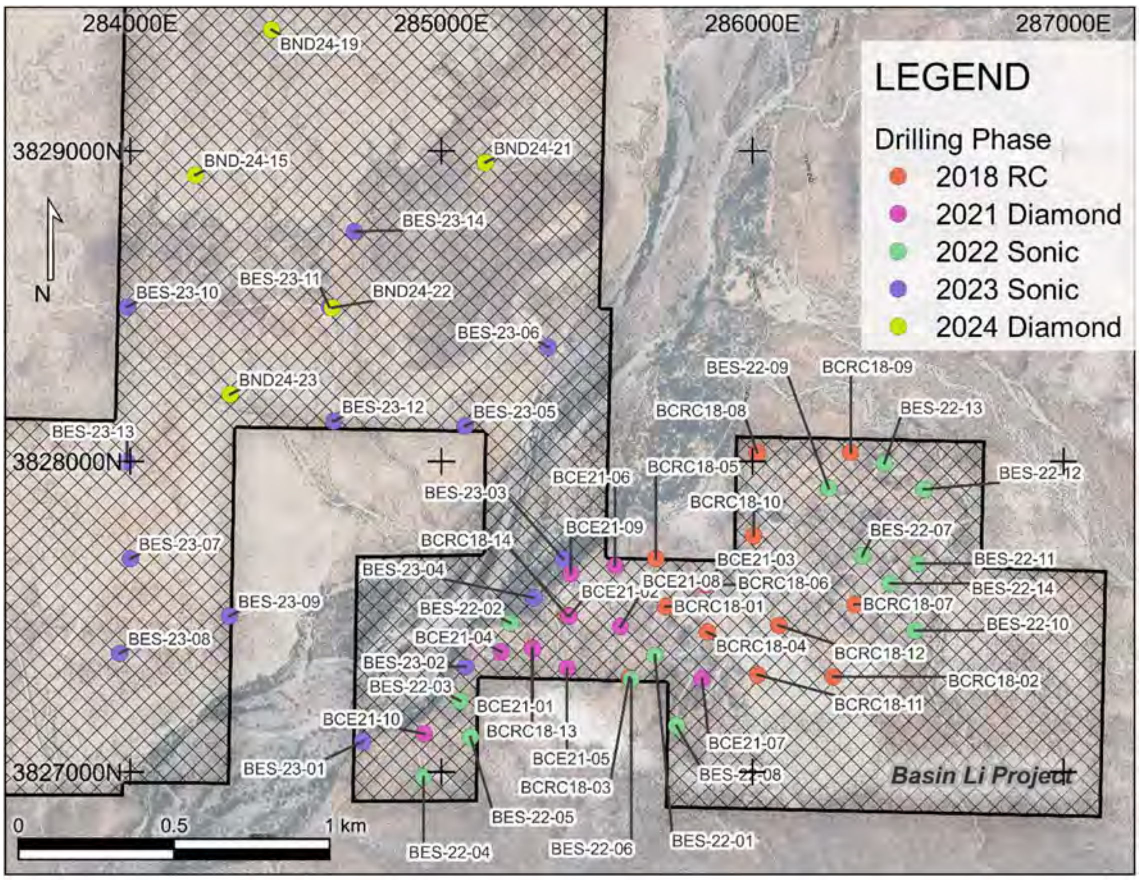


Figure 10-1: Drilling Locations

10.1 2018 RC Drilling

Phase 1 drilling occurred from April-May 2018 and consisted of 14 holes on the Basin East License. The deepest hole was drilled to 179.83 m (590 feet). Samples from the RC cuttings returned significant lithium values of 1360 ppm Li in hole BCRC-18-01 from 7.62-15.24 m (25.00-50.00 feet). Hole BCRC-18-03 returned average grades of 1045 from 3.05-6.10 m (10.01-20.02 feet). Assay highlights from this drill program are given in Table 10-3 .

Table 10-3: Drill Highlights from the 2018 RC Drilling Program

Hole ID	From (m)	To (m)	From (ft)	To (ft)	Length (m)	Length (feet)	SAMPLE-ID	Li_ppm
BCRC18-01	7.62	15.24	25.00	50.00	7.62	25.00	2807-2812	1360.00
BCRC18-01	24.38	27.43	79.99	89.99	3.05	10.01	2820-2821	1320.00
BCRC18-01	33.53	42.67	110.01	139.99	9.14	29.99	2826-2832	1325.00
BCRC18-01	57.91	59.44	189.99	195.01	1.53	5.02	2844	1140.00
BCRC18-03	3.05	6.10	10.01	20.01	3.05	10.01	2982-2983	1045.00
BCRC18-03	13.72	22.86	45.01	75.00	9.14	29.99	2992-2995	1137.00
BCRC18-03	36.58	48.77	120.01	160.01	12.19	39.99	3007-3015	1055.00
BCRC18-03	54.86	56.39	179.99	185.01	1.53	5.02	3021	1090.00
BCRC18-03	67.06	68.58	220.01	225.00	1.52	4.99	3031	1200.00
BCRC18-04	21.34	41.15	70.01	135.01	19.81	64.99	3053-3066	1180.00
BCRC18-05	19.81	27.43	64.99	89.99	7.62	25.00	3124-3128	1226.00
BCRC18-05	73.15	74.68	239.99	245.01	1.53	5.02	3164	1000.00
BCRC18-05	79.25	92.96	260.01	304.99	13.71	44.98	3168-3177	1154.44
BCRC18-06	16.76	24.38	54.99	79.99	7.62	25.00	3208-3213	1344.00
BCRC18-06	51.82	54.86	170.01	179.99	3.04	9.97	3233236	1200.00
BCRC18-07	0.00	4.57	0.00	14.99	4.57	14.99	3237-3239	1196.67
BCRC18-09	10.67	12.19	35.01	39.99	1.52	4.99	3319	1030.00
BCRC18-13	33.53	44.20	110.01	145.01	10.67	35.01	3410-3416	1244.29
BCRC18-13	64.01	65.53	210.01	214.99	1.52	4.99	3432	1040.00
BCRC18-14	19.81	50.29	64.99	164.99	30.48	100.00	3451-3473	1260.00

10.1.1 Drilling Methods

All 14 boreholes were drilled using an RC drilling rig that included a cyclone for collecting sample material retrieved through the inner tube of the drill stem. Sampling was conducted at 1.52 m (5 ft) intervals. Due to the installation of 3.05 m (10 ft) casing in each borehole using a non-RC casing-driver bit, the initial two samples from each hole were gathered at the surface using large pans. These pans collected material that emerged from within the casing during its installation, but outside of the drill pipe (non-RC). All subsequent samples were obtained using RC return methods.

Figure 10-2: RC Drilling in progress on hole BCRC18-10

The driller added sufficient water or drill mud to maintain lubrication and ensure the flow of sample material through the pipes and tubes, while avoiding overflow in the sample collection buckets. After each sample collection, the driller purged the sample recovery lines by applying compressed air through the system, with the drill bit positioned slightly above the hole bottom. This procedure effectively cleared any residual sample material that might have been pushed upward on the outside of the drill pipe instead of through the sample return hole on the drill bit's bottom face.

During dry drilling operations, samples were collected using five-gallon plastic buckets securely fastened to the large opening at the base of the cyclone. Each sample interval required between two to four buckets, filled only about two-thirds full to prevent sample loss and facilitate easier transport to the nearby Gilson splitter. One crew member would remove a bucket from the cyclone while another crew member or a WIM geotechnician promptly replaced it with an empty bucket to minimize sample loss.

Each bucket containing dry (sometimes damp) sample material was then weighed using a hanging scale, and the weights were recorded on a paper log sheet. Subsequently, each bucket was emptied into the top of a Gilson splitter for further processing.

Subsequently, a geotechnician or drill crew member would split the sample down from 25-45 kg (55-99 lb), down to 4-8 kg (9-18 lb). A geological reference sample was kept by the geologist who would be logging the hole who would place a portion of the sample in a chip tray for later analysis. The split sample material was split once again into two equal parts and placed into two bags with the same sample numbers. One of the bags would be eventually sent to the lab for lithium assays. Some were also sent to the lab as duplicate samples. The remaining sample bag was kept in case any of the samples get lost or damaged.

While drilling accompanied by water injection, the sample material was split with a rotating cylindrical wet splitter that was placed directly below the cyclone. A cylindrical sheet of poly-cloth was fitted around the cyclone opening to prevent sample loss. Two buckets were then placed below the Y-pipe for collection into sample bags. One of the sample bags would be kept for geological analysis while the other sample bag was marked for transport to the assay lab.

Samples were shipped to the ALS preparatory lab in Tucson. The RC chip trays were discarded and couldn't be verified by the current QP as none of the sample material was stored separately.

Drill hole collars were taken using a standard handheld GPS unit (Garmin GPSmap®62st) using waypoint averaging, which is a method of taking several waypoints over a certain period and averaging these locations. The method reduces the inherent effect of random errors and inaccuracies in GPS readings, resulting in a more precise determination of waypoint coordinates. The timespan that was used for waypoint monitoring was 5 to 7 minutes. The GPS has a nominal accuracy of 3 m (10 ft). Collar elevations were established by comparing the hole's XY coordinates with a 1-meter (3-foot) contour map derived from the topographic surface.

The Geologist responsible for the chip logging was WIM Consulting Geologist and P. Geo, John Keller. He logged the first 12 out of 14 holes and then let his geotechnicians take over the logging of the last 2 holes. A master sample log was kept by the lead geologist which included drill hole IDs, from-to intervals for each sample ID number, along with the QA/QC samples.

Zones of poor recovery were noted, along with the presence and estimate of the amount of groundwater intersected, drilling rates and equipment breakdowns were also noted by the lead geologist on the logging sheet.

The logging geologist would then analyze the chip samples for color, texture, lithology, and an estimate on the amount of clay content percentagewise. Non-clay chips were also logged as volcanic, sedimentary or crystalline basement rock. A portion of the sample intervals were placed in bags for transport to the assay facility in Tucson.

Figure 10-3: An Example of an RC Chip Tray

Photographs of all chip samples, the geologic log, the master sample log, and the sample weight for every hole were kept in the database for future reference.

Drill spacing was kept to 200 to 250 m (660-820 ft) spacing with an average of 225 m (740 ft).

10.2 2021 Diamond Drilling

Phase 2 drilling commenced July 2021 and was completed in November. The 10-hole drilling program was designed to allow a better understanding of lateral continuity and thickness of the clay units over a wider area.

Two drilling contractors were used for this drill program, Godbe Drilling, LLC as well as American Drilling Corp. The depths of each hole and the collar locations are given in Table 10-2.

Drilling rates were slow for both companies which were advancing at rates of 15.2 m per day for Godbe and 22.8 m per day for American Drilling when drilling was ongoing, however, with down time included, these rates were even less. Both companies used PQ sized drill rods with a standard 1.52 m (5 ft) wireline core barrel. After each run, the core barrel would retrieve the core from the bottom of the hole and the material in the core barrel was carefully placed directly into waxed carboard boxes. As per industry standard, the driller would then place a wooden depth block at the end of the core sample and would also write feet drilled and feet recovered. The boxes were placed on pallets awaiting transport to the core logging facility in Wickenburg, Arizona. If there was only a day shift, the core would be picked up at the end of the drilling shift to ensure that the core is not tampered with overnight. The logging facility was private and secure, and the logging was typically completed within 1-3 days of delivery.

Figure 10-4: 2021 Diamond Drilling. American Drilling Corp at Hole BCE21-03

The 2021 drilling campaign expanded the known range of lithium-bearing clay units to the west and filled in the gaps between the 2018 reverse circulation (RC) drillholes, resulting in a combined spacing of roughly 150 meters (500 feet) across much of the area. Several diamond drillholes were positioned adjacent to some of the 2018 RC holes, which had previously stopped before reaching the lower clay unit. This allowed for a more detailed understanding of the thickness and lateral extent of this unit.

Core recovery averaged 92.5% overall - very good for this type of material.

Drill hole locations were recorded using the same methods as the 2018 RC Drill Program except that 3 waypoints were taken from the hand-held GPS unit over a total time interval of 10 minutes.

At the logging facility in Wickenburg, the core boxes were sequentially laid out on the logging benches. The run block depths that the driller placed into the box was verified to ensure that there were no block/depth errors which can happen occasionally.

After the core was laid out, the physical properties of the rock were analyzed for rock quality designation (RQD), rock hardness (1-5 scale) and fracture frequency. Detailed logging was then conducted to record downhole changes in lithostratigraphy and alteration using standard stratigraphic and sedimentological nomenclature.

Core photos were taken with a smartphone after the completion of the logging and sampling intervals.

Table 10-4: Drilling Highlights from the 2021 Diamond Drill Campaign at Basin East

Hole ID	From	To	From (ft)	To (ft)	Length (m)	Length (feet)	Sample - ID	Li (ppm)
BCE21-01	33.68	44.74	110.50	146.78	11.06	36.29	11004-11015	1177.27
BCE21-01	50.72	51.42	166.40	168.70	0.7	2.30	11022	1080.00
BCE21-01	65.75	66.29	215.72	217.49	0.54	1.77	11034	1210.00
BCE21-01	82.75	84.12	271.49	275.98	1.37	4.49	11049	1020.00
BCE21-02	23.04	45.84	75.59	150.39	22.8	74.80	11085-11206	1428.00
BCE21-02	51.02	51.97	167.39	170.51	0.95	3.12	11214	1150.00
BCE21-02	82.91	84.12	272.01	275.98	1.21	3.97	11245	1010.00
BCE21-02	108.81	109.51	356.99	359.28	0.7	2.30	11270	1090.00
BCE21-03	17.53	25.51	57.51	83.69	7.98	26.18	11106-11114	1217.78
BCE21-03	53.22	55.75	174.61	182.91	2.53	8.30	11143-11144	1225.00
BCE21-03	60.56	61.48	198.69	201.71	0.92	3.02	11150	1070.00
BCE21-03	65.99	68.7	216.50	225.39	2.71	8.89	11154-11155	1060.00
BCE21-03	83.97	85.04	275.49	279.00	1.07	3.51	11171	1910.00
BCE21-03	88.75	89.61	291.17	294.00	0.86	2.82	11176	1100.00
BCE21-04	25.3	39.62	83.01	129.99	14.32	46.98	11296-11294	1260.00
BCE21-04	43.59	44.29	143.01	145.31	0.7	2.30	11299	1240.00
BCE21-04	57.55	63.4	188.81	208.01	5.85	19.19	11311-11314	972.50
BCE21-05	0	38.56	0.00	126.51	38.56	126.51	11350-11381	1076.67
BCE21-05	58.77	60.14	192.81	197.31	1.37	4.49	11399	1140.00
BCE21-06	5.06	6.04	16.60	19.82	0.98	3.22	11444	1050.00
BCE21-06	56.08	77.18	183.99	253.22	21.1	69.23	11490-11509	1512.22
BCE21-06	80.47	83.06	264.01	272.51	2.59	8.50	11513-11514	1110.00
BCE21-06	134.81	135.64	442.29	445.01	0.83	2.72	11562	1210.00
BCE21-07	3.05	4.82	10.01	15.81	1.77	5.81	11578-11579	1060.00
BCE21-07	13.29	19.2	43.60	62.99	5.91	19.39	11589-11594	1148.33
BCE21-07	30.27	33.86	99.31	111.09	3.59	11.78	11604-11606	1060.00
BCE21-07	46.24	57.45	151.71	188.48	11.21	36.78	11617-11627	1129.00
BCE21-07	60.26	61.57	197.70	202.00	1.31	4.30	11632	1300.00
BCE21-08	28.16	46.39	92.39	152.20	18.23	59.81	11680-11693	1406.92
BCE21-08	51.51	53.04	169.00	174.02	1.53	5.02	11698	1090.00
BCE21-08	65.17	66.11	213.81	216.90	0.94	3.08	11708	1170.00
BCE21-09	23.26	24.54	76.31	80.51	1.28	4.20	11761	1030.00
BCE21-09	26.64	28.25	87.40	92.68	1.61	5.28	11764	1100.00
BCE21-09	37.19	60.75	122.01	199.31	23.56	77.30	11773-11793	1460.53
BCE21-09	65.68	67.06	215.49	220.01	1.38	4.53	11798	1160.00
BCE21-09	101.5	110.79	333.01	363.48	9.29	30.48	11826-11831	1005.00
BCE21-10	17.68	19.05	58.01	62.50	1.37	4.49	11849	1120.00

Drill hole spacing was set to be 100-200 m (330-660 ft) and an average of 150 m (490 ft) including the 2018 RC drill holes.

10.3 2022 & 2023 Sonic Drilling

Phase 3 drilling was conducted using a sonic drill which would provide better recoveries and faster drilling compared to the previous methods. The 2022 program ran from February to March 2022 and was designed to improve the geological understanding of the lithium-bearing clay units at Basin East. The 2023 drill program started in March 2023 and ended in August 2023. The goal for the 2023 field season was to test down-dip extensions and lateral continuity of mineralization under mapped hanging-wall units located northwest of Burro Creek and in the Basin North license.

After each drilling run, the core was recovered from the core barrel and the contents were carefully placed into plastic bags 0.6 m (2 ft) in length. The bags were then tied, with the depth labelled and then placed into a wax coated box.

Figure 10-5: Wax Coated Box Containing Sonic Drill Core

Water usage was minimal for this phase of drilling at 1000 gallons per day.

At the end of the shift, the core was secured with lids for safe transport to the logging facility which was now in Wikieup for 2022. The logging facility in 2023 was in Morristown.

Core recovery was consistently 100% with over 99% of intervals at 100% recovery for 2022 and 98% recovery for 2023.

Drill collars were located and surveyed using a Garmin Rino 650t GNSS receiver.

The logging and sampling processes from 2021 were followed. Drill hole spacing was set to evenly infill parts of the central deposit area and as expansion drilling to the southwest and east. The spacing along with previous drill campaigns was 100-250 m (330-820 ft), with an average of approximately 150 m (490 ft). The 2023 drill holes were spaced with an average distance of 480 m (1575 ft) to maximize coverage of the region northwest of Burro Creek.

Table 10-5: Highlights from the 2022 Sonic Drill Program

Hole ID	From	To	From (ft)	To (ft)	Length (m)	Length (feet)	Sample -ID	Li (ppm)
BES-22-01	6.10	7.32	20.01	24.02	1.22	4.00	713747	1010.00
BES-22-01	9.75	10.97	31.99	35.99	1.22	4.00	713750	1030.00
BES-22-01	19.51	31.09	64.01	102.00	11.58	37.99	713758-713766	1140.00
BES-22-01	32.31	41.45	106.00	135.99	9.14	29.99	713768-713772	1314.00
BES-22-02	43.28	59.44	141.99	195.01	16.16	53.02	713851-713863	1560.00
BES-22-02	80.47	82.30	264.01	270.01	1.83	6.00	713879	1060.00
BES-22-03	6.71	17.68	22.01	58.01	10.97	35.99	718511-718519	1210.00
BES-22-03	39.01	40.23	127.99	131.99	1.22	4.00	718536	1060.00
BES-22-03	41.15	43.28	135.01	141.99	2.13	6.99	718538	1180.00
BES-22-05	10.21	10.97	33.50	35.99	0.76	2.49	721968	1160.00
BES-22-06	4.88	7.32	16.01	24.02	2.44	8.01	727026-727027	1065.00
BES-22-06	10.97	12.19	35.99	39.99	1.22	4.00	727031	1000.00
BES-22-06	14.63	17.07	48.00	56.00	2.44	8.01	727034-727035	1455.00
BES-22-06	21.34	22.56	70.01	74.02	1.22	4.00	727040	1120.00
BES-22-06	38.40	40.23	125.98	131.99	1.83	6.00	727053	1110.00
BES-22-06	41.45	46.33	135.99	152.00	4.88	16.01	727055-727057	1220.00
BES-22-06	68.28	69.49	224.02	227.99	1.21	3.97	727072	1580.00
BES-22-07	0.00	7.92	0.00	25.98	7.92	25.98	727110-727116	1248.33
BES-22-07	20.12	21.34	66.01	70.01	1.22	4.00	727127	1590.00
BES-22-08	50.60	51.82	166.01	170.01	1.22	4.00	727191	1080.00
BES-22-09	47.06	54.25	154.40	177.99	7.19	23.59	727251-727255	1085.00
BES-22-13	12.80	14.02	41.99	46.00	1.22	4.00	727354	1220.00
BES-22-13	18.90	20.73	62.01	68.01	1.83	6.00	727358	1030.00
BES-22-13	35.66	37.19	116.99	122.01	1.53	5.02	727371	1180.00
BES-22-13	67.67	71.32	222.01	233.99	3.65	11.98	727392-727393	1215.00
BES-22-14	1.22	12.19	4.00	39.99	10.97	35.99	727398-727405	1073.75

Table 10-6: Highlights from the 2023 Sonic Drill Program

Hole ID	From (m)	To (m)	From (ft)	To (ft)	Length (m)	Length (feet)	Sample -ID	Li (ppm)
BES -23-01	6.86	8.38	22.51	27.49	1.52	4.99	778309	1008
BES -23-01	13.11	14.17	43.01	46.49	1.06	3.48	778316	1044
BES -23-02	15.54	28.96	50.98	95.01	13.42	44.03	778384-778395	1101.18
BES -23-02	48.01	49.53	157.51	162.50	1.52	4.99	778411	1058
BES -23-02	69.34	72.39	227.49	237.50	3.05	10.01	778428-778429	1070
BES -23-03	22.56	24.38	74.02	79.99	1.82	5.97	778464-7784645	991
BES -23-03	40.39	64.77	132.51	212.50	24.38	79.99	778478-778495	1327.19
BES -23-03	128.02	131.83	420.01	432.51	3.81	12.50	778546-778549	1330.25
BES -23-04	5.33	8.84	17.49	29.00	3.51	11.52	778556-778558	1202.67
BES -23-04	11.28	24.69	37.01	81.00	13.41	44.00	778562-778573	1105
BES -23-04	27.13	47.85	89.01	156.99	20.72	67.98	778577-778593	1464.06
BES -23-04	53.34	54.56	175.00	179.00	1.22	4.00	778599	1161
BES -23-05	67.06	69.19	220.01	227.00	2.13	6.99	778671	1023
BES -23-05	74.07	75.29	243.01	247.01	1.22	4.00	778676	1118
BES -23-05	85.04	88.7	279.00	291.01	3.66	12.01	778685-778686	1010.5
BES -23-05	90.53	94.18	297.01	308.99	3.65	11.98	778688-778689	1257.5
BES -23-05	95.4	96.62	312.99	316.99	1.22	4.00	778691	1011
BES -23-05	99.36	100.89	325.98	331.00	1.53	5.02	778695	1190
BES -23-05	107.59	114.91	352.99	377.00	7.32	24.02	778700-778705	1624
BES -23-05	117.35	117.96	385.01	387.01	0.61	2.00	778708	1486
BES -23-05	126.49	127.41	414.99	418.01	0.92	3.02	778715	1263
BES -23-05	143.56	145.39	471.00	477.00	1.83	6.00	778726	1164
BES -23-05	149.66	151.49	491.01	497.01	1.83	6.00	778730	1071
BES -23-05	166.73	167.34	547.01	549.02	0.61	2.00	778740	1046
BES -23-06	52.73	53.95	173.00	177.00	1.22	4.00	778776	1114
BES -23-06	61.87	69.19	202.99	227.00	7.32	24.02	778784-778789	1059
BES -23-06	84.43	101.5	277.00	333.01	17.07	56.00	778805-778819	1456.86
BES -23-06	107.59	108.2	352.99	354.99	0.61	2.00	778825	1112
BES -23-06	147.83	152.1	485.01	499.02	4.27	14.01	778854-778855	1126.5
BES -23-07	67.36	81.38	221.00	266.99	14.02	46.00	778889-778901	1087.33
BES -23-07	92.35	93.57	302.99	306.99	1.22	4.00	778914	1015
BES -23-07	110.64	130.15	362.99	427.00	19.51	64.01	778928-778944	1344.87
BES -23-08	65.53	71.63	214.99	235.01	6.10	20.01	779042-779046	1173.5
BES -23-08	80.16	81.38	262.99	266.99	1.22	4.00	779055	1061
BES -23-08	89	94.79	291.99	310.99	5.79	19.00	779062-779068	1200.5
BES -23-08	107.75	116.74	353.51	383.01	8.99	29.49	779079-779087	1311.5
BES -23-08	137.46	138.68	450.98	454.99	1.22	4.00	779105	1113
BES -23-09	56.39	58.22	185.01	191.01	1.83	6.00	800567	1464
BES -23-09	71.02	74.68	233.01	245.01	3.66	12.01	800578-800581	1047.67
BES -23-09	78.33	78.94	256.99	258.99	0.61	2.00	800585	1060
BES -23-09	93.57	94.49	306.99	310.01	0.92	3.02	800598	1127
BES -23-09	99.97	100.89	327.99	331.00	0.92	3.02	800603	1098
BES -23-09	103.63	115.52	339.99	379.00	11.89	39.01	800606-800617	1321.09

BES -23-09	131.37	134.42	431.00	441.01	3.05	10.01	800629-800631	1069.5
BES -23-10	122.83	123.75	402.99	406.00	0.92	3.02	800660	1098
BES -23-10	133.81	137.01	439.01	449.51	3.20	10.50	800671-800673	1267
BES -23-10	149.66	165.51	491.01	543.01	15.85	52.00	800688-800699	1010.55
BES -23-10	172.21	179.53	564.99	589.01	7.32	24.02	800704-800709	1152.4
BES -23-10	180.14	192.94	591.01	633.01	12.80	41.99	800711-800722	1451.91
BES -23-11	106.98	107.75	350.98	353.51	0.77	2.53	800746	1063
BES -23-11	112.93	119.18	370.51	391.01	6.25	20.51	800753-754/876259-269	968.67
BES -23-11	131.22	134.42	430.51	441.01	3.20	10.50	876277-876279	1111
BES -23-11	142.19	142.95	466.50	469.00	0.76	2.49	876290	1039
BES -23-11	160.78	189.28	527.49	621.00	28.50	93.50	876310-876337	1244.92
BES -23-12	63.7	64.31	208.99	210.99	0.61	2.00	876362	1240
BES -23-12	69.19	72.24	227.00	237.01	3.05	10.01	876368-876370	1316.33
BES -23-12	88.09	94.03	289.01	308.50	5.94	19.49	876389-876393	1129.6
BES -23-12	96.47	124.05	316.50	406.99	27.58	90.49	876397-876424	1331.92
BES -23-12	165.05	166.27	541.50	545.51	1.22	4.00	876460	1122
BES -23-12	171.15	172.21	561.52	564.99	1.06	3.48	876466	1120
BES -23-13	50.75	51.21	166.50	168.01	0.46	1.51	876494	1332
BES -23-13	99.06	100.43	325.00	329.49	1.37	4.49	876543	1007
BES -23-13	103.94	109.42	341.01	358.99	5.48	17.98	876549-876553	1090.2
BES -23-13	113.69	119.18	373.00	391.01	5.49	18.01	876559-876563	1262
BES -23-13	121.65	122.83	399.11	402.99	1.18	3.87	876570-876571	1440
BES -23-13	126.49	129.39	414.99	424.51	2.90	9.51	876577-876582	1264.4
BES -23-13	131.37	131.98	431.00	433.01	0.61	2.00	876586	1215
BES -23-13	140.21	160.02	460.01	525.00	19.81	64.99	876596-876622	1432.75
BES -23-13	162.31	163.07	532.51	535.01	0.76	2.49	876627	1139
BES -23-13	166.06	167.94	544.82	550.98	1.88	6.17	876632	1026
BES -23-13	175.11	176.17	574.51	577.99	1.06	3.48	876642	1373
BES -23-14	125.88	126.49	412.99	414.99	0.61	2.00	876691	1035
BES -23-14	129.54	130.76	425.00	429.00	1.22	4.00	876695	1000
BES -23-14	140.21	141.12	460.01	462.99	0.91	2.99	876705	1046
BES -23-14	141.73	142.95	464.99	469.00	1.22	4.00	876707	1121
BES -23-14	147.52	149.05	483.99	489.01	1.53	5.02	876713-876714	1080.5
BES -23-14	172.82	189.28	566.99	621.00	16.46	54.00	876736-876752	1435.57
BES -23-14	192.94	194.77	633.01	639.01	1.83	6.00	876756	1004
BES -23-14	205.44	206.5	674.02	677.49	1.06	3.48	879265	1157
BES -23-14	207.26	209.55	679.99	687.50	2.29	7.51	879269-879271	1061

10.4 2024 Diamond Drilling

The 2024 diamond drilling procedures from 2021 were followed. One of the goals of the current drill program was to test continuity of the mineralization from Basin East to Basin North

Table 10-7: Drill Highlights from the 2024 Diamond Drilling Program

Hole ID	From (m)	To (m)	From (ft)	To (ft)	Length (m)	Length (feet)	Sample -ID	Li(ppm)
BND24-15	178.77	180.01	586.52	590.58	1.24	4.07	973774	1008
BND24-15	194.01	196.44	636.52	644.49	2.43	7.97	973786-973787	1248
BND24-15	221.89	236.22	727.99	775.00	14.33	47.01	973812-973824	1222.67
BND24-15	299.50	303.64	982.61	996.19	4.14	13.58	973866-973868	1045
BND24-15	308.15	311.54	1010.99	1022.11	3.39	11.12	973873-973874	1137.5
BND24-16	80.44	81.66	263.91	267.91	1.22	4.00	973877	1029
BND24-16	111.86	113.39	366.99	372.01	1.53	5.02	973914	1109
BND24-16	120.52	121.92	395.41	400.00	1.40	4.59	973921	1114
BND24-16	137.46	138.68	450.98	454.99	1.22	4.00	973935	1057
BND24-18	155.75	156.67	510.99	514.01	0.92	3.02	974045	1079
BND24-18	188.61	191.41	618.80	627.99	2.80	9.19	974074-974076	1141
BND24-18	193.09	196.90	633.50	646.00	3.81	12.50	974080-974083	1035
BND24-19	220.07	221.28	722.01	725.98	1.21	3.97	974148	1028
BND24-19	221.83	225.16	727.79	738.71	3.33	10.93	974151-974152	1052.5
BND24-19	251.46	253.17	825.00	830.61	1.71	5.61	974180-974181	1133
BND24-19	257.07	261.27	843.41	857.19	4.20	13.78	974186-974190	1137.25
BND24-19	267.00	279.65	875.98	917.49	12.65	41.50	974196-974208	1137.58
BND24-19	282.21	283.98	925.89	931.69	1.77	5.81	974213-974214	1194.5
BND24-19	291.69	295.05	956.99	968.01	3.36	11.02	974224-974227	1149.75
BND24-19	300.23	301.29	985.01	988.48	1.06	3.48	974233	1069
BND24-19	359.05	361.10	1177.99	1184.71	2.05	6.73	980777-980778	1097
BND24-20	236.07	238.41	774.51	782.19	2.34	7.68	980843-980844	1077
BND24-20	244.24	245.36	801.31	804.99	1.12	3.67	980853	1128
BND24-20	248.53	250.30	815.39	821.19	1.77	5.81	980857-980858	1060
BND24-20	256.18	256.61	840.49	841.90	0.43	1.41	980865	1099
BND24-21	81.69	83.06	268.01	272.51	1.37	4.49	975004	1073
BND24-21	107.05	127.19	351.21	417.29	20.14	66.08	980944-980962	1121.47
BND24-21	134.69	140.97	441.90	462.50	6.28	20.60	980970-980973	1039.75
BND24-21	160.93	163.98	527.99	537.99	3.05	10.01	980992-980993	1140.5
BND24-21	208.36	211.53	683.60	694.00	3.17	10.40	981023-981024	1247
BND24-22	219.46	222.66	720.01	730.51	3.20	10.50	981121-981123	1091
BND24-22	229.36	230.46	752.49	756.10	1.10	3.61	981130	1112
BND24-23	98.45	105.77	323.00	347.01	7.32	24.02	981148-981153	1114.8
BND24-22	122.01	123.47	400.30	405.09	1.46	4.79	981166	1393
BND24-22	124.75	131.37	409.28	431.00	6.62	21.72	981168-981173	1073.4
BND24-22	136.43	137.95	447.61	452.59	1.52	4.99	981178	1126

11. SAMPLE PREPARATION, ANALYSIS AND SECUTIRY

11.1 Introduction

The procedures for sampling, preparation, analysis, and quality assurance / quality control (QAQC) varied across the three distinct drilling and sampling programs conducted at Basin East. Consequently, the specific details for each sampling campaign are delineated separately in the subsequent sections. Table 11-1 presents a comprehensive summary of the QAQC samples and their respective insertion rates across all drilling campaigns.

Sample preparation and assaying were conducted at various facilities owned and operated by ALS Global, an esteemed and long-established laboratory service provider, independent of BHLL, until 2022. Commencing in 2023, the responsibility for sample preparation and analysis transitioned to SGS, another highly regarded laboratory service provider.

Table 11-1: Summary of QAQC samples inserted during the 2018, 2021, 2022 and 2023 Basin East drilling campaigns

Sample Type	Drilling Campaign										Total (all campaigns)	% Insertion (all campaigns)
	2018 RC		2021 DD		2022 Sonic		2023 Sonic		2024 DD			
	No. of samples	% Insertion	No. of samples	% Insertion	No. of samples	% Insertion	No. of samples	% Insertion	No. of samples	% Insertion		
Regular samples	605		820		700		1,400		773		**4,298**	100.00%
Blank Combined	15	2.2%	28	3.0%	27	3.5%	36	2.3%	27	3.1%	**133**	2.8%
MEG Carbonate Prep Blank	15	2.2%									**15**	0.3%
MEG-PRPBLK.19.12			12	1.3%	15	1.9%	14	0.9%	6	0.7%	**47**	1.0%
MEG-CaBLANK.17.13			16	1.7%	12	1.5%	22	1.4%	21	2.4%	**71**	1.5%
CRM Combined	47	6.9%	53	5.7%	51	6.6%	127	8.1%	57	6.6%	**335**	6.9%
GTA-01	13	1.9%									**13**	0.3%
GTA-02	11	1.6%									**11**	0.2%
GTA-04	12	1.7%									**12**	0.2%
GTA-09	11	1.6%									**11**	0.2%
MEG-Li.10.11			13	1.4%	13	1.7%	30	1.9%	10	1.2%	**66**	1.4%
MEG-Li.10.12			11	1.2%	13	1.7%	29	1.9%	10	1.2%	**62**	1.3%
MEG-Li.10.13							26	1.7%	13	1.5%	**39**	0.8%
MEG-Li.10.14			17	1.8%	15	1.9%	23	1.5%	11	1.3%	**66**	1.4%
MEG-Li.10.15			12	1.3%	10	1.3%	19	1.2%	13	1.5%	**55**	1.1%
Duplicates Combined	19	2.8%	36	3.8%	0	0.0%	3	0.2%	6	0.7%	**64**	1.3%
Field duplicates	19	2.8%					3	0.2%	6	0.7%	**28**	0.6%
Pulp duplicates			36	3.8%							**36**	0.7%
Total QAQC Samples	**81**	11.8%	**117**	12.5%	**78**	10.0%	**166**	10.6%	**90**	10.4%	**532**	11.0%

11.2 2018 RC Drilling Program

11.2.1 Sampling methods

Sample materials were collected in bags marked with unique, sequential identification numbers. As drilling continued, the samples were arranged sequentially on the ground near the drill sites (Figure 7-3). At the conclusion of each drilling shift, newly collected samples were placed into labeled, woven polypropylene sacks (commonly known as rice sacks) by WIM geological staff, and secured with heavy-duty cable zip-ties. QA/QC samples, including standards, blanks, and field duplicates, were integrated into the sequence before the sacks were sealed and transported. Wet samples were given time to dry as much as possible before being placed in the rice sacks, which are porous and allowed for additional drying during transport and storage.

11.2.2 Chain of custody and sample security

At the end of each day, WIM staff loaded the rice sacks containing the samples into a pickup truck and transported them to Wikieup, Arizona. Upon arrival, the samples were stored in a locked, enclosed rented trailer located at a private, fenced RV trailer park. This storage trailer was positioned next to a travel trailer that served as accommodation for the WIM Senior Geologist throughout the drilling project.

When the sample-storage trailer approached its maximum capacity, a WIM staff member transported the samples from Wikieup to ALS Tucson, an ISO/IEC 17025:2017 and ISO 9001:2015 accredited ALS Minerals Geochemistry Laboratory, independent of BHLL. During transport, WIM personnel maintained direct custody of the samples until they were handed over to ALS staff at the Tucson facility. ALS then provided WIM with a signed chain-of-custody form and a copy of the sample submittal form. Samples were delivered safely to ALS Tucson on three separate occasions over the course of the drilling program.

11.2.3 Sample preparation

At ALS Tucson, samples were first assigned barcodes and logged into ALS's proprietary global laboratory information management system. The samples were then placed in ovens and dried for 24 hours at a temperature not exceeding 80°C. Many samples were excessively wet and clay-rich, necessitating further drying. These samples were broken up with rubber mallets to fragment the partly solidified clay, facilitating additional drying. The samples were then returned to the ovens, still in their sample bags, for an additional 12 to 24 hours until completely dry.

Following drying, sample preparation was conducted in accordance with ALS's drill-core, rock, and chip preparation procedure code PREP-31y. This procedure involved crushing the entire sample to ensure that 70% of the material was less than 2.0 mm in size. A 250 g split was then taken using a rotary splitter, and this split portion was pulverized so that more than 85% passed through a 75-micron screen. The resulting sample pulps were then packed and shipped to ALS Vancouver.

For the first two batches of samples (BCRC18-01 through BCRC18-05), a 50 g split of the crushed rejects was sent from Tucson to ALS Elko, Nevada, for hyperspectral analysis.

11.2.4 Assay analysis

The ALS Minerals Geochemistry laboratory in Canada is ISO 14001:2004 certified. All RC sample pulps were analyzed using the inductively coupled plasma–mass spectrometry (ICP-MS) method with four-acid digestion, following code ME-MS61, which provides assays for 48 elements including Ag, Al, As, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cs, Cu, Fe, Ga, Ge, Hf, In, K, La, Li, Mg, Mn, Mo, Na, Nb, Ni, P, Pb, Rb, Re, S, Sb, Sc, Se, Sn, Sr, Ta, Te, Th, Ti, Tl, U, V, W, Y, Zn, and Zr. This method offers lithium analysis with detection limits ranging from 0.2 ppm to 10,000 ppm Li.

Hyperspectral analysis was conducted on splits of the crushed reject material at ALS Tucson for samples from RC drill holes BCRC18-01 through BCRC18-05. These samples were analyzed using an ASD TerraSpec® 4 high-resolution spectral scanner and the aiSIRIS™ spectral interpretation system (ALS code HYP-PKG).

11.2.5 Mineralogical analysis

Hyperspectral analyses were conducted by ALS Tucson on cuttings derived from reject material from all samples submitted for assay from drillholes BCRC18-01 through BCRC18-05. The analyses utilized an ASD TerraSpec® 4 Hi-Res mineral spectrometer. ALS provided semi-quantitative interpretations of the results, revealing significant amounts of saponite, montmorillonite, and talc within the lithium-bearing clays, with less abundant and irregularly distributed chlorite. According to ALS, talc generally constitutes between 5% and 35% of most lithium-bearing samples, occasionally reaching up to 45%. Talc presence is also noted in other clay-rich sedimentary rocks, likely as an alteration product of high-magnesium clays and carbonates (Isphording, 1971; Tosca and Wright, 2014).

The TerraSpec® 4 results further indicated substantial quantities of zeolite minerals in tuffs, which were not present in any samples containing over 500 ppm Li. The Company possesses the raw spectral data, and it is recommended that a recognized expert conduct further interpretation of this data.

11.2.6 Quality Assurance and Quality Control

The Quality Assurance and Quality Control (QAQC) protocols for the 2018 drilling campaign incorporated the inclusion of certified lithium standards, blanks, and field duplicates. These were externally prepared and inserted into the sample stream at random intervals to ensure accuracy and reliability.

Table 11-1 provides an overview of the QAQC samples and insertion rates for the 2018 drilling campaign, as well as subsequent sampling campaigns. In 2018, a total of 81 QAQC samples were introduced, reflecting an overall insertion rate of 11.8%.

Standards

During the 2018 campaign, four certified reference materials (CRMs) prepared by Geostats Pty Ltd (Geostats) were utilized. Each CRM, comprising approximately 10 grams of pulp material, was enclosed in a sealed, waterproof plastic envelope. These standards were derived from lithium-bearing ore from a lithium pegmatite deposit in Western Australia. The certification of these standards by Geostats was based on assays conducted by six different laboratories using 4-acid digestion with ICP-MS analyses, the same methodology employed for project sample assays at ALS. In addition to lithium, these standards were also certified for potassium and several other elements. Table 11-2 details the average lithium and potassium grades for each of the four standards used. Throughout the 2018 drilling program, all four standards were employed simultaneously. A total of 47 certified reference standards were inserted, resulting in an overall insertion rate of 6.9%.

Table 11-2: Summary of certified values for CRM used in 2018 drilling campaign

Reference Sample Code	Li, mean (ppm)	Std Dev (Li)
GTA-01	3,132	129
GTA-02	1,715	64
GTA-04	9,275	213
GTA-09	4,886	119

The performance of each lithium standard is illustrated in Figure 11-1. Out of the 47 standards used, 40 (85.1%) produced assay values within two standard deviations of the certified mean. The remaining 7 standards that fell outside this range deviated less than 11% from the mean. Notably, sample 3143 exceeded the -3 standard deviations, while samples 3170 and 3192 exceeded the +2 standard deviations. All three of these samples belong to drillhole BCRC18-05, and the fact that samples 3170 and 3192 are consecutive to each other suggests a potential issue.

Due to the absence of pulps, drill cuttings, or core samples from the 2018 drilling campaign, it is necessary to drill a twin hole for further validation to ensure the accuracy and reliability of these results. The lack of detailed information and physical samples from the initial drilling makes this step essential.

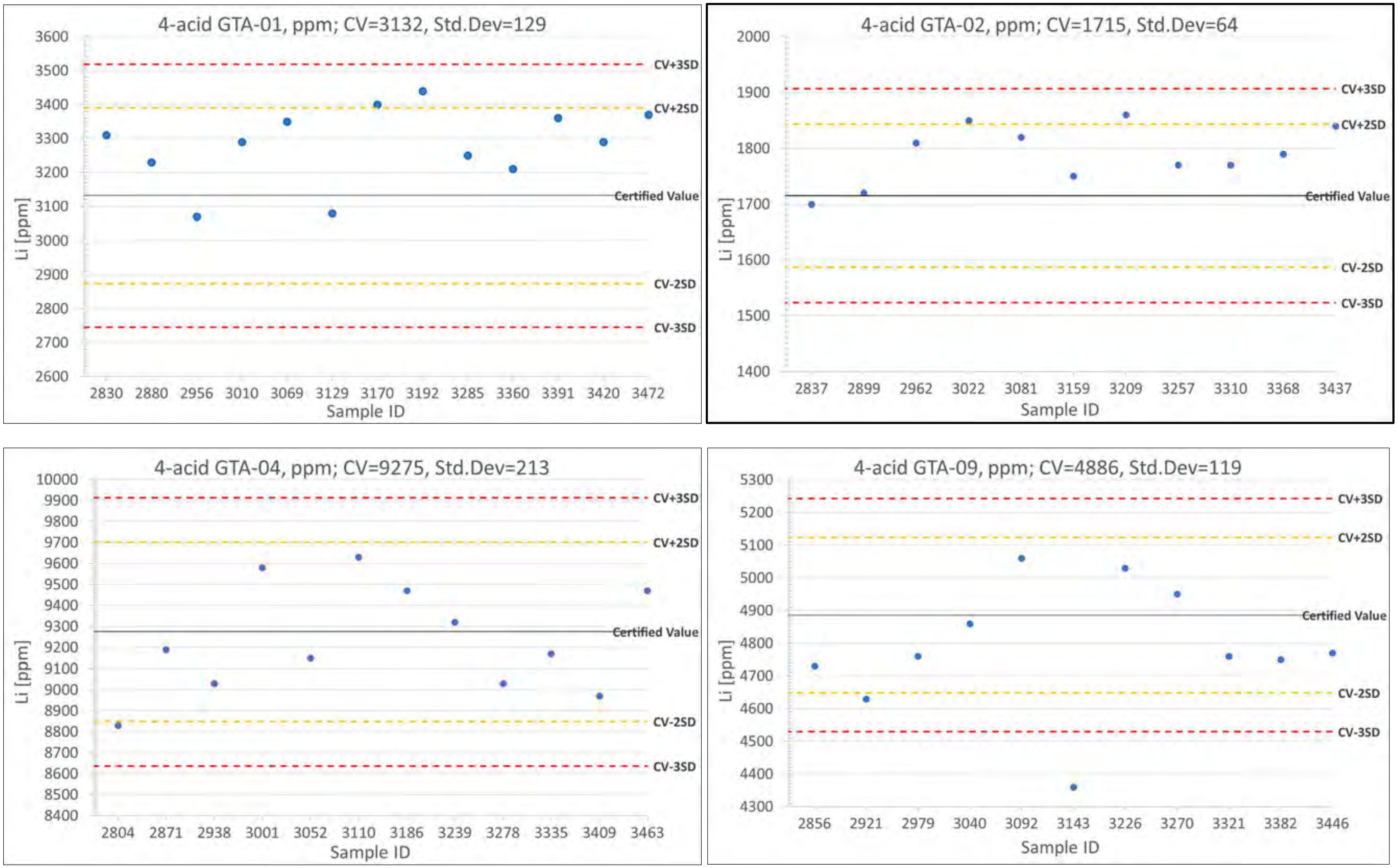


Figure 11-1: Li assay results for CRM submitted during the 2018 sampling campaign

Blanks

Blank material was prepared by Shea Clark Smith of MEG, Inc. (MEG) in Reno, Nevada. Sold as a “Carbonate Prep Blank,” this material consisted of coarsely crushed, homogeneous, fine-grained sedimentary rock with moderate calcium carbonate content. MEG conducted an analysis of 15 samples of this material at independent laboratories using 4-acid digestion and ICP-MS methods to determine a non-certified mean and standard deviation. During the 2018 campaign, 15 blank samples were submitted, resulting in an insertion rate of 2.2%. Table 11-2 provides a summary of the lithium assay statistics for the blanks, while Figure 11-2 illustrates the lithium assays of the blanks in comparison to the mean determined by MEG.

The data indicates that ALS's assays of the prep blanks were within acceptable industry standards. The blanks were not completely devoid of lithium; they contained lithium levels comparable to the lowest assays of drill samples from the project, effectively serving as a very low-grade standard. The average assay for the blanks was 41.27 ppm Li, which is 5.8% higher than the accepted mean.

Table 11-3: Summary statistics for “Carbonate Prep Blank”

Reference Sample Code	Certified mean (Li, ppm)	Std Dev	Total Number Inserted	Insertion Rate (%)	ALS assay mean (Li, ppm)	ALS max (Li, ppm)	ALS min (Li, ppm)
Carbonate Prep Blank	39.007	3.230	15	2.18	41.27	50.1	30.3

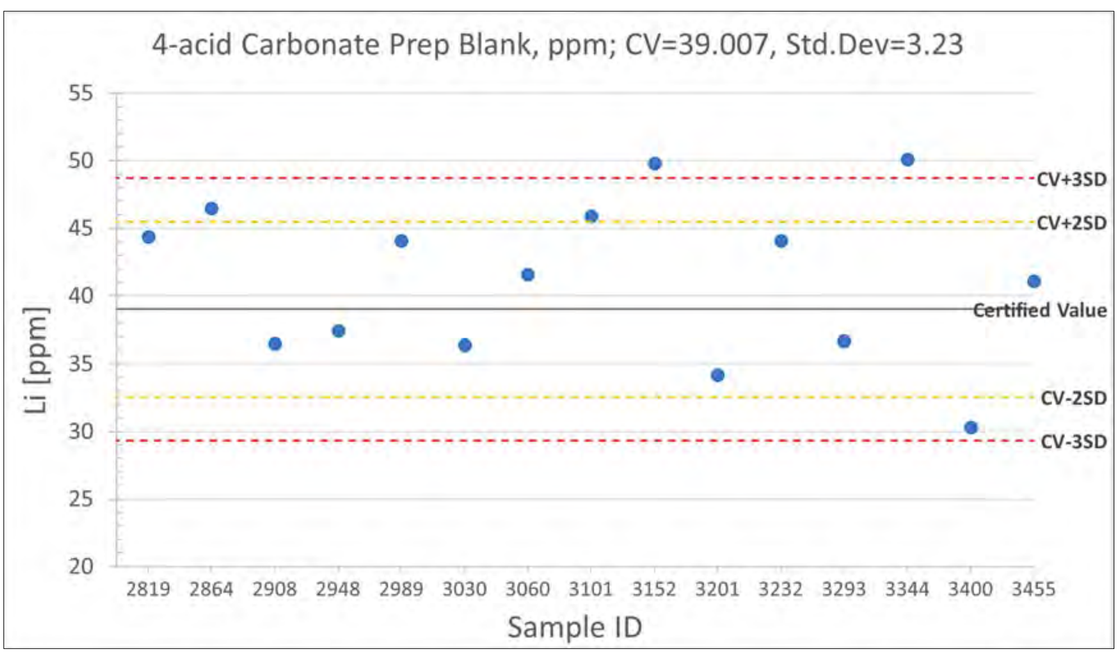


Figure 11-2: Li assay results for blanks submitted during the 2018 sampling campaign

Duplicates

Field duplicates were generated on-site for each RC drill sample, as detailed in Section 10.2.

A total of 19 duplicates were submitted for assay, yielding an insertion rate of 2.8%. Figure 11-3 illustrates a comparison between the original and duplicate lithium assays. The duplicate assays exhibit minimal variability in lithium grades for samples taken from the same drill intervals, indicating high repeatability. For lithium values exceeding 500 ppm, the differences in assay results are minor. These findings confirm that ALS assays for duplicates adhered to industry standards.

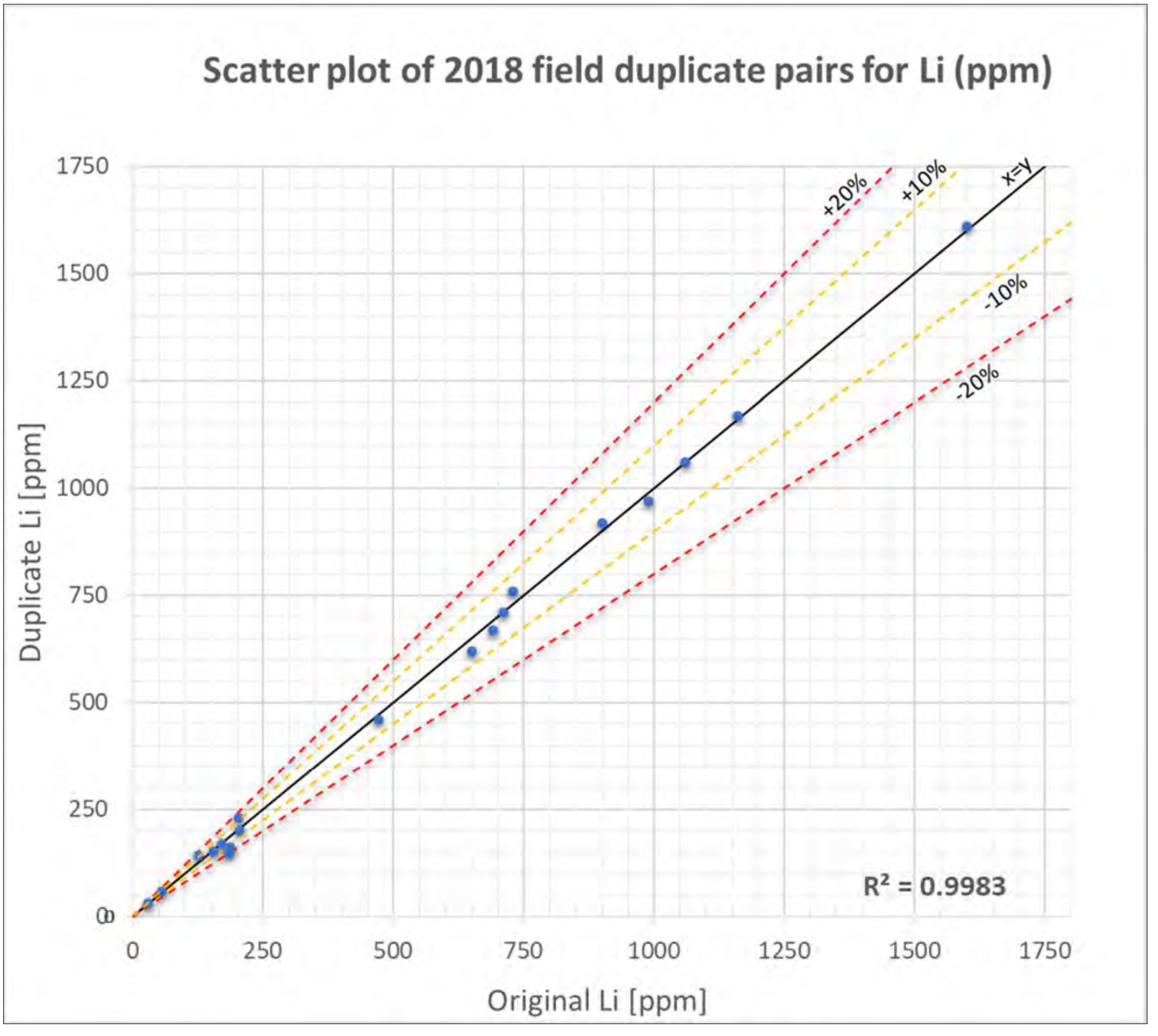


Figure 11-3: Scatter plot of lithium field duplicate data for the 2018 sampling campaign

2018 QAQC Summary

QAQC samples, comprising CRM, blanks, and field duplicates, were inserted into the sample stream 'blind' to the laboratory at an overall insertion rate of 11.8%. ABH Engineering noted that the grades of the CRM were substantially higher than the typical grades of the Li-mineralized Basin East samples and that the CRM used were sourced from lithium-bearing pegmatite, thus having a different mineral matrix compared to Basin East samples.

Additionally, it was identified that drill hole BCRC18-05 does not meet the required precision. When attempting to send the samples for re-assay, the client informed that no witness samples from that date are available. Therefore, it will be necessary to drill a twin hole in future projects to validate the information. In this twin hole, the standards that the company is already inserting from lithium-bearing clays MEG-Li will be used.

11.3 2021 Diamond Drilling Program

11.3.1 Sampling methods

Sampled intervals were defined based on the depth of the upper and lower boundaries of the specified lithostratigraphic units, as well as nominal maximum and minimum sample lengths. The selected sample intervals ranged from 0.27 m (0.9 ft) to 3.29 m (10.8 ft). To prevent damage to sample bags during handling and transport, half-core samples were typically kept under ~1.8 m (5.9 ft) in length. Sample materials were placed in bags labeled with unique, sequential identification numbers. QA/QC standards and rock blanks were bagged separately and inserted into the sample stream at a frequency of approximately 5–10%.

Geological staff determined the sample intervals during the geological logging process. Sample numbers and the start/end points were marked directly on the drill core using red marker pens, which were visible in all core photographs. QA/QC CRM standards and crushed rock preparation blanks were also bagged separately and included in the sample stream.

11.3.2 Chain of Custody and Sample Security

Throughout the process, sample security was rigorously maintained, ensuring that samples remained under constant supervision. The sample bags were stored securely in a locked, enclosed cargo trailer at the core logging facility in Wickenburg. Project personnel transported the samples to ALS Tucson facilities, where they exchanged a signed chain-of-custody form and a copy of the sample submittal form with each delivery. Samples were transported to the preparation laboratory either after the completion of each hole or, in two instances where sample volumes were smaller, after two holes were completed. ALS Tucson, an ISO/IEC 17025:2017 and ISO 9001:2015 accredited laboratory, is part of the independent ALS Minerals Geochemistry Laboratory, ensuring unbiased analysis for BHLL.

11.3.3 Sample Preparation

At ALS Geochemistry's sample preparation laboratory in Tucson, Arizona, each sample was assigned a barcode and logged into ALS' proprietary global laboratory information management system. Samples were then dried in ovens for 24 hours at temperatures below 80°C.

Following drying, sample preparation adhered to ALS' procedure code PREP-31 (riffle splitter) for drill holes BCE21-01 through BCE21-06, and procedure code PREP-31Y (rotary splitter) for drill holes BCE21-07 through BCE21-10. Both preparation methods involved crushing the entire sample to achieve 70% <2.0 mm material. A 250 g portion was then split off using either a riffle splitter (PREP-31) or a rotary splitter (PREP-31Y) and pulverized so that over 85% of the material passed through a 75-micron screen. The resulting sample pulps were then packaged and sent to ALS Vancouver for further analysis.

A quantitative comparison was conducted between the riffle splitting and rotary splitting methods. Coarse rejects (laboratory duplicates) of 36 lithium-mineralized samples from holes BCE21-01 to BCE21-06, initially prepared by riffle splitting, were re-prepared using rotary splitting and re-assayed. The consistency of the results was very high, demonstrating the reliability of both sample splitting methods.

11.3.4 Assay Analysis

The assay analyses were conducted at the ALS Minerals Geochemistry Laboratory in Vancouver, Canada, an ISO 14001-2004 certified facility. Sample pulps underwent analysis using the ICP-MS with four-acid digestion (code ME-MS61), providing assays for 48 elements including Ag, Al, As, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cs, Cu, Fe, Ga, Ge, Hf, In, K, La, Li, Mg, Mn, Mo, Na, Nb, Ni, P, Pb, Rb, Re, S, Sb, Sc, Se, Sn, Sr, Ta, Te, Th, Ti, Tl, U, V, W, Y, Zn, and Zr. This method offers lithium detection with a range from 0.2 ppm to 10,000 ppm Li.

Additionally, separate analyses were performed for fluorine and boron on selected sample groups. Fluorine analyses were conducted on all samples from holes BCE21-01 and BCE21-03, as well as the upper portion of BCE21-02, using the ALS fluorine by potassium hydroxide fusion method (code F-ELE81A), which has detection limits ranging from 20 ppm to 20,000 ppm fluorine. Boron was analyzed on all samples from hole BCE21-03 using ALS method B-ICP41, involving aqua regia digestion and an inductively-couple plasma atomic emissions spectroscopy finish, with detection limits between 10 ppm and 10,000 ppm boron.

11.3.5 Mineralogical Analysis

BHLL provided SGS in Toronto with samples from its 2021 Basin East drilling program. These samples were blended to create a representative sample of the well-mineralized upper clay zone from hole BCE21-02. The head sample underwent comprehensive elemental analysis for lithium and other impurity elements using both ICP and XRF methods.

SGS Canada performed mineralogical testing using X-Ray Diffraction (XRD) to identify the mineral constituents. The analysis revealed that the majority of the lithium is contained in the mineral swinefordite $(Li(Al,Li,Mg)_3((Si,Al)_4O_{10})_2(OH,F)_4 \cdot nH2O)$, with a minor portion present in the mineral petalite ($LiAlSi_4O_{10}$). The head sample was subsequently screened to determine particle size distribution (PSD), with various size fractions being weighed and analyzed. Further details on the results of the mineralogical testing can be found in Section 13.2.

11.3.6 Quality Assurance and Quality Control

Introduction

The QAQC protocols for the 2021 drilling campaign involved the inclusion of certified lithium CRM, blanks, and lab pulp duplicates into the sample stream. These QAQC samples were introduced randomly at a total insertion rate of 12.5%. The types of QAQC samples and their respective insertion rates are detailed in Table 11-1.

Standards

For the 2021 campaign, four certified reference materials (CRMs) prepared by Shea Clark Smith of MEG were utilized. These standards were derived from mineralized rock from the Silver Peak Lithium Mine in Nevada, known for its lithium brine operations. MEG certified these standards based on assays from eight to eleven different laboratories using a 4-acid digestion method with inductively coupled plasma atomic emission spectrometry (ICP-AES) analyses, similar to the assay method used for project samples at ALS. Each laboratory involved in the certification received five samples (0.5 g each) of each of the four standards. Although the standards are certified for lithium and boron, they are not certified for potassium.

All four standards were employed throughout the drilling program. In total, 53 CRM standards were inserted into the sample stream, resulting in an insertion rate of 5.7%. Table 11-4 provides a summary of the lithium grades and insertion rates for the CRM used during the 2021 drilling program.

Table 11-4: Summary of certified values for CRM used in 2021 drilling program

Reference Sample Code	Pre-2023 Certified Values		2023 Certified Values	
	Li, mean (ppm)	Standard Deviation	Li, mean (ppm)	Standard Deviation
MEG-Li.10.11	729.68	131.45	723.1	29.0
MEG-Li.10.12	1160	243	1171.9	99.5
MEG-Li.10.13	-	-	1180.0	95.0
MEG-Li.10.14	812	182	813.9	72.3
MEG-Li.10.15	1578.5	325.07	1606.4	104.8

Figure 11-4 illustrates the performance of each lithium standard. ABH notes that MEG updated the mean Li certified values and their associated standard deviation values for the CRM in 2023. Table 11-4 includes both the updated and the original certified values and standard deviations for each CRM. However, the mean values and standard deviations used to evaluate CRM performance in Figure 11-4 correspond to the 'pre-2023' certified values available in 2021.

The data indicates that the ALS Minerals laboratory's performance met industry standards. All 53 standards submitted returned assay values within two standard deviations of the certified mean, with no significant issues identified. This demonstrates that the laboratory maintained acceptable accuracy and precision throughout the analysis.

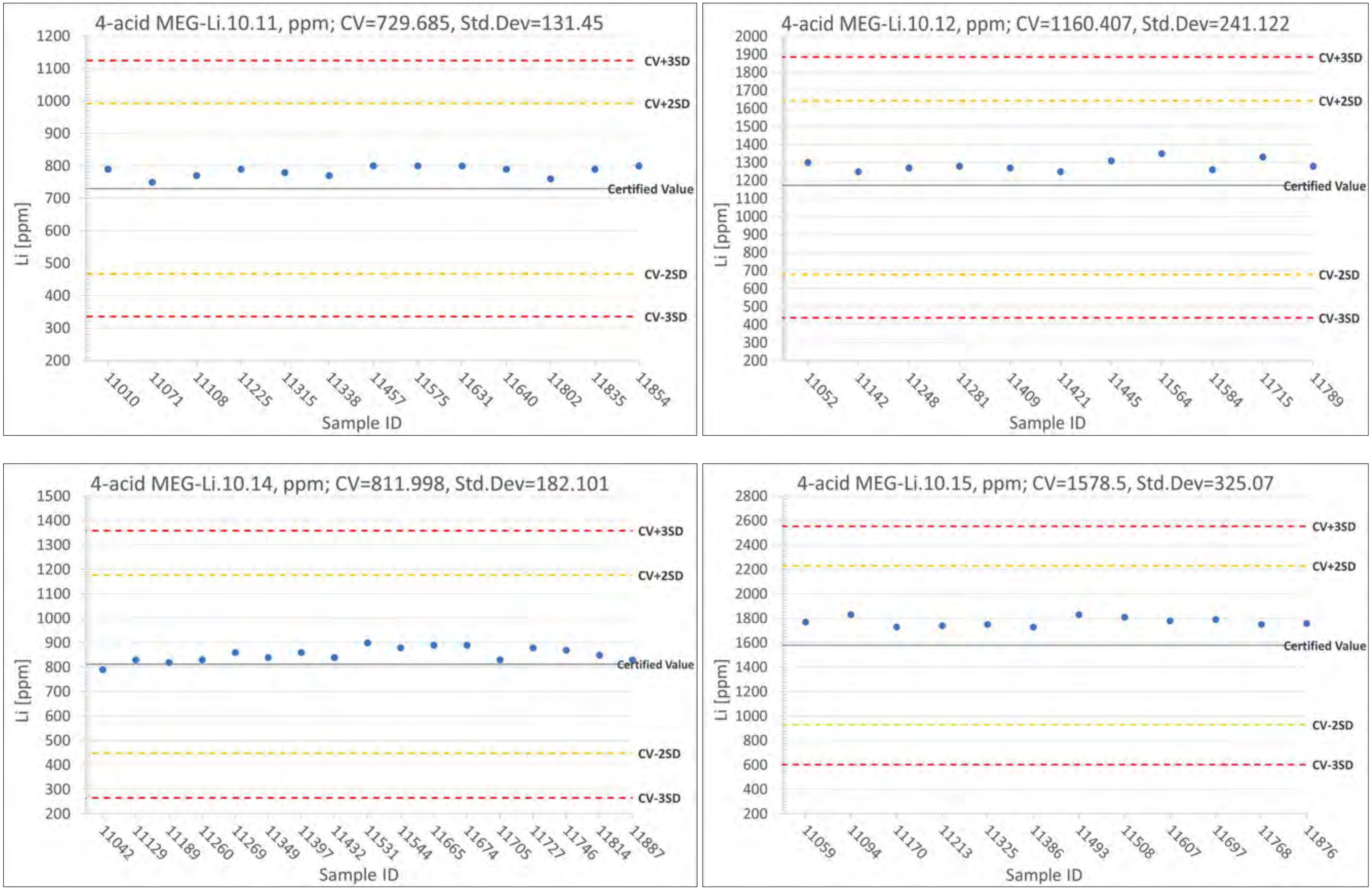


Figure 11-4: Li assay results for CRM submitted during the 2021 sampling campaign

During the 2021 sampling campaign, two blank materials were used, both prepared by Shea Clark Smith of MEG. These included a gold prep blank sample (MEG-PRPBLK.19.12) and a "Carbonate Prep Blank" (MEG_CaBLANK.17.13). The gold blank sample consisted of 50–60 g envelopes containing a pulp of barren siliceous material from Dayton, Nevada. The carbonate prep blank was composed of coarsely crushed, homogenous, fine-grained sedimentary rock with moderate calcium carbonate content, supplied and submitted in ~2 kg bags. While the gold content of the gold prep blank is certified by MEG, the lithium (Li) content is not. However, MEG provided the client with 21 lithium analyses from two labs, from which a non-certified mean Li value can be derived. Li values for the carbonate prep blank have not been provided.

A total of 12 gold prep blanks and 16 carbonate prep blanks were submitted, representing an insertion rate of 3.0%. Figure 11-5 illustrates the relative performance of these blank samples, including a comparison to the mean determined by MEG for the gold prep blank. The data indicates that ALS assays of the blanks performed acceptably within industry standards.

ABH notes that the blanks were not "blank" as they contain lithium levels comparable to the lowest assays of drill samples from Basin East, effectively making them equivalent to very low-grade standards. The average ALS assay of 49.85 ppm Li for the gold prep blanks is slightly higher than the non-certified mean value of 38.8 ppm.

In the absence of certified Li data, it is not possible to fully evaluate the performance of the carbonate prep blank sample. The mean Li value of the 16 ALS assays is 43.5 ppm, with a maximum assay value of 50 ppm and a minimum of 35.7 ppm.

To have a parameter of comparison, ABH calculated the standard deviation of the samples and used the non-certified mean provided by MEG for the PRPBLK 19.12. For CaBLANK.17.13, the mean of the samples and their standard deviation were used. This approach allowed for a more accurate assessment of the blank materials' performance, providing a benchmark against which to compare the assay results. However, it was observed that for the PRPBLK 19.12, two consecutive samples fell outside of two standard deviations. As a result, the future insertion of blanks may be required for subsequent phases to ensure ongoing accuracy and precision in the assay results.

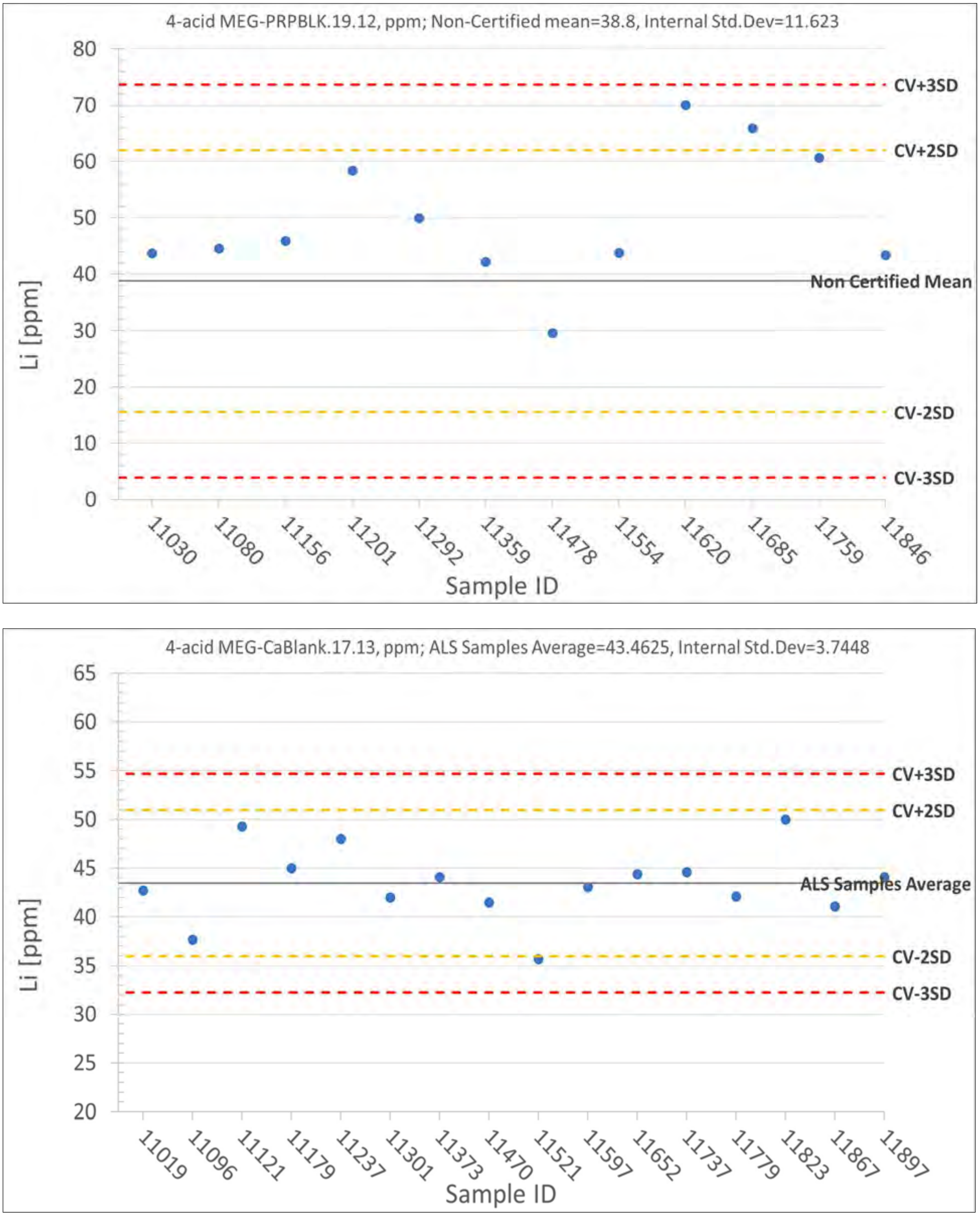


Figure 11-5: Li assay results for blanks submitted during the 2021 sampling campaign

Duplicates

During the 2021 drilling campaign, 19 coarse reject duplicates, accounting for 3.8% of all samples, were submitted for assay at ALS Minerals. The original samples were prepared using a riffle splitter, while the duplicate samples were prepared with a rotary splitter. Figure 11-6 illustrates the performance of the 2021 duplicate Li assays. The comparative analysis of the duplicate and original Li assays reveals minimal variability in Li grade for material from the same drilled intervals. The data indicates that the error between duplicate and original assays is consistently below 5%, demonstrating excellent reproducibility. This high level of repeatability is evident both at lower Li values and in assays exceeding 1000 ppm, confirming the reliability of the sampling process.

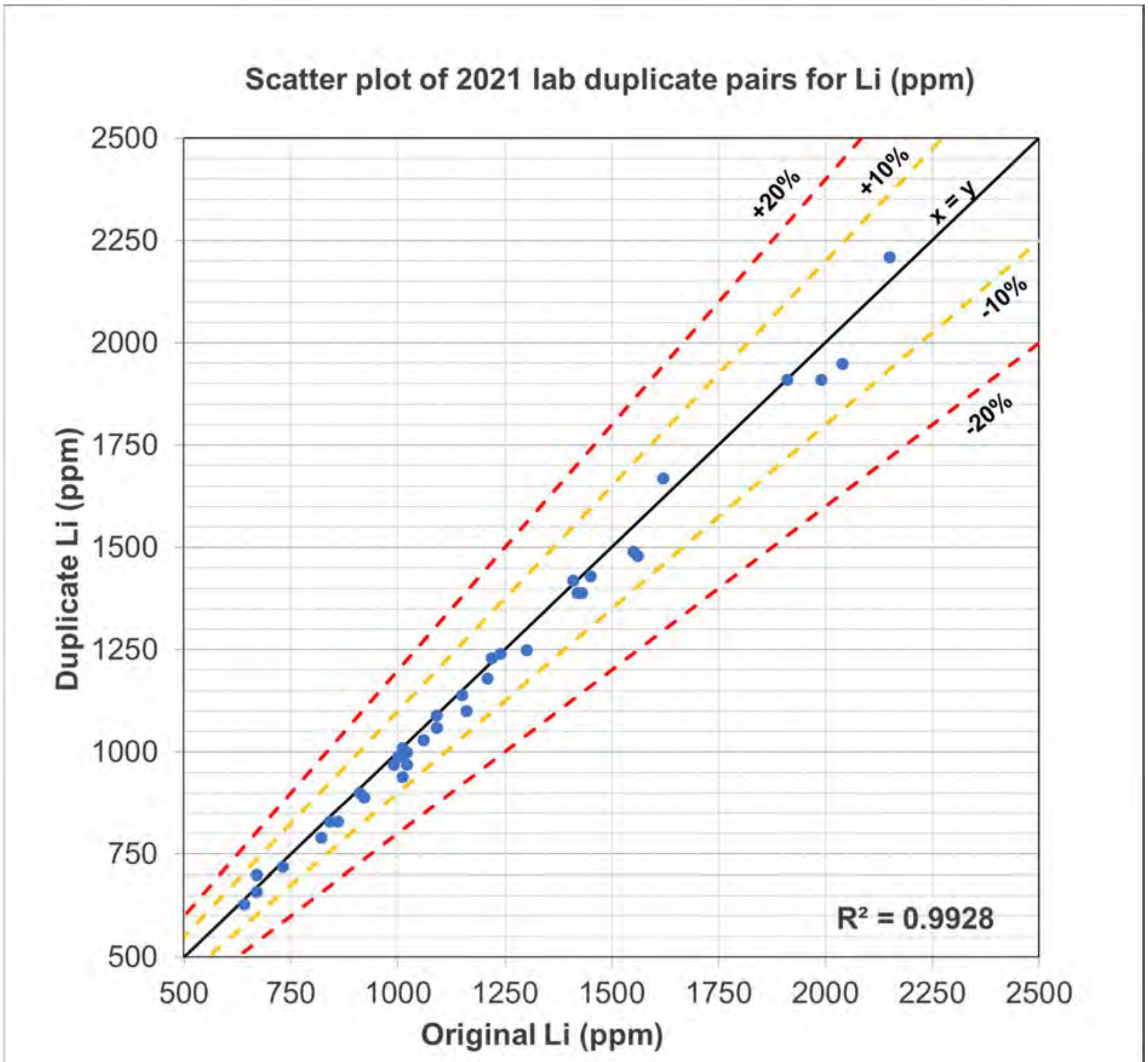


Figure 11-6: Scatter plot of lithium lab duplicate data for the 2021 sampling campaign

2021 QAQC Summary

During the 2021 drilling campaign, QAQC samples, including blanks, laboratory (coarse reject) duplicates, and CRM, were introduced into the sample stream at an overall insertion rate of 13%. It was observed that the blanks were not entirely blank and appeared to function more as lower standards. Furthermore, the blanks lacked certified values and specified parameters, making it challenging to detect any bias in these samples. Despite this, the samples did not exhibit significant contamination, though remediation is recommended. No field duplicates were collected in 2021. ABH Engineering suggested the insertion of proper blanks after high-grade intercepts and noted that the current QAQC sample insertion rates are somewhat below industry standards. Overall, the results still demonstrate a good level of accuracy and precision.

11.4 2022-2023 Sonic Drilling Programs

11.4.1 Sampling Methods

For the 2022-2023 sonic drilling programs, half-core samples (split longitudinally) were collected. Unique identification numbers on sample tags were attached to the core boxes at the end of each sample interval before sample collection. An identical tag was included with the sampled core. The remaining procedures mirrored those used in the 2021 diamond drilling program.

11.4.2 Chain of Custody and Sample Security

Throughout the entire process, samples were securely handled and under constant supervision. Sample bags were stored in a locked cargo trailer at the Wickenburg core logging facility. Project personnel transported the samples to the ALS prep lab in Tucson, exchanging a signed chain-of-custody form and a copy of the sample submittal form upon each delivery. Samples were sent to the prep lab either after each hole was sampled or after two holes were completed when the sample volume was smaller. Additionally, the samples from the 2023 drilling campaign were sent to SGS in Burnaby, ensuring continued secure handling and proper chain-of-custody procedures.

11.4.3 Sample Preparation

2022 Program:

All assay samples were prepared at the ALS Tucson facility, following the same procedures as in 2021. ALS Tucson is accredited with ISO/IEC 17025:2017 and ISO 9001:2015 and is independent of BHLL. Samples were dried for 24 hours at ≤80°C, with very wet samples being broken up and dried for an additional 12–24 hours. Subsequent preparation followed ALS's

PREP-31y standard, involving initial crushing (70% passing a 2.0 mm mesh), separating a 250g sample via a rotary splitter, and pulverizing (>85% passing a 75-aperture mesh)

2023 Program:

The 2023 program also used a sonic drill rig, but samples were sent to the SGS laboratory in Burnaby, British Columbia, Canada, accredited with ISO 14001-2004 and independent of BHLL. Samples were cut in half at the Morristown, Arizona, core logging facility and kept secure in a locked trailer until shipment. Core was cut onsite, bagged at intervals of 0.15 to 3.6m in polyethylene plastic bags, which were pre-labeled and tagged to prevent lab mix-ups. Standards and blanks were inserted at approximately 10% intervals. Samples were shipped directly to Burnaby, where they were weighed, dried at 105°C for 24 hours, crushed to 3/8" (75% passing 2.0mm mesh), initially split by riffle splitter, then modified to rotary splitting midway through the program. Sample splits were 250g, subsequently pulverized by chrome steel rings, >85% passing 75-micron mesh.

11.4.4 Assay Analysis

2022 Program:

Samples were assayed at the ALS Minerals Geochemistry Laboratory in Vancouver, Canada, accredited with ISO 14001-2004 and independent of BHLL. Sample pulps were analyzed using an ICP-MS method with four-acid digestion (code ME-MS61) to assay 48 elements (including Ag, Al, As, Ba, Li, etc.). This method provided lithium analyses with detection limits between 0.2 ppm and 10,000 ppm.

2023 Program:

Samples were assayed at the SGS Geochemistry Laboratory in Burnaby, Vancouver, Canada, accredited with ISO 14001-2004 and independent of BHLL. Sample pulps were analyzed using an ICP-MS method with four-acid digestion (code GE_ICP40Q12) for 18 elements (including Al, Ba, Ca, Cr, Li, etc.) and another ICP-MS method with four-acid digestion (code GE_IMS40Q12) for 31 additional elements (including Ag, As, Be, Bi, etc.). Lithium analyses had detection limits between 0.2 ppm and 10,000 ppm.

11.4.5 Mineralogical Analysis

2022 Program:

No mineralogical analyses were conducted on core material from 2022.

2023 Program:

No mineralogical analyses were conducted in 2023. However, BHLL has commissioned further studies with SGS Lakefield's mineralogical division for the coming months.

11.4.6 Quality Assurance and Quality Control

Introduction:

The QAQC procedures for the 2022 and 2023 drilling campaigns included the submission of certified lithium CRM and samples considered to represent blanks. A total of 166 QAQC samples were analyzed, resulting in an insertion rate of 10.6%. ABH notes that no duplicate samples were included in 2022, and only three field duplicates were submitted in 2023.

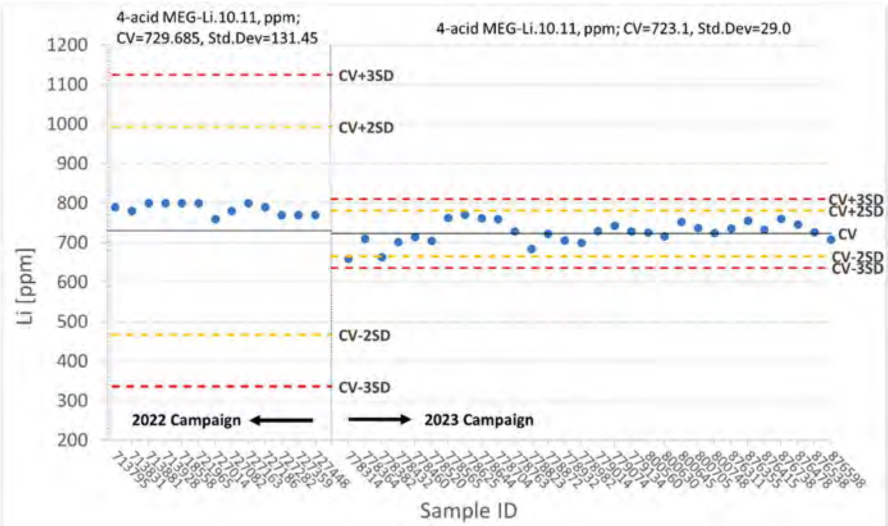
Standards:

The same four Certified Reference Materials (CRM) from MEG, initially used during the 2021 sampling campaign, were also utilized in the 2022 and 2023 campaigns. An additional MEG CRM (MEG-Li.10.13) was introduced in the 2023 campaign. In 2022, 51 CRM standards were incorporated into the sample stream at a rate of 6.6%, while in 2023, 127 CRM standards were used at a rate of 8.1%. The performance of these lithium standards for 2022 and 2023 is illustrated in Figure 11-7.

The MEG updated the certified mean Li values for the CRM in 2023, leading to a significant reduction in the standard deviation values. The certified values and standard deviations available at the time of analysis were used to evaluate CRM performance in Figure 11-7.

The data indicates that ALS operated within acceptable industry standards. In 2022, all 51 standards returned assay values within two standard deviations of the certified mean. In 2023, all but two of the 127 standards returned values within two standard deviations of the updated certified mean; the two outliers were only slightly outside this range. A likely sample switch involving CRM MEG-Li.10.15 and MEG-Li.10.12 was identified during the 2022 campaign (see Figure 11-7).

In 2022, a slight bias was observed, with standards showing values on average 8.5% higher than the certified mean. This was consistent with the 2021 program that used the same standards. However, this bias appeared to be corrected in 2023, with CRM values aligning closely with the certified mean.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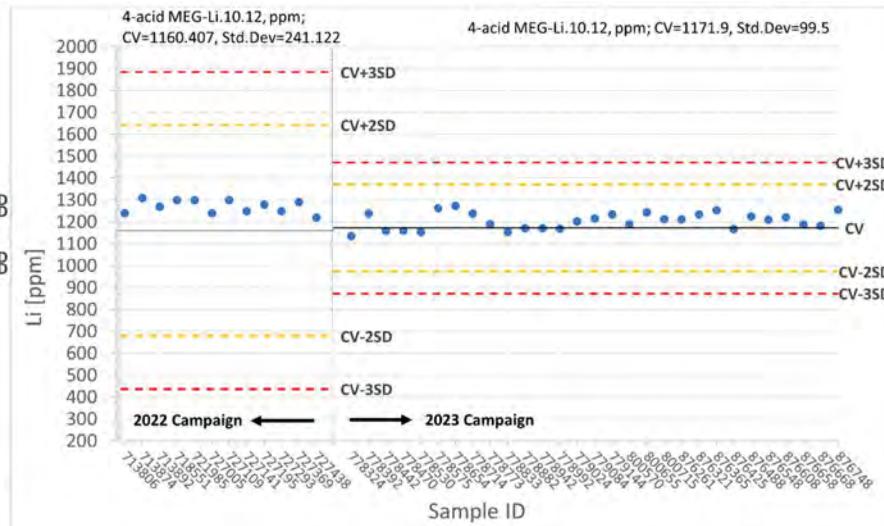
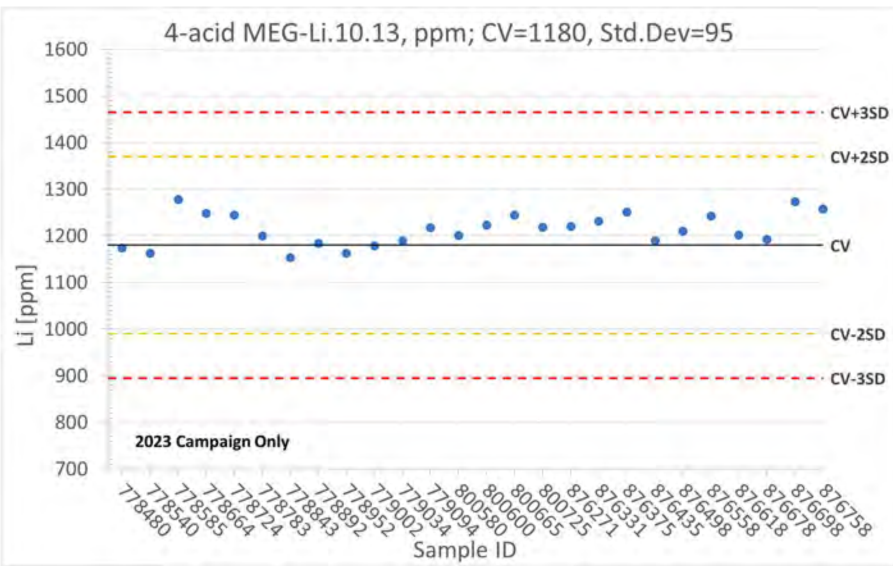
4-acid MEG-Li.10.11, ppm; CV=723.1, Std.Dev=29.0
Li [ppm]
CV+3SD
CV+2SD
CV
CV-2SD
CV-3SD
2022 Campaign
2023 Campaign
Sample ID


4-acid MEG-Li.10.12, ppm; CV=1160.407, Std.Dev=241.122
4-acid MEG-Li.10.12, ppm; CV=1171.9, Std.Dev=99.5
Li [ppm]
CV+3SD
CV+2SD
CV
CV-2SD
CV-3SD
2022 Campaign
2023 Campaign
Sample ID


4-acid MEG-Li.10.13, ppm; CV=1180, Std.Dev=95
Li [ppm]
CV+3SD
CV+2SD
CV
CV-2SD
CV-3SD
2023 Campaign Only
778480
778540
778585
778664
778724
778783
778843
778892
778952
779002
779034
779094
800580
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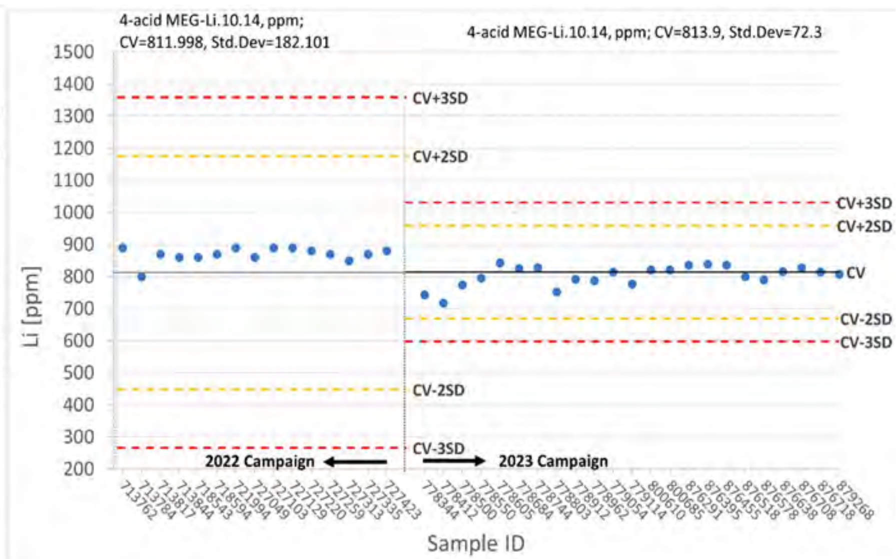
876678
876698
876758
Sample ID


4-acid MEG-Li.10.14, ppm; CV=811.998, Std.Dev=182.101
4-acid MEG-Li.10.14, ppm; CV=813.9, Std.Dev=72.3
Li [ppm]
CV+3SD
CV+2SD
CV
CV-2SD
CV-3SD
2022 Campaign
2023 Campaign
Sample ID

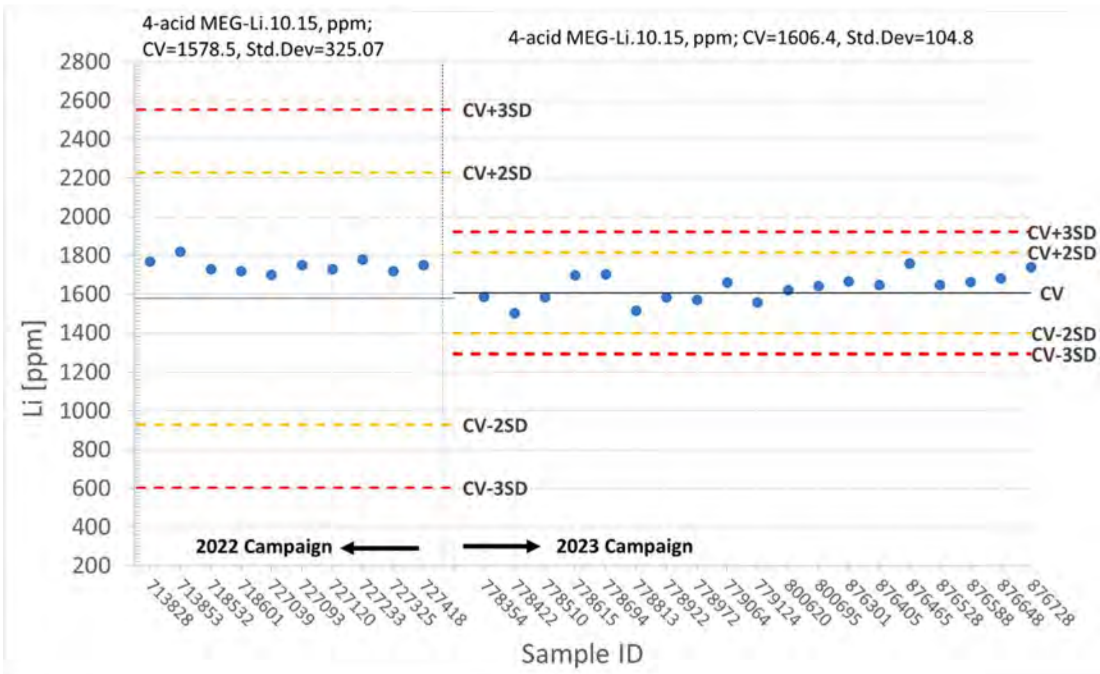


Figure 11-7: Li assay results for CRM submitted during the 2022 and 2023 sampling campaigns

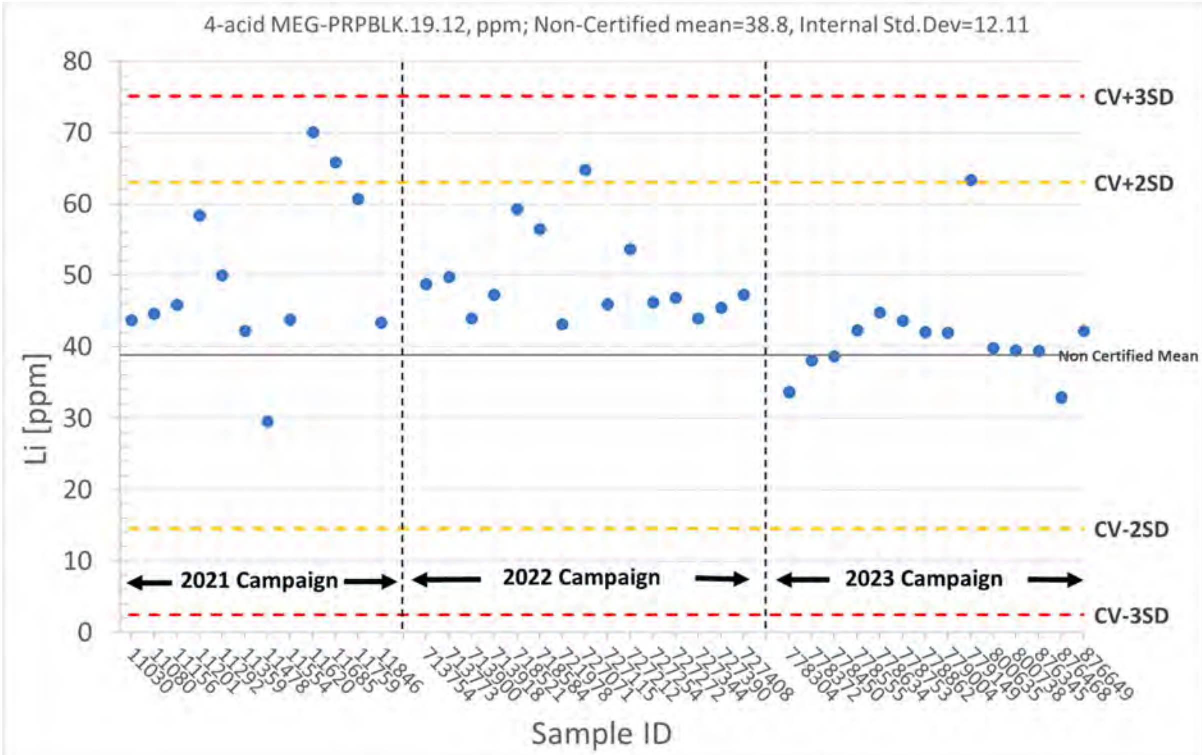
Blanks

In 2022 and 2023, the same two low-grade standard samples used as blanks in 2021 (refer to Section 11.3.6) were also utilized. The blanks were incorporated into the sampling process at a rate of 3.5% in 2022, while in 2023, this rate was 2.3%. Figure 11-8 illustrates the performance of these blanks during both years, comparing them to the mean value determined by MEG for the gold prep blank.

Additionally, the data from 2021 were incorporated into the analysis to provide a more comprehensive evaluation of the blanks' performance over the three-year period.

The assay results from ALS for the prep blanks indicated satisfactory performance. In 2022, the average Li assay for the gold prep blanks was 49.5 ppm, which is 27% higher than the non-certified mean Li value of 38.8 ppm. In 2023, the average Li assay was 41.6 ppm, 7% higher than the non-certified mean.

Due to the lack of certified Li data and standard deviation values, internal values were used for the analysis, calculated with the data provided. The mean Li value for the carbonate prep blank assays was 41.0 ppm in 2022 and 40.0 ppm in 2023, compared to 43.5 ppm Li in 2021. In 2023, the maximum and minimum assay values were 29% higher and 19% lower than the mean value, respectively. This indicates generally low variability in the Li assay values, although some degree of heterogeneity exists, even at low Li concentrations.



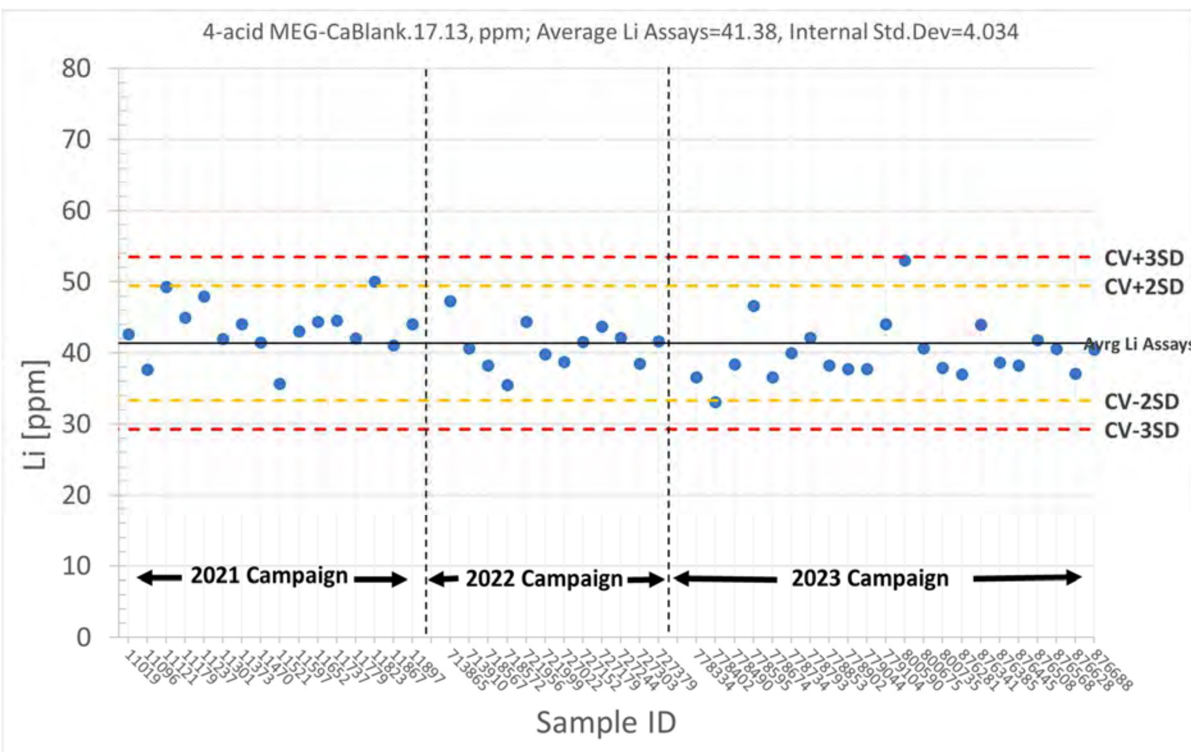


Figure 11-8: Li-assay results for blanks submitted during the 2021, 2022, and 2023 sampling campaigns

Duplicate

During the 2022 sampling campaign, no duplicate samples were submitted. In 2023, three field duplicate samples were submitted, all from drillhole BES-23-14, representing an insertion rate of 0.2%. Figure 11-9 illustrates the comparison between the original and duplicate Li assays.

Although the data shows very good reproducibility, it is important to note that this conclusion is drawn from a very small sample size. ABH recommends collecting a more extensive dataset of duplicate samples in future campaigns, ensuring that duplicates are taken from all newly drilled holes.

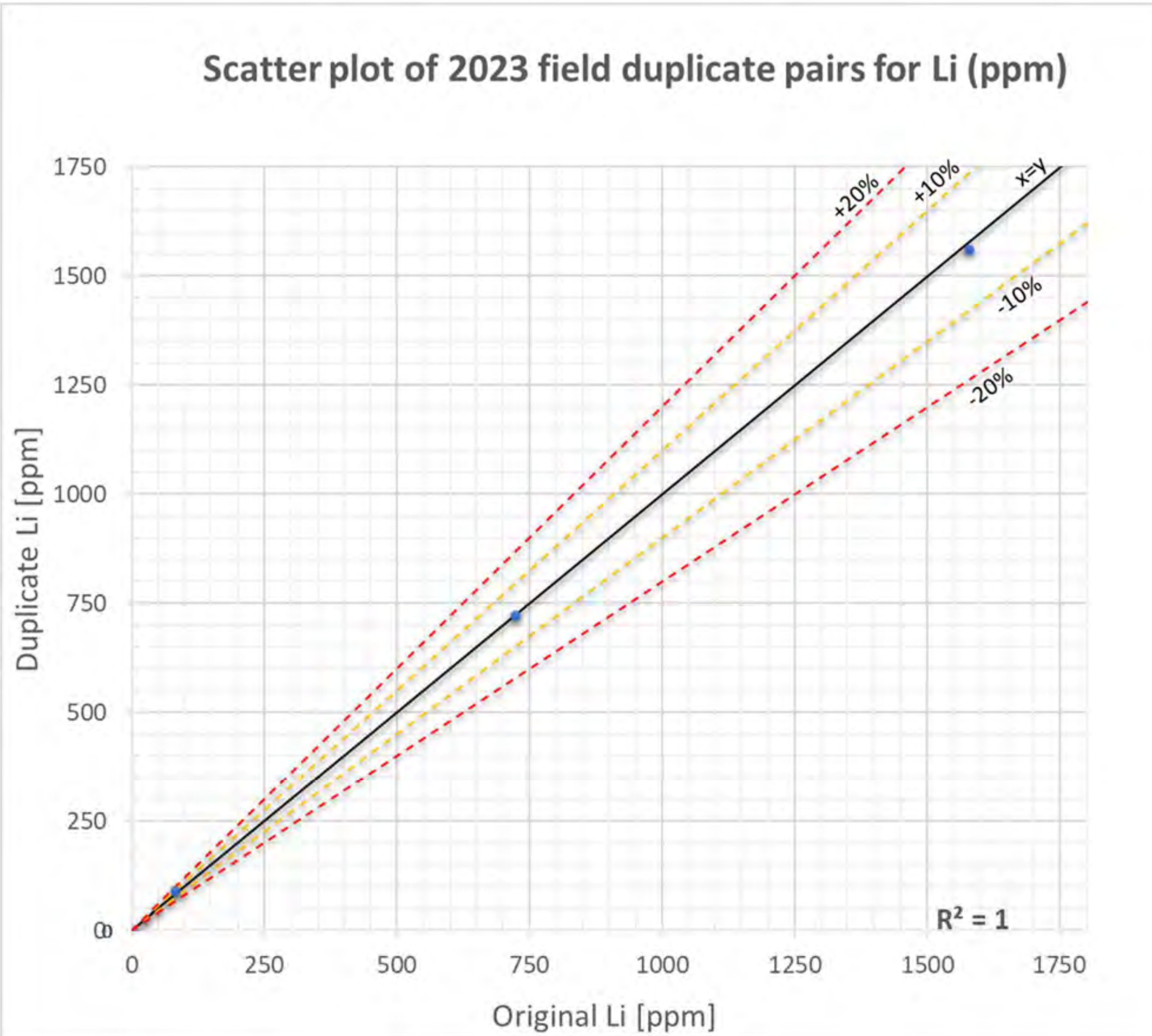


Figure 11-9: Scatter plot of lithium field duplicate data for the 2023 sampling campaign

2022 and 2023 QAQC Summary

No issues were identified, and overall, the results demonstrate a good level of accuracy and precision. No duplicate samples were taken in 2022, and only three field duplicates were analyzed in 2023. ABH recommends including both field duplicates and lab duplicates (pulp and/or coarse rejects) in the future QAQC program to better monitor sampling, lab preparation, and analytical procedures.

It is worth noting that the blanks used during these campaigns were low-grade material and not proper blanks. Despite this, the high bias observed in the blank samples during the 2021 and 2022 campaigns appears to have been resolved in the 2023 campaign.

QAQC Summary

Throughout the drilling campaigns at Basin East from 2018 to 2023, a QAQC program was consistently implemented. QAQC samples, including certified reference materials (CRMs), blanks, and field duplicates, were inserted into the sample stream at an overall rate of 12%, slightly below the industry standard of 15%. Initially, sample preparation and analysis were conducted by ALS Global until 2022, after which SGS took over these responsibilities. Despite the lower insertion rate, no significant issues were identified, and the results demonstrated good accuracy and precision. However, ABH Engineering noted the use of low-grade materials as blanks and recommended including both field and lab duplicates in future QAQC programs to enhance monitoring of sampling, preparation, and analytical procedures. The high bias observed in blank samples during the 2021 and 2022 campaigns was resolved in the 2023 campaign.

11.5 2024- Diamond Drilling Program

11.5.1 Sampling Methods

Sampled intervals were defined based on the depth of the upper and lower boundaries of the specified lithostratigraphic units, as well as nominal maximum and minimum sample lengths. The selected sample intervals ranged from 0.09 m (0.3 ft) to 3.35 m (11 ft). To prevent damage to sample bags during handling and transport, half-core samples were typically kept under ~1.8 m (5.9 ft) in length. Sample materials were placed in bags labeled with unique, sequential identification numbers. QA/QC standards and rock blanks were bagged separately and inserted into the sample stream at a frequency of approximately 10–11%.

Geological staff determined the sample intervals during the geological logging process. Sample numbers and the start/end points were marked directly on the drill core using labels, which were visible in all core photographs. QA/QC CRM standards and crushed rock preparation blanks were also bagged separately and included in the sample stream.

11.5.2 Chain of Custody and Sample Security

Throughout the entire process, samples were securely handled and under constant supervision. Sample bags were stored in a locked cargo trailer at the Morristown core logging facility. Project personnel shipped the samples to the SGS laboratory in Burnaby, exchanging a signed chain-of-custody form and a copy of the sample submittal form upon each delivery. Samples were sent to the lab either after each hole was sampled or after two holes were completed, if the sample volume was smaller. This process ensured that all samples maintained a proper chain of custody and were securely handled from the field to the laboratory.

11.5.3 Sample Preparation

The 2024 program used a diamond drill rig, but samples were sent to the SGS laboratory in Burnaby, British Columbia, Canada, accredited with ISO 14001-2004 and independent of BHLL. Samples were cut in half at the Morristown, Arizona, core logging facility and kept secure in a locked trailer until shipment. Core was cut onsite, bagged at intervals of 0.15 to 3.6m in polyethylene plastic bags, which were pre-labeled and tagged to prevent lab mix-ups. Standards and blanks were inserted at approximately 10% intervals. Samples were shipped directly to Burnaby, where they were weighed, dried at 105°C for 24 hours, crushed to 3/8” (75% passing 2.0mm mesh), initially split by riffle splitter, then modified to rotary splitting midway through the program. Sample splits were 250g, subsequently pulverized by chrome steel rings, >85% passing 75-micron mesh.

11.5.4 Assay Analysis

Samples were analyzed at the SGS Geochemistry Laboratory in Burnaby, Vancouver, Canada, an ISO 14001-2004 certified facility that operates independently of BHLL. The sample pulps underwent analysis using two different ICP-MS methods with four-acid digestion. The first method (code GE_ICP40Q12) provided assays for 18 elements, including: Al, Ba, Ca, Cr, Cu, Fe, K, Mg, Mn, Na, Ni, P, S, Sr, Ti, V, Zn, Zr, Ag, As, Be, Bi, Cd, Ce, Co, Cs, Ga, Hf, In, La, Li, Lu, Mo, Nb, Pb, Rb, Sb, Sc, Se, Sn, Ta, Tb, Te, Th, Tl, U, W, Y, Yb. This method provides lithium analysis with detection limits ranging from 0.2 ppm to 10,000 ppm.

11.5.6 Quality Assurance and Quality Control

Introduction

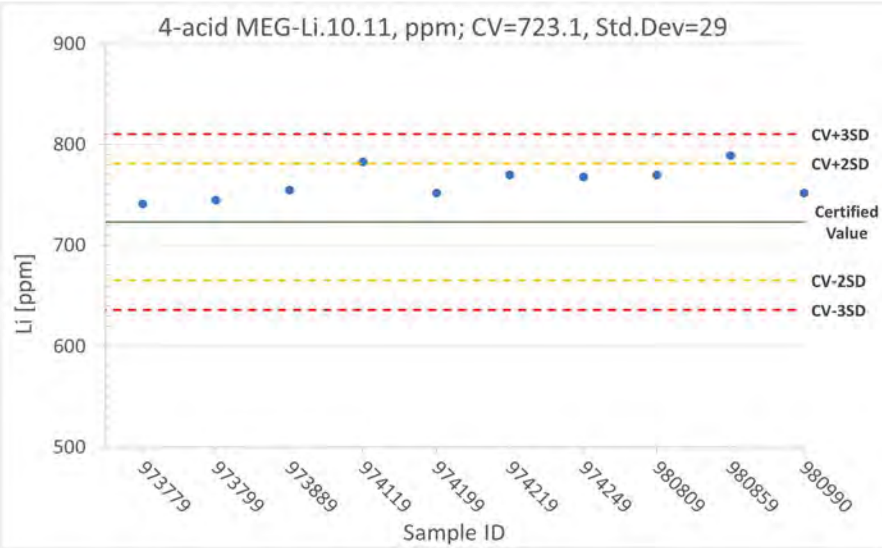
For the 2024 drilling campaign, the QAQC protocols involved incorporating certified lithium CRMs (externally prepared), blank samples, and field duplicates. These QAQC samples were randomly inserted into the sample stream, maintaining an overall insertion rate of 10.4%. Table 11-1 provides a summary of the types of QAQC samples used and their respective insertion rates.

Standards

The five CRMs sourced from MEG and used in the 2023 sampling campaign were also utilized during the 2024 campaign (Section 11.3.6). In 2024, a total of 57 CRM standards were inserted into the sample stream at a rate of 6.6%. The performance of each lithium standard during the 2024 campaign is illustrated in Figure 11-10.

The data indicates that SGS's performance was within acceptable industry standards. In 2024, all but four of the 57 standards submitted returned assays within two standard deviations of the certified mean, with the four exceptions falling just outside this range.

During 2024, a slight bias towards higher values than the certified mean was observed for all but one of the five CRMs used. On average, the standards returned values that were 7.312% higher than the certified mean, excluding the standard Li.10.14.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Li [ppm]
900
800
700
600
500
CV+3SD
CV+2SD
Certified Value
CV-2SD
CV-3SD
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973799
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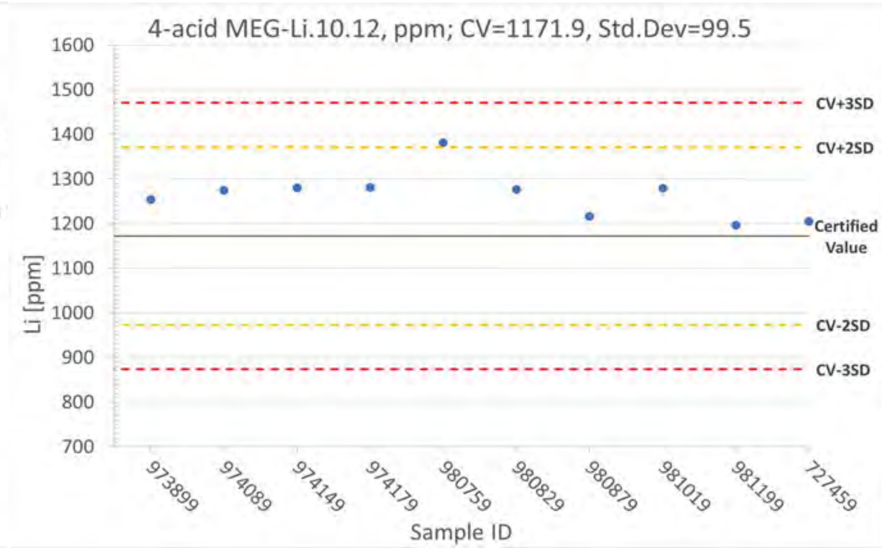
974119
974199
974219
974249
980809
980859
980990
Sample ID


4-acid MEG-Li.10.12, ppm; CV=1171.9, Std.Dev=99.5
Li [ppm]
1600
1500
1400
1300
1200
1100
1000
900
800
700
CV+3SD
CV+2SD
Certified Value
CV-2SD
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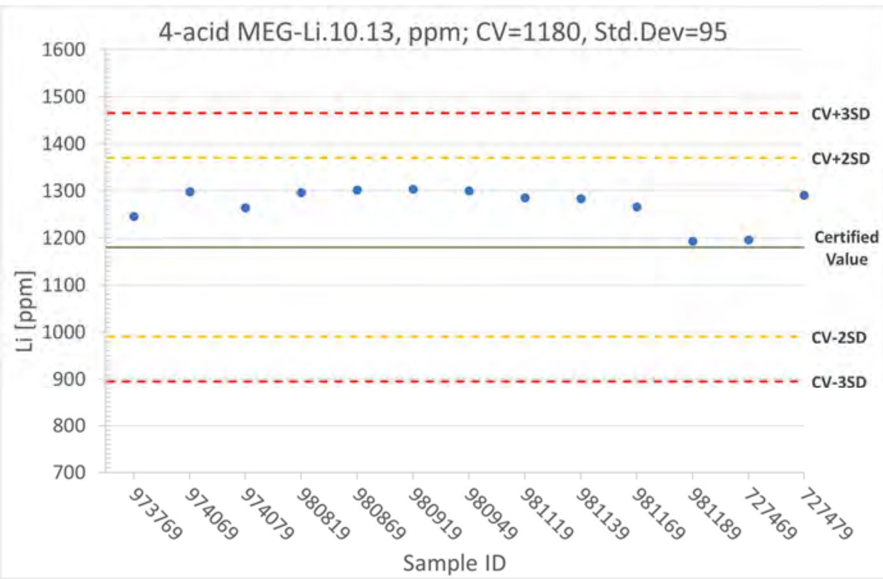
981199
727459
Sample ID


4-acid MEG-Li.10.13, ppm; CV=1180, Std.Dev=95
Li [ppm]
1600
1500
1400
1300
1200
1100
1000
900
800
700
CV+3SD
CV+2SD
Certified Value
CV-2SD
CV-3SD
973769
974069
974079
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980869
980919
980949
981119
981139
981169
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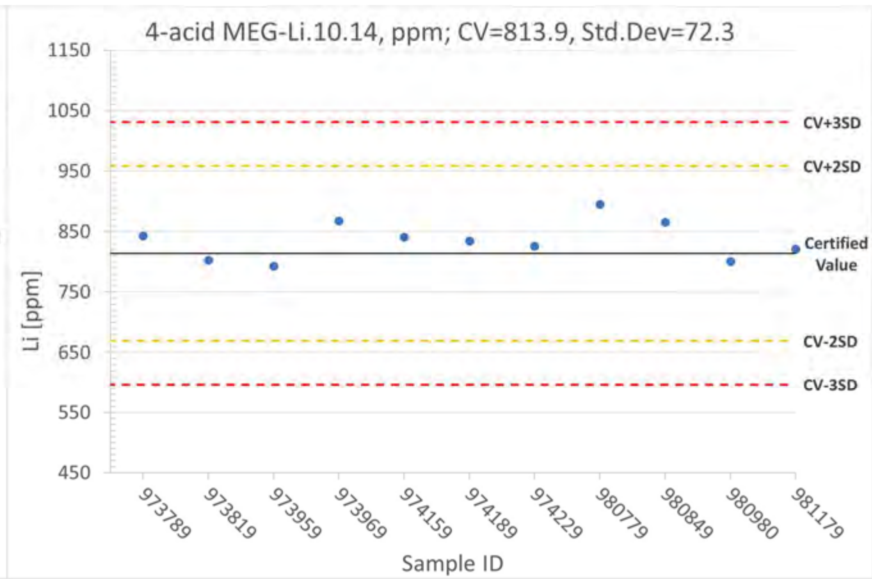
727469
727479
Sample ID


4-acid MEG-Li.10.14, ppm; CV=813.9, Std.Dev=72.3
Li [ppm]
1150
1050
950
850
750
650
550
450
CV+3SD
CV+2SD
Certified Value
CV-2SD
CV-3SD
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973969
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974189
974229
980779
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980980
981179
Sample ID

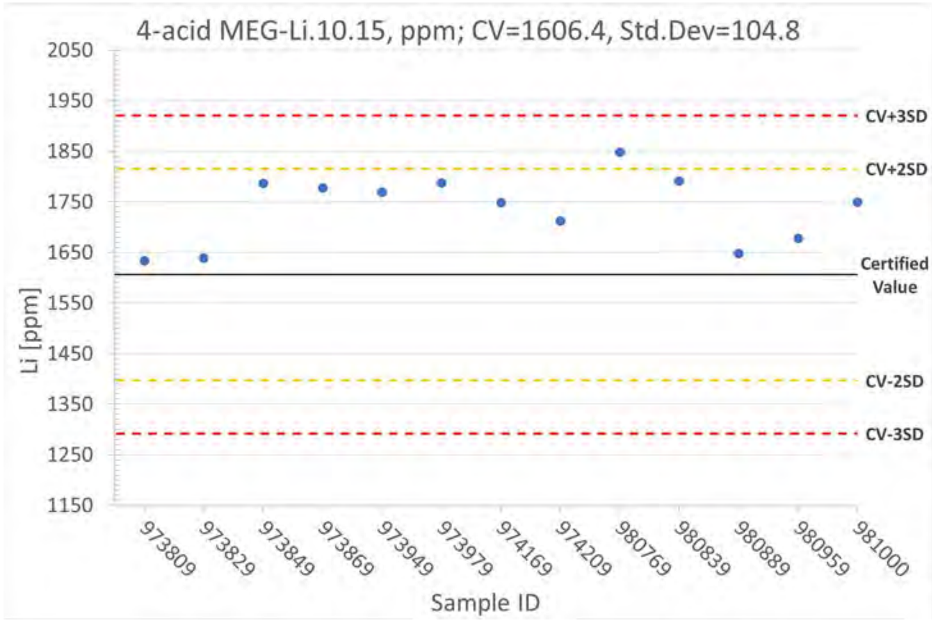


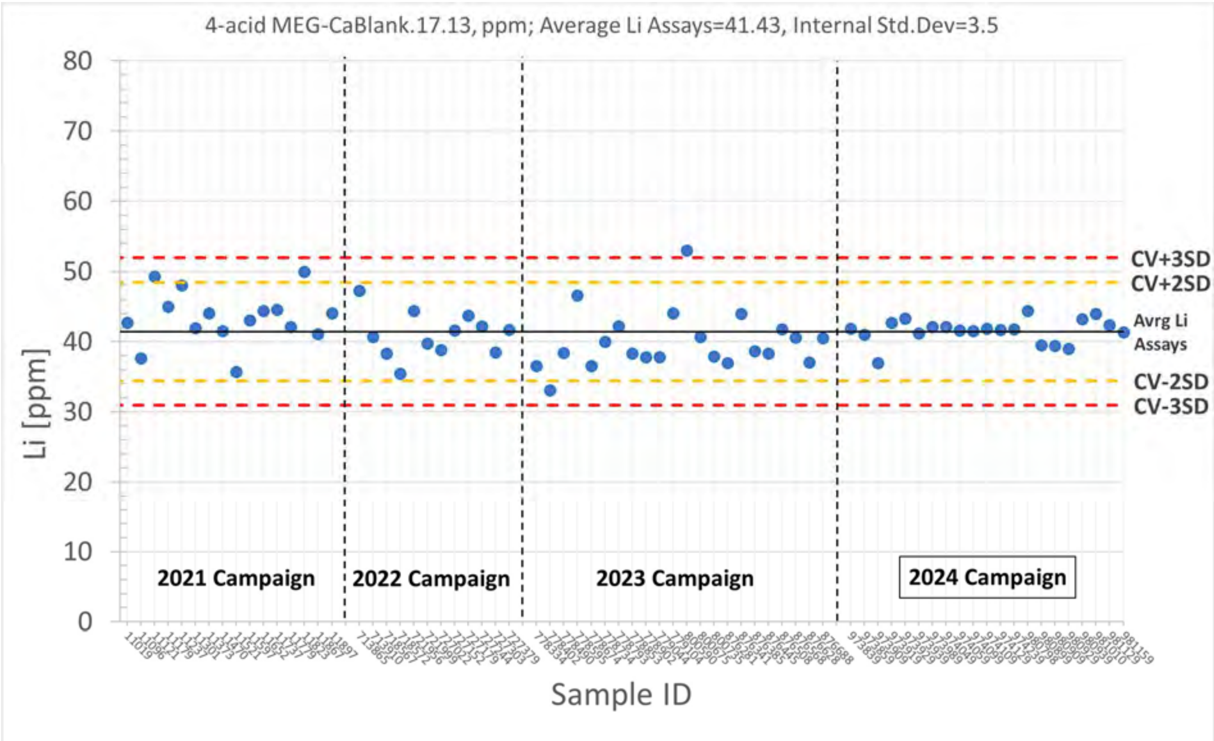
Figure 11-10: Li assay results for CRM submitted during the 2024 sampling campaigns

Blanks

The 'blank' samples submitted in 2024 were the same two low-grade standards that have been utilized since 2021. In 2024, blank samples were introduced into the sample stream at a combined insertion rate of 3.1%. Figure 11-11 illustrates the relative performance of the blank samples during 2024, including a comparison to the mean value determined by MEG for the gold preparation blank from 2021. The 2021 preparation blank data were used to calculate the standard deviation, providing a more precise assessment of data dispersion from the mean.

The data indicate that the SGS assays of the prep blank performed within acceptable limits. In 2024, the average lithium assay value for the gold prep blanks was 39.616 ppm, which is 2.10% higher than the non-certified mean lithium value of 38.8 ppm, demonstrating satisfactory performance.

However, in the absence of certified Li data and standard deviation values, it is not possible to fully evaluate the performance of the carbonate prep blank. By analyzing the values since 2021, an average value and standard deviation were calculated, showing less scatter in 2024. The mean Li value of the carbonate prep blank assays was 41.57 ppm in 2024, compared to 40.0 ppm in 2023, 41.0 ppm in 2022, and 43.5 ppm in the 2021 program. During 2024, the maximum and minimum assay values were 11.01% higher and 7.15% lower than the mean value, respectively. This indicates that while there is generally low variability in the Li assay values, a degree of heterogeneity is evident, albeit at low Li concentrations.



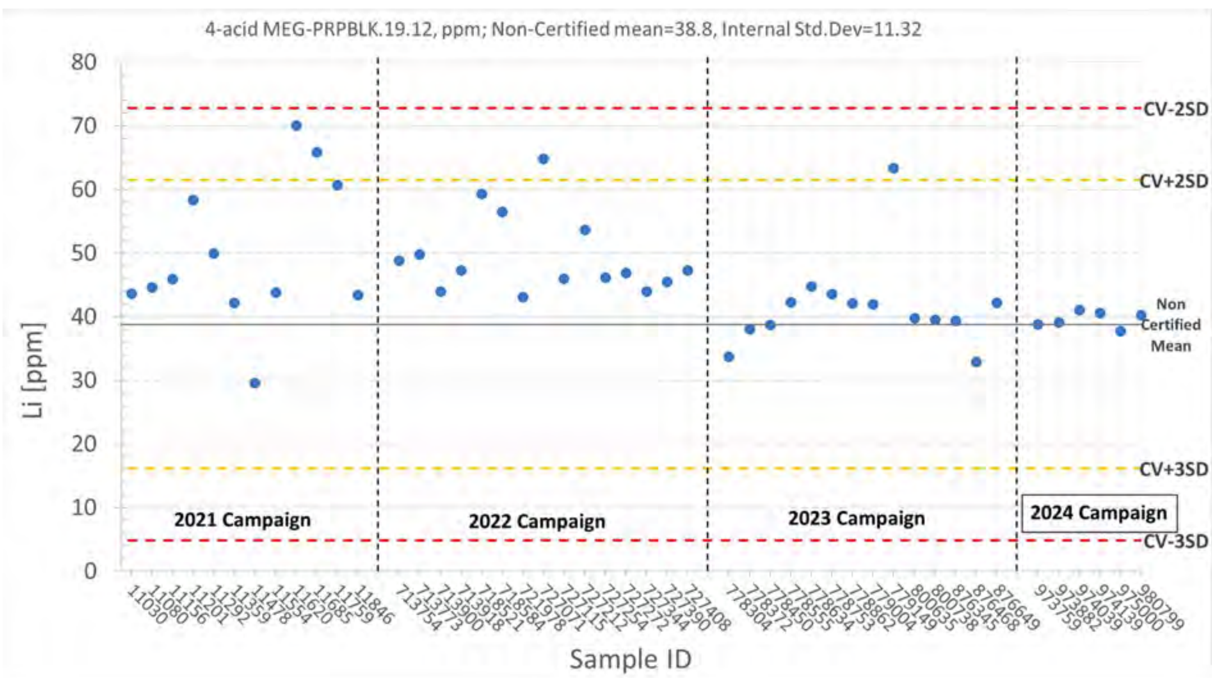


Figure 11-11: Li assay results for blanks submitted during the 2022 and 2023 sampling campaigns

Duplicates

During the 2024 sampling campaign, six field duplicate samples were submitted, representing an insertion rate of 0.7%. Figure 11-12 provides a comparison between the original and duplicate Li assay results. Although the data indicates very good reproducibility, ABH notes that the conclusion is based on a limited number of samples. Therefore, ABH recommends collecting a more extensive dataset of duplicate samples in future campaigns, including duplicates from all subsequent drill holes.

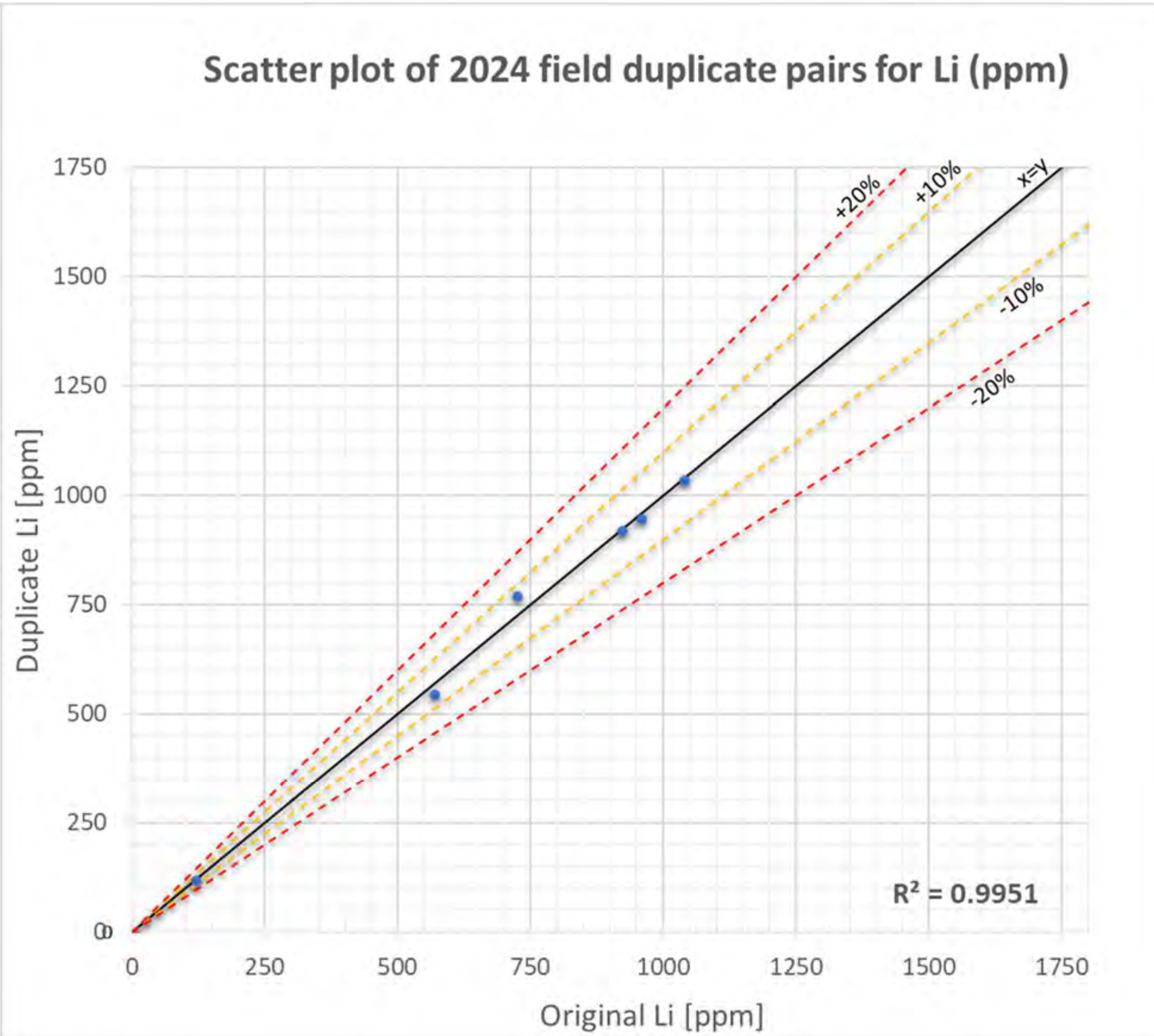


Figure 11-12: Scatter plot of lithium field duplicate data for the 2024 sampling campaign

2024 QAQC Summary

For the 2024 drilling campaign, QAQC protocols incorporated certified lithium CRM, blank samples, and field duplicates, with an overall insertion rate of 10.4%. Five CRM from MEG, previously used in the 2023 campaign, were utilized again in 2024, with 57 CRM standards inserted at a rate of 6.6%. Performance data indicated that SGS assays were within acceptable industry standards, though a slight bias was observed, with an average deviation of 7.312% above the certified mean, excluding standard Li.10.14. The same two low-grade blank standards used since 2021 were inserted at a combined rate of 3.1%, with the 2021 data employed to calculate the standard deviation, showing SGS assays within acceptable limits and highlighting some heterogeneity in the carbonate prep blank. Six field duplicate samples were submitted at a 0.7% insertion rate, demonstrating good reproducibility despite the limited sample size. Recommendations include increasing the number of duplicate samples for a more comprehensive dataset, maintaining current CRM, and using blanks appropriate for the deposit that fall under the laboratory detection limit.

Density Determination

During the 2021 diamond, and 2022 – 2023 sonic drilling campaigns, SRK performed moist density measurements corrected for moisture content to obtain dry density values for clay bearing units. This approach has been invaluable and provided essential data for our analysis. However, upon further review, we identified areas where an alternative methodology might enhance the precision of the density measurements, particularly for swelling clays.

According to the logic applied by SRK, the in-situ density of clays should be higher when considering the effect of decompression. Geological materials under pressure, such as swelling clays, have a higher density in their natural state due to the pressure exerted by overlying materials. When this pressure is released, the volume of the material is expected to increase, and therefore, the density measured after decompression will be lower.

Additionally, although it is true that clays can shrink upon drying and increase their density by reducing their volume, this effect is countered by the loss of water mass during drying. Upon reviewing SRK's procedure, we observed that the assumption of a constant volume (the drill barrel volume) for a specific mass could introduce bias in the density calculation. Therefore, it is illogical to rely on the previously reported low density measurements.

To address these considerations, an alternative method using Archimedes' principle was verified by ABH for the 2024 campaign. Samples were pre-dried, coated in wax to prevent moisture ingress, and then their density was measured using precision density scales. This method was validated to provide more accurate density measurements. Additionally, moisture correction was applied to account for water loss during drying, calculating the water percentage before and after lab drying.

This refined methodology aims to provide more reliable density estimates by accurately considering the effects of decompression and moisture content.

11.6 QAQC Summary

A QA/QC program was implemented throughout all drilling campaigns at Basin East. QA/QC samples, including blanks, field duplicates, coarse reject duplicates, and Certified Reference Materials (CRMs), were inserted into the sample stream 'blind' to the laboratory, with an overall insertion rate of 11% across all campaigns. ABH observes that the QA/QC sample insertion rates are slightly below industry standards, where a minimum of 15% is typically considered the baseline. It is recommended that the blank samples be refined for future campaigns by selecting an appropriate blank with a lower detection limit than that of the laboratory to accurately assess contamination. Despite this, the overall analysis demonstrates a satisfactory level of accuracy and precision.

12. DATA VERIFICATION

12.1 Introduction

The site visit was conducted on April 23 and 24, 2024; D. Cukor, along with 2 of ABH's geologists in training, visited the Basin Li Project and reviewed the drilling, logging, sampling, density determination, and geologic database generation procedures used. ABH confirms that the data acquired from these procedures is accurate and reliable.

12.2 Historical Data Validation and Verification

ABH has not relied on any historical information generated by prior operators for the MRE; historical data is covered in Section 6 of the current report. Only data provided by BHL was used for the resource estimation.

12.3 Database Checks and Independent Verification

BHL uploaded their entire Excel database to the cloud which was then downloaded onto ABH's server. ABH reviewed and verified the database. Assay CSV files were checked against their laboratory certificates. Upon approval of the data, the information was reformatted and turned into CSV files to ensure that they could be used in Leapfrog Geo (2023.2.3) for review in 3D, plan view and in section for visual evaluation and verification. ABH is satisfied that the data was of sufficient quality for its use in the current MRE.

12.4 Twinned Hole Comparison

As part of the 2021 diamond drilling campaign, BHL completed three diamond drillholes as twins to three RC drillholes from the 2018 drilling program. The selected RC drillholes had terminated prematurely and did not intersect the full thickness of the lower lithium clay. The 2021 diamond drilling not only provided twinned assay data for comparison between RC and diamond drilling methods but was also extended deep enough to cover the entire thickness of the lower lithium clay.

Similarly, BHLL used a drillhole from their 2022 sonic drilling program to twin another RC hole from 2018, which had only intersected the upper lithium clay and terminated in lapilli tuff (originally logged as a footwall unit consisting of red sediments). The sonic twin enables a comparison between RC and sonic drilling assays, verifies the original misidentification of lapilli tuff as red sediments, and confirms the presence of lower clay at greater depths.

The twin holes were compared to the original RC holes and a visual and statistical analysis was undertaken by SRK and are shown in the QQ plots below. The data shows that there is a good correlation between the RC and diamond holes. There is no evidence of statistical bias between the datasets.

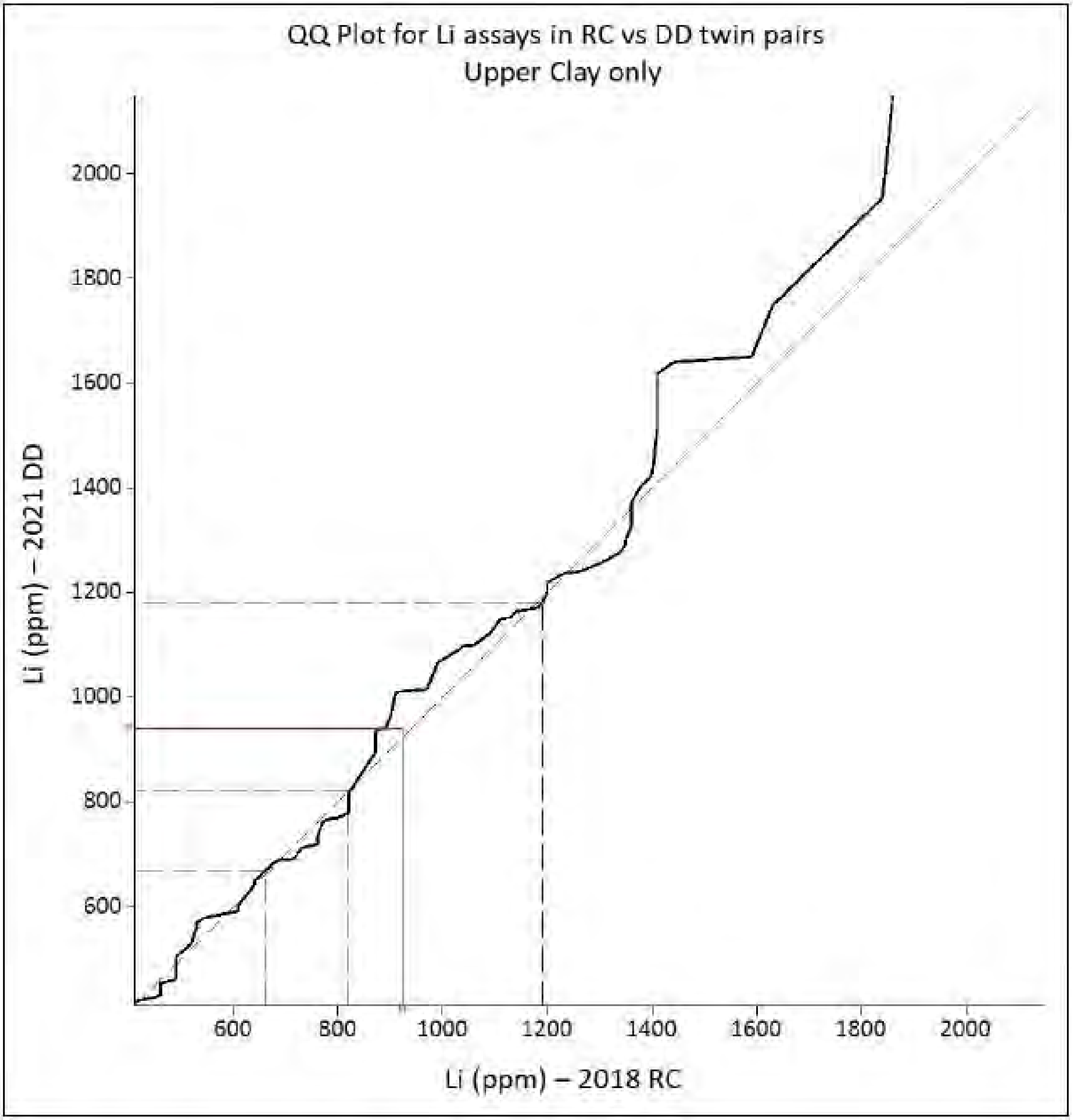


Figure 12-1:RC and Diamond Drilling Comparison as QQ Plot for Li Assay for the Upper Clay Units

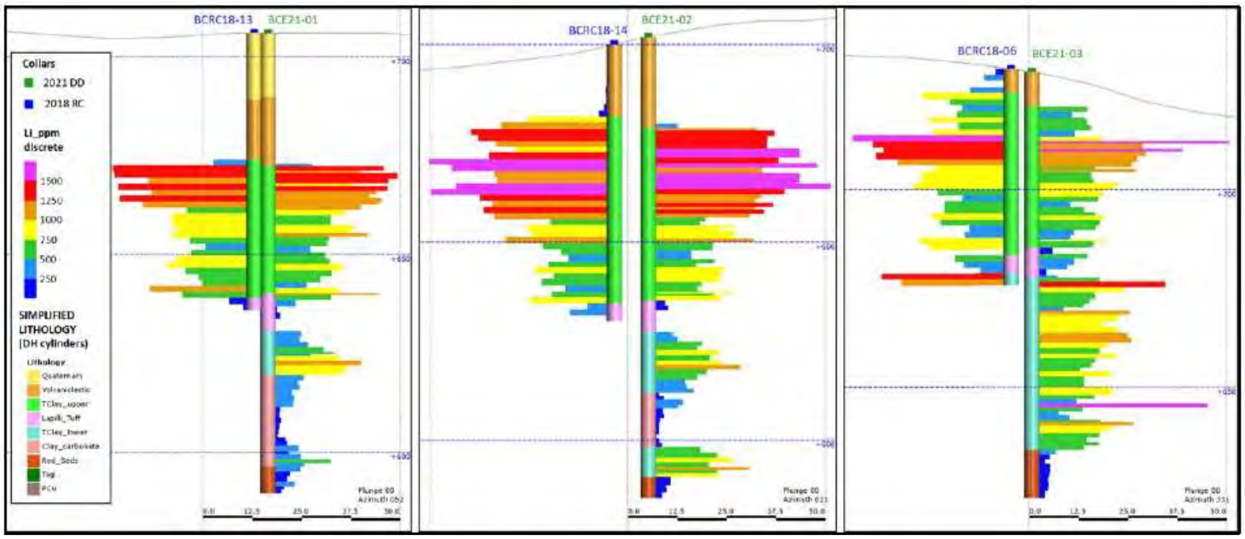


Figure 12-2: RC Diamond Drill Comparison of Down-hole Li Grade Profiles

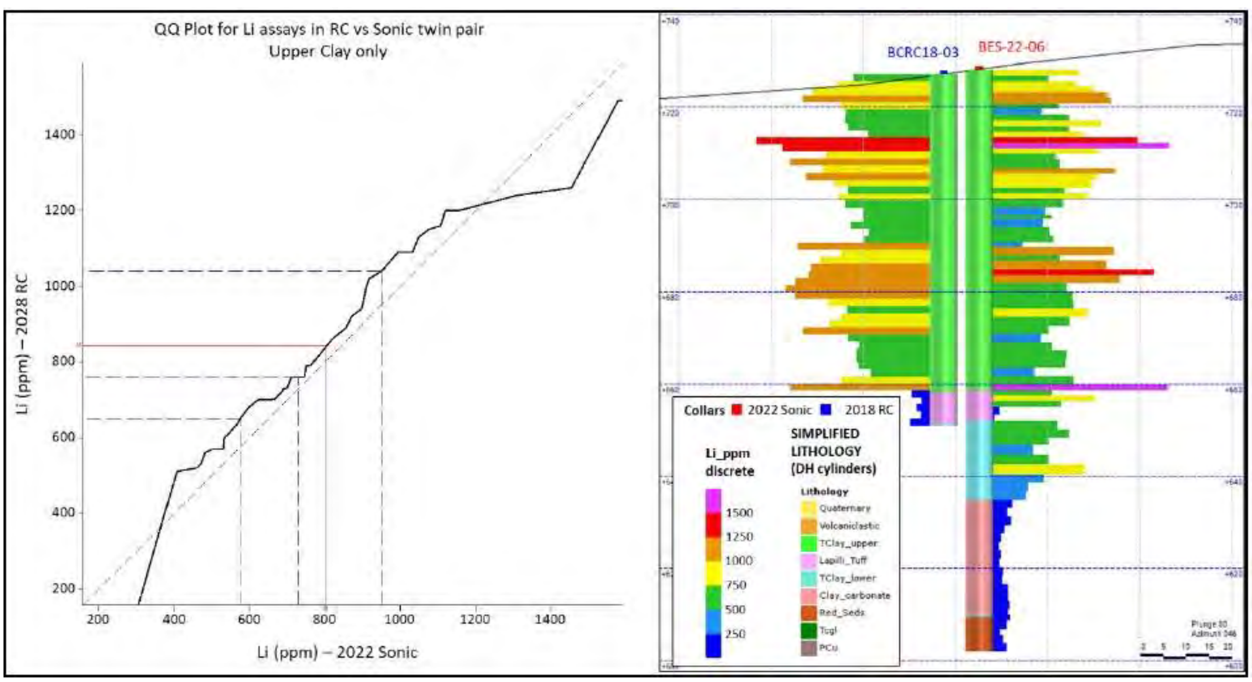


Figure 12-3: RC-Sonic Twin Pair Comparison for Upper clays (Right) and Down-Hole Li Grade Profiles

12.5 RC VS Diamond Comparison

The histogram shown below is based on a statistical comparison between the 2018 RC and 2021 diamond drill holes to check for any bias in the datasets. The means, quartiles, and spread of Li grades are very similar for each dataset which confirms that both methods of drilling our valid and RC drilling can be used for future exploratory holes.

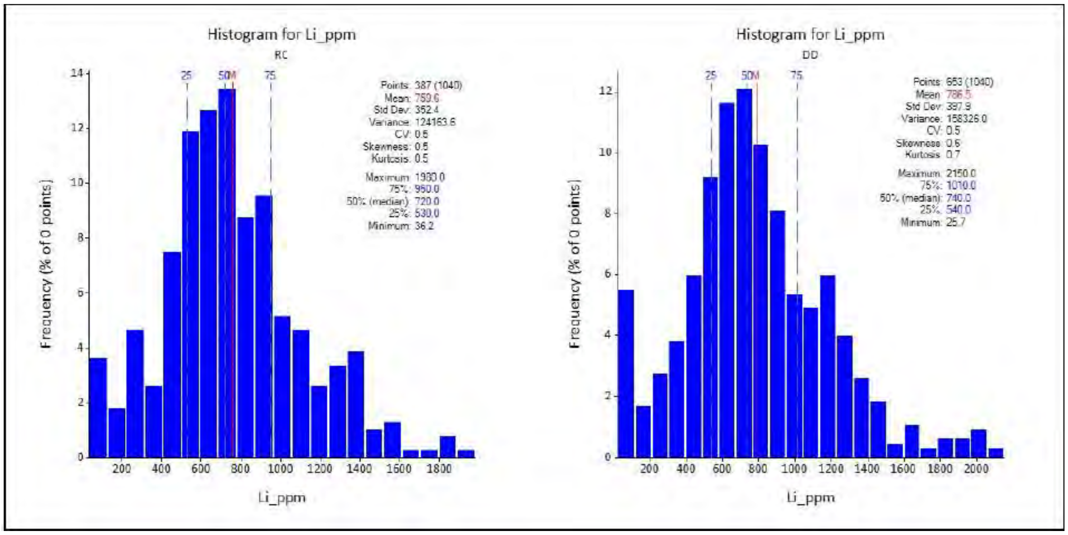


Figure 12-4: Histogram of Li Grades for RC (Left) and Diamond Drilling (Right)

12.6 Laboratory Comparison

A comparison was made for the assay results between ALS that was used for the current verification samples and those of SGS that the client used in 2023. As shown in Figure 12-5 below, the lab assays correlate well between the two different labs.

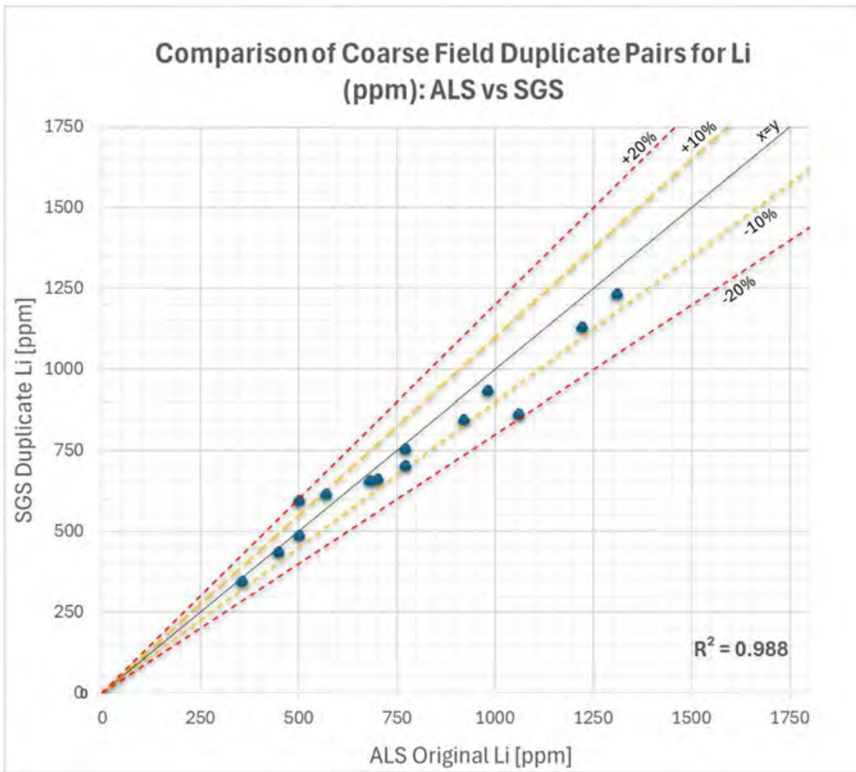


Figure 12-5: Scatter plot of coarse field duplicate samples analyzed by ALS and SGS laboratories

12.7 Surveys

The collar surveys were verified by the current QP during the site visit using a Garmin GPSMAP 67i.

It is recommended that in the future, a differential GPS (DGPS) should be used to obtain more accurate collar locations.

13. MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 Introduction

The following section includes the testwork results interpreted by J.E.Litz and Associates LLC and Hazen Research. The data and reports are further summarized and compiled by ABH Engineering Inc. in sections below.

13.2 Mineralogy

The Basin East lithium mineralization comprises smectite group hectorite-type clays, particularly saponite ((Ca,Na,K,Li)0.25$(Mg,Fe)_3((Si,Al)_4O_{10})(OH, F)_2.nH_2O$) and swinefordite (LiCa0.5Na0.1Al1.5Mg0.5Si3O10(OH)1.5F0.5.4(H2O)). Most of the deposit consists of different chemical species of hectorite that has been described in the past as "impure saponite". Assay results from the 1980s demonstrated up to 0.77% Li_2O in the clay presumably in the Ca occupied 12-coordinated site. Beds of pure saponite in the southern part of the deposit are up to 3.5 m (11.5 ft) thick (World Industrial Minerals, 2016). Mineralogical analysis of the clay material has previously indicated the presence of magnesite, calcite, feldspar, mica and dolomite. Hyperspectral analyses performed by ALS Elko on drill cuttings from the 2018 RC drilling program indicate the possible presence of talc occurring with the lithium-bearing clays.

Sample description

A 5-gallon pail (50 lb.) bulk sample of representative lithium-bearing, clay-rich material collected from the Basin East lease was provided to J. E. Litz & Associates and Hazen Research for mineralogical and chemical analysis. The sample comprised hard aggregates of nominal 3/4-inch (18 mm) size. The bucket was blended by coning and quartering.

Particle size analysis was completed on dry clay, demonstrating that less than 5% of the clay was coarser than 5 µm, with an upper size limit of less than 10 µm (mean particle size 2 µm), as shown in Figure 13-1. J. E. Litz & Associates and Hazen Research (2017) conducted an analysis based on 100 samples of -200 mesh size (74 µm).

HAZEN

Horiba Particle Size Distribution Analyzer LA-950 V2

Median Size	: 1.99244(µm)
Mean Size	: 2.33450(µm)
R Parameter	: 1.5851E-1
Chi Square	: 1.364246
Diameter on Cumulative %	: (1)5.000 (%)- 0.2437(µm)
	: (2)10.00 (%)- 0.3281(µm)
	: (3)20.00 (%)- 0.8170(µm)
	: (4)30.00 (%)- 1.2319(µm)
	: (5)40.00 (%)- 1.6030(µm)
	: (6)60.00 (%)- 2.4260(µm)
	: (7)70.00 (%)- 2.9473(µm)
	: (8)80.00 (%)- 3.6366(µm)
	: (9)90.00 (%)- 4.7153(µm)
	: (10)95.00 (%)- 5.6988(µm)

Project Number	: 010-604
Sample Name	: JE Litz Assoc Proj 16-4-1 100x200mesh
ID#	: 201701161207893
Transmittance(R)	: 96.1(%)
Transmittance(B)	: 89.1(%)
Circulation Speed	: 7
Agitation Speed	: 6
Ultra Sonic	: 01:28 (1)
Distribution Base	: Volume
Material	: Li Clay
Source	:
Test or Assay. Number	: JE Litz Assoc Proj 16-4-1 100x200mesh
Refractive Index (R)	: 1.59-1.00i(1.33)[1.59-1.00(1.593 - 1.000i),1.33(1.330)]
Refractive Index (B)	: 1.59-1.00i(1.33)[1.59-1.00(1.593 - 1.000i),1.33(1.330)]

Data Name	Graph Type	Sample Name	Med	Remarks 1	:
201701161207893		JE Litz Assoc Proj 16-4-1 100x200mesh	1.9	Project #	: 010-604
201701161207894		JE Litz Assoc Proj 16-4-1 100x200mesh	1.9	Preparation	: Sonication, SHMP
201701161208895		JE Litz Assoc Proj 16-4-1 100x200mesh	1.9	Operator	: M.Angelino

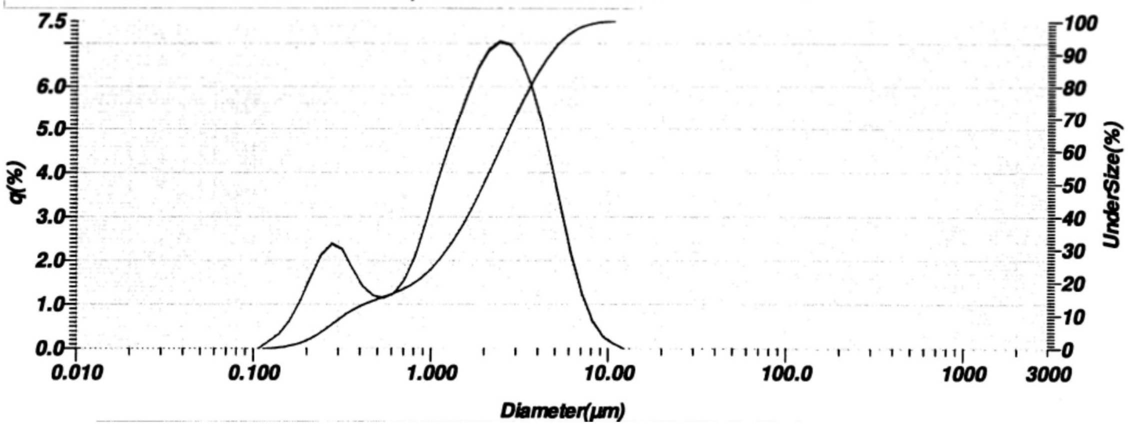


Figure 13-1: Particle size distribution ((J.E. Litz and Associates and Hazen Research, 2017)

Sample preparation

Approximately 500 g of Basin East material was mixed with 1,500 ml of water and stirred using an overhead low-shear propeller impeller. Within four hours, the clays had swelled to the extent that the slurry became immobile. Approximately 1,000 mL was decanted, diluted to around 1,800 mL, and stirred. The remaining pulp in the first beaker was also diluted to 1,800 ml, and stirring continued.

After 24 hours, the stirring in the first beaker was significantly hindered due to the expansion of the clays. The slurry was allowed to settle for one hour, after which approximately 1,000 ml was decanted. The decanted slurry was diluted to approximately 1,800 ml and stirred again. The remaining pulp in the first beaker was also diluted to approximately 1,800 ml, and stirring continued.

After an additional 24 hours, the slurries were wet-screened from 30-mesh (-595 µm) to 400-mesh (-37 µm). Following de-watering and drying, the fractions were analyzed for lithium and carbon dioxide.

The combined fractions coarser than 400 mesh constituted approximately 13% of the total weight and contained about 2% lithium and 25% CO_2. The plus 30-mesh fraction did include one lump of clay, but the finer fractions did not seem to contain clay balls. The 50- to 400-mesh fractions had an average lithium content of 250 mg/kg, which could likely be reduced with attrition or scrubbing. These same fractions had an average CO_2 content of 11%. The minus 400-mesh fraction contained 4.56% CO_2, compared to 5.34% CO_2 in the combined fractions.

Results

A quantified mineralogical analysis conducted by J. E. Litz & Associates and Hazen Research (2017) yielded the assessment presented in Table 13-1 from the representative sample described above. The chemical analysis of the sample produced the results shown in

Table 13-2.

Table 13-1:Reported XRD Mineralogy of Basin East Sample (Data from J.E. Litz and Associates and Hazen Research, 2017)

Mineral	Chemical Formula	Relative Weight percent
Smectite (saponite)	$(Ca,Na,K,Li)_{0.25}(Mg,Fe)_3((Si,Al)_4O_{10})(OH,F)_2 \cdot nH_2O$	45
K-feldspar	$KAlSi_3O_8$	32
Dolomite	$Ca(Mg,Fe)(CO_3)_2$	14
Plagioclase	$(Na,Ca)Al_2Si_2O_8$	<5
Mica/illite	$(K,Na,Ca)(Al,Mg,Fe)_2(Si,Al)_4O_{10}(OH,F)_2$	<5
Unidentified		<5

Table 13-2:Bulk chemistry of the Basin East Sample (Data from J.E. Litz and Associates and Hazen Research, 2018)

Element	Concentration (wt %)
Lithium	0.146
Magnesium	8.15
Potassium	4.63
Calcium	2.65

The updated mineralogical analysis was completed by SGS Lakefield (Canada) in 2022, using a new set sample from the same deposit. The updated mineral analysis is as shown below in Table 13-3 and Table 13-4.

Table 13-3: Reported XRD Mineralogy of Basin East sample (Data from SGS Lakefield, 2022)

Mineral	Chemical Formula	Relative Weight percent
K-feldspar	KAlSi3O8	>30
Pyroxene	(Ca,Na)(Mg,Fe,Al,Ti)(Si,Al)2O6	10-30
Dolomite	Ca(Mg,Fe)(CO3)2	10-30
Plagioclase	(Na,Ca)Al2Si2O8	10-30
Swinefordite	LiCa0.5Na0.1Al1.5Mg0.5Si3O10(OH)1.5F0.5.4(H2O)	2-10
Nontronite	Fe2(Al,Si)4O10Na0.3.4(H2O)	2-10
Quartz	SiO2	2-10
Illite	(K,H3O)(Al,Mg,Fe)2(Si,Al)4O10[(OH)2,(H2O)]	2-10
Petalite	Li(AlSi4O10)	<2
Amphibole	(Na,K)Ca2(Fe,Mg)5(Al,Si)8O22(OH)2	<2

Table 13-4: Bulk Chemistry of the Basin East sample (Data from SGS Lakefield, 2022)

Element	Unit	Value
Li	g/t	1510
SiO2	%	51.0
Al2O3	%	7.18
Fe2O3	%	1.99
MgO	%	15.1
CaO	%	2.88
Na2O	%	1.08
K2O	%	4.5
TiO2	%	0.27
P2O5	%	0.07
MnO	%	0.06
Cr2O3	%	<0.01
V2O5	%	0.04
LOI	%	15.2
Ag	g/t	<2
As	g/t	32
Ba	g/t	217
Be	g/t	2.25
Bi	g/t	<20
Cd	g/t	<2
Co	g/t	<6
Cr	g/t	24
Cu	g/t	10
Mo	g/t	<5
Ni	g/t	<20
Pb	g/t	<20
Sb	g/t	11
Se	g/t	<30
Sn	g/t	<20
Sr	g/t	924
Tl	g/t	<30
U	g/t	<20
Y	g/t	18.2
Zn	g/t	51

In the Hazen report, the main lithium containing mineral was determined to be 45% smectite. Whereas in the later SGS report, the principal lithium containing mineral is identified as swinefordite at 2-10%, and 10-30% within the clay sample material. This may be due to the similarity in the crystal structures.

13.3 Geometallurgy

Lithium in the Basin East mineralization is found within saponite. Extracting this lithium will necessitate roasting and/or strong acid leaching to dissolve it into solution. A notable challenge is the presence of magnesium (Mg), along with smaller amounts of calcium (Ca), sodium (Na), and potassium (K), as these elements can contaminate the lithium product, with magnesium being particularly problematic. This issue is further complicated by the presence of magnesite in the ore, which is likely to be more reactive than saponite.

13.4 Metallurgical Testwork

13.4.1 2016 Testwork

J. E. Litz and Associates (2016) designed a series of diagnostic leach tests for a bulk clay sample provided by the Client. This testing involved a 50-lb bulk sample of representative lithium-bearing clay-rich material from the Basin East lease. The clay material, crushed to less than 1/4-inch (6.35 mm), was mixed with demineralized water to create a 25% solids slurry. Three parallel tests were conducted: a water leach (Test 1), a rinse with dilute hydrochloric acid (Test 2), and a rinse with hydrochloric acid (Test 3). The tests were run for up to 4.5 hours until a stable pH was reached, with pH 4 for Test 2 and pH 2.5 for Test 3. The tests were concluded at this point.

Results

During the 4.5-hour acid leach tests (tests 2 and 3), a stable pH was not reached, and the samples completely disintegrated. The water leach process filtered very slowly, whereas the acid leaches filtered somewhat more quickly. When dried, the filter cakes turned into very hard flakes, which were more challenging to grind to pass a 70-mesh screen compared to the original feed material. The test results show that less than 4% of the lithium was recovered, indicating that the lithium is largely resistant to acid leaching.

13.4.2 2017 Testwork

In 2017, J. E. Litz and Associates and Hazen Research conducted extensive tests on lithium-bearing clay from the Basin East property to evaluate different extraction methods. Initial tests repeated previous direct acid leach experiments, revealing that less than 4% of the lithium could be extracted with mild hydrochloric acid, like results from 2016. More aggressive leaching with strong sulfuric acid at elevated temperatures achieved higher lithium extraction rates (78-91%). However, high sulfuric acid concentration method also showed extremely high acid consumption, indicating that gangue minerals in the clay are significant acid consumers.

Subsequent testwork focused on reducing acid consumption by using gypsum and pyrite as sulfurating agents in roast-leach processes. Gypsum-roast water-leach tests and pyrite-roast water-leach tests were conducted, demonstrating improved lithium recovery rates of 35-41% and 56-61% respectively. Further optimization tests revealed that using specific combinations of additives significantly enhanced lithium dissolution. The best results for gypsum-based systems achieved 88.7% lithium extraction with additions of 15% gypsum, 7.5% sodium chloride, and 30% calcium carbonate, while pyrite-based systems achieved 86.8% extraction with 7.5% pyrite, 7.5% sodium chloride, and 40% calcium carbonate. These findings suggest that optimizing the roast-leach process with appropriate additives can greatly improve lithium recovery, although further work is needed to refine these methods and consider potassium recovery.

13.4.3 2018 Testwork

An additional metallurgical testwork program was conducted in June 2018. This series of tests expanded on the roast-leach optimization experiments performed in 2017, aiming to evaluate both gypsum-based and pyrite-based roasting and water-leaching methods for high-grade and low-grade lithium-bearing clay samples.

Sample Description

The Client provided J. E. Litz and Associates and Hazen Research with six pails of interval samples. Using previous lithium assay results (ALS ME-MS61), the samples were divided into two zones: a higher-grade upper and a lower-grade lower zone. Hole BCRC18-14 terminated in the lapilli tuff layer, so all material for the 2018 metallurgical testwork is from the upper part of the mineralized Tclay unit ("Upper Clay").

Sample preparation and roast-leach protocol

To prepare Met #1 and Met #2, samples from each relevant depth interval were composited. Met #1 was created from 200 g samples from each of the 16 Upper Zone intervals, while Met #2 was made from 230 g samples from each of the 14 Lower Zone intervals. Both composites were then ground to a nominal 65-70 mesh, with 100% passing a 48-mesh.

Six roast-leach tests were performed on each metallurgical sample, testing both gypsum-based and pyrite-based systems, for a total of twelve tests. Furnace charges were prepared from 100 g samples of either Met #1 or Met #2. Each charge was blended, agglomerated with about 15 mL of water, and dried. The dry agglomerates were transferred to crucibles for calcination, heated to 1000°C, and held for about 30 minutes. The calcines were then screened, and any oversized particles were hand-ground to pass a 48-mesh. The ground calcines were blended, and 100 g aliquots were taken for leaching tests. Leaching was carried out at 20% or 25% solids in water for three hours. The residue was then filtered, washed, and dried.

Roast-leach test results

The results of the testwork are shown in Table 13-5. There is no significant difference between Met #1 and Met #2, indicating that the efficiency of the roast-leach protocol is not dependent on the initial lithium content. For both samples, the highest lithium extractions were achieved using a gypsum-based roast-leach with 20% gypsum, 35% calcium carbonate, and 5% sodium chloride. Met #1 resulted in 85.3% soluble lithium (test 7-10-1; Table 13-5), and Met #2 yielded 83.7% soluble lithium (test 7-11-1; Table 13-5).

Table 13-5: BCRC18-14 Upper Zone and Lower Zone Roast-Leach Test Results (Data from SRK Basin East NI 43-101 Technical Report, 2022).

Test No.	Reagent additions (%)				Leach solutions		Dissolved metal			
	Gypsum	Pyrite	Calcium carbonate	Sodium chloride	Li (mg/L)	K (mg/L)	Li (%)	Li (kg/t)	K (%)*	K (kg/t)
Met #1 (BCRC18-14 Upper Zone, average 1361 ppm Li)										
7-9-1		7.5	40	5	0.144	3.37	77.9	0.94	68	22
7-9-2		7.5	30	5	0.159	3.25	75.2	0.9	59	19
7-9-3		5	35	5	0.158	3.6	75.5	0.89	63	20
7-10-1	20		25	5	0.203	4.68	85.3	1.04	74	24
7-10-2	15		25	5	0.221	4.85	84.4	1.04	71	23
7-10-3	15		20	5	0.204	4.22	81.5	1	64	21
Met #2 (BCRC18-14 Lower Zone, average 707 ppm Li)										
7-9-4		7.5	40	5	0.086	5.03	79.6	0.53	71	31
7-9-5		7.5	30	5	0.086	4.08	79.8	0.51	55	24
7-9-6		5	35	5	0.094	5.28	77.3	0.5	64	28
7-11-1	20		25	5	0.119	7.15	83.7	0.6	82	36
7-11-2	15		25	5	0.117	6.95	80.3	0.54	74	32
7-11-3	15		20	5	0.115	5.28	80.6	0.51	54	24

13.4.4 2022 Testwork

Additional testwork on the Basin Project samples were performed in 2022. Bradda Head Limited conducted head assays on lithium clay samples from the Basin Project in Arizona, USA, at SGS Lakefield in Canada and RDi in Colorado, USA. The SGS analysis indicated an average lithium content of 1510 g/t, while RDi's analysis showed 1280 g/t. The RDi samples also had higher magnesium content, reducing the overall quality compared to the SGS samples.

Results

SGS Canada conducted sulfuric acid leach tests on lithium clay samples. The conditions included 20% sulfuric acid, a clay-to-acid ratio of 1:0.85, a temperature of 90°C, and a 3-hour residence time. The tests showed that over 98% of lithium was leached within 1 hour. The reactions involved converting lithium oxide, iron oxide, magnesium oxide, potassium oxide, manganese oxide, sodium oxide, and calcium oxide into their respective sulfate forms.

13.4.5 2023 Testwork

Further test work was conducted in 2023, focusing on HCl leaching tests with a hydrochloric acid concentration of 37%. This phase aimed to explore alternative leaching methods to improve lithium extraction efficiency. The 2023 experiments built on previous findings, utilizing the high concentration of HCl to potentially overcome the limitations observed with sulfuric acid and water leaching in earlier tests.

Only one set of tests was performed, and the test conditions include parameters:

- 0.65kg of HCl per 1 kg of Sample Mass
- 60 minutes at temperature 106 °C
- Sample Mass 500 grams

Results

The result of the HCl leaching test shows a very high first-stage recovery, indicating the potential effectiveness of this method. However, only a single HCl test was performed, and crucially, the residue assay was not conducted. As a result, the amount of lithium remaining in the residue is currently unknown, which leaves a significant gap in the understanding of the overall extraction efficiency. Future work should prioritize determining the residue assay to quantify the lithium left in the residue. Additionally, further testing is necessary to explore ways to reduce acid consumption, ensuring the process remains economically viable while maintaining high recovery rates. This will help in optimizing the leaching process and improving the overall efficiency of lithium extraction.

13.5 Recommendation for Future Metallurgical Testwork

The metallurgical evaluation of Basin is still in its early stages. Initial findings indicate that the mineralized material will not leach under ambient conditions. Additionally, the presence of high acid-consuming gangue mineral phases will increase operational costs. Further comminution testing is needed to determine if reagent-consuming gangue can be separated from the smectite group clays.

Hazen's testwork revealed that heat is necessary to fracture the smectite, and adding a reagent such as limestone, pyrite, or rock salt is required to liberate the lithium from the matrix. SGS's testwork demonstrated that high recovery into solution could also be achieved with acid addition at elevated temperatures, though under atmospheric pressure.

Separating lithium from high magnesium fluid is a well-known challenge that needs to be addressed in the analysis. Based on the current testwork, the estimated production cost for lithium is approximately USD $5,000 per ton of LCE, based on broadly analogous process costs.

A potential process route for lithium recovery has been identified; however, significantly more work is required before any definitive conclusions can be made.

Further work is necessary to achieve a lithium concentrate that meets the standards for a final product. This includes optimizing the extraction process with additional future test programs. In addition, it is essential to focus on reducing the consumption of hydrochloric acid or sulfuric acid during the leaching process. Finding ways to lower acid usage will not only cut operational costs but also minimize environmental impact. Finally, efforts should be directed toward minimizing water use in the extraction process. Implementing water-saving measures will reduce costs and reduce the impact of environmental regulation such as water permits. Overall, these improvements can be explored in future testwork to help develop a more efficient and cost-effective extraction process.

14. MINERAL RESOURCE ESTIMATE

14.1 Introduction

This section details the most recent Mineral Resource Estimate (MRE) for the Basin East Project, developed in accordance with National Instrument 43-101 (NI 43-101) and the CIM Estimation of Mineral Resources & Mineral Reserves Best Practice Guidelines dated 29 November 2019. The methodology used for the MRE is outlined, along with a summary of the key assumptions made by the Company and ABH. The database underpinning this MRE was thoroughly reviewed and validated by ABH, ensuring a reliable representation of the in-situ lithium (Li) content within the deposit based on the current sampling data.

The MRE was compiled by ABH, utilizing data from 7,946.7 meters (26,072 feet) of drilling across 61 drill holes. The estimation process was executed by Daniel Arroyo and supervised by Damir Cukor, both of whom are full-time ABH employees.

The effective date of this MRE is 11 June 2024. The estimate incorporates data from drilling and geological models, with Leapfrog Geo (version 2023.2.3) employed for defining estimation domains, preparing assay data for geostatistical analysis, analyzing grade continuity, constructing the block model, estimating metal grades, and tabulating Mineral Resources.

14.2 Mineral Resource Estimation Procedures

ABH carried out the following steps to produce the MRE:

- Compiled and reviewed the database.
- Constructed wireframe geological models using Leapfrog Geo 2023.2.3 software.
- Conducted statistical analysis and defined estimation domains.
- Performed geostatistical analysis (variography) within the estimation domains.
- Developed block models and interpolated grades using Leapfrog Edge software.
- Validated the block model.
- Classified Mineral Resources.
- Assessed reasonable prospects for eventual economic extraction (RPEEE).
- Reported the Mineral Resources.

14.3 Mineral Resource Database

The 3D models and Mineral Resource Estimate (MRE) block model have been primarily derived from logging and assay data collected during four distinct drilling programs: a 2018 Reverse Circulation (RC) campaign, a 2021 diamond drilling initiative, and sonic drilling campaigns conducted in 2022 and 2023, with the addition of a 2024 diamond drilling program. These drilling activities are detailed in Section 10, alongside surface geological maps created by the Company and their geological consultants during the drilling phases. Table 14-1 provides a comprehensive summary of the drilling database utilized for the MRE.

Table 14-1: MRE Drilling Database

Period	Type	Number of holes	Metres drilled	No. of samples assayed	Total metres assayed	MRE Use
2018	RC	14	923.7	605	919.6	Geological and domain models; grade estimation
2021	Diamond Drilling	10	1,110.5	820	1,016.2	
2022	Sonic	14	1,177.1	700	1,062.4	
2023	Sonic	14	2,355.2	1,400	1,841.9	
2024	Diamond Drilling	9	2,380.2	773	971.8	
Total		**61**	**7,947**	**4,298**	**5,812**	

14.3.1 Project Datum

The project's reference surface is a digital terrain model (DTM) created using high-resolution point data from the USA's National Agricultural Imagery Program (NAIP). This dataset, which has a resolution of 1 meter (3 feet) or better, has been adjusted to account for vegetation. This topographic model serves as the baseline for all project-related data. Surface mapping and GIS data were overlaid onto this mesh, drillhole collars were aligned to the topography, and the 3D models along with the block model were adjusted to fit this surface.

14.3.2 Dry Density

Introduction

A crucial aspect of Mineral Resource estimation is accurately estimating the tonnage of a known volume of mineralized rock in the ground, measured bone dry, to match the bone dry basis of the laboratory assay grade units, thereby ensuring correct metal content determination.

For many hard rock exploration projects, dry density is typically determined using representative drill-core samples and water-volume displacement methods. However, this method is likely to be inaccurate for the Basin Project, particularly for mineralized lithologies, because lithium is hosted by swelling clays.

In swelling clay-rich lithologies, density determinations can be biased by several factors:

- Incomplete accounting for moisture content when determining dry weight.
- Inappropriate treatment of unrecovered material.

- Volume determinations affected by:
    1) Compaction of soft clays during drilling.
    2) Expansion of swelling clays immediately after being released from the core barrel.
    3) Shrinkage caused by partial drying of swelling clays.

Methodology

To address these challenges, we implemented a comprehensive approach involving the following steps:

Pre-Waxing Preparation:

- Samples of roughly 15 cm in length were first prepared by ensuring they were representative of the mineralized lithologies.
- Samples were weighed, then placed in a desiccation oven for a minimum of 12 hours

Wax Immersion Technique:

- Each sample was carefully coated with a layer of temperature regulated hot wax to seal in moisture and prevent further expansion or shrinkage.
- The density of the samples was measured both before and after immersion in water. This step helped determine the true volume of the sample without the influence of water absorption.

Moisture Correction:

- A moisture correction factor was applied to each sample. This correction accounted for any remaining moisture content within the sample, minimizing the false weight that could be attributed to water.
- By accurately accounting for the moisture content, the dry weight of the sample was determined more precisely.

This approach ensured that the weight and volume measurements were reliable, leading to a more precise estimation of the Mineral Resource.

14.4 Geological and Mineralization Modelling

ABH developed a detailed geological model using Leapfrog, incorporating fault surfaces and the boundaries between significant stratigraphic units. The model spans 4200 meters east, 4545 meters north, and 1255 meters vertically, focusing on the drilled region. To enhance geological interpretation, the lithology model extends beyond the license boundaries, integrating surface mapping data from outside the licensed area alongside the drilling data.

14.4.1 Fault surfaces

ABH modelled two fault surfaces: one identified and mapped by the Company, and another inferred by SRK. Due to the absence of orientation data for the fault planes, the faults were modelled as vertical planes, resulting in the definition of three distinct fault blocks (Figure 14-1). Stratigraphy was separately modelled within these fault blocks. The modelled faults include a major north-south (N-S) striking fault that runs through the center of the drilled area, creating an uplifted East block relative to the rest of the project area, and a major north-northwest (NNW) striking fault that divides the western region into West and Central blocks.

The N-S fault, identified by the Company, was based on passive seismic survey data, lateral offsets, fault traces observed at the surface during geological mapping, and vertical offsets interpreted from drilling data. In 2018, SRK verified this interpretation with drilling data. SRK's stratigraphic modelling supports the Company's inference of a 40 to 80-meter (130 to 260 feet) vertical displacement, up to the east, across the major N-S fault. Discontinuities in geophysical survey data, specifically vertical profiles from 2021-2022 ground-penetrating radar surveys conducted by Terravision, support the interpreted fault traces.

The NNW-striking fault inferred by SRK, which separates the West and Central blocks, is based on approximately 20 meters (65 feet) of vertical offsets in shallow-dipping lithological boundaries, particularly a distinctive lapilli tuff marker horizon, interpreted from the 2021 and 2022 infill drilling. This fault has not been mapped at the surface.

ABH identified a potential fault in the Burro Creek area. Geophysical data suggest that a possible horst system might divide the Basin East from the Basin West (Figure 14-1). Due to the lack of drilling data, no changes were made to the current model.

ABH recommends a thorough interpretation of the fault system in the northeast part of the property. An additional fault, interpreted by the University of Arizona, appears to have been disrupted by an uncertain geological process, but it may extend to the northwest part of the property. Further analysis will be required as the project advances to future studies.

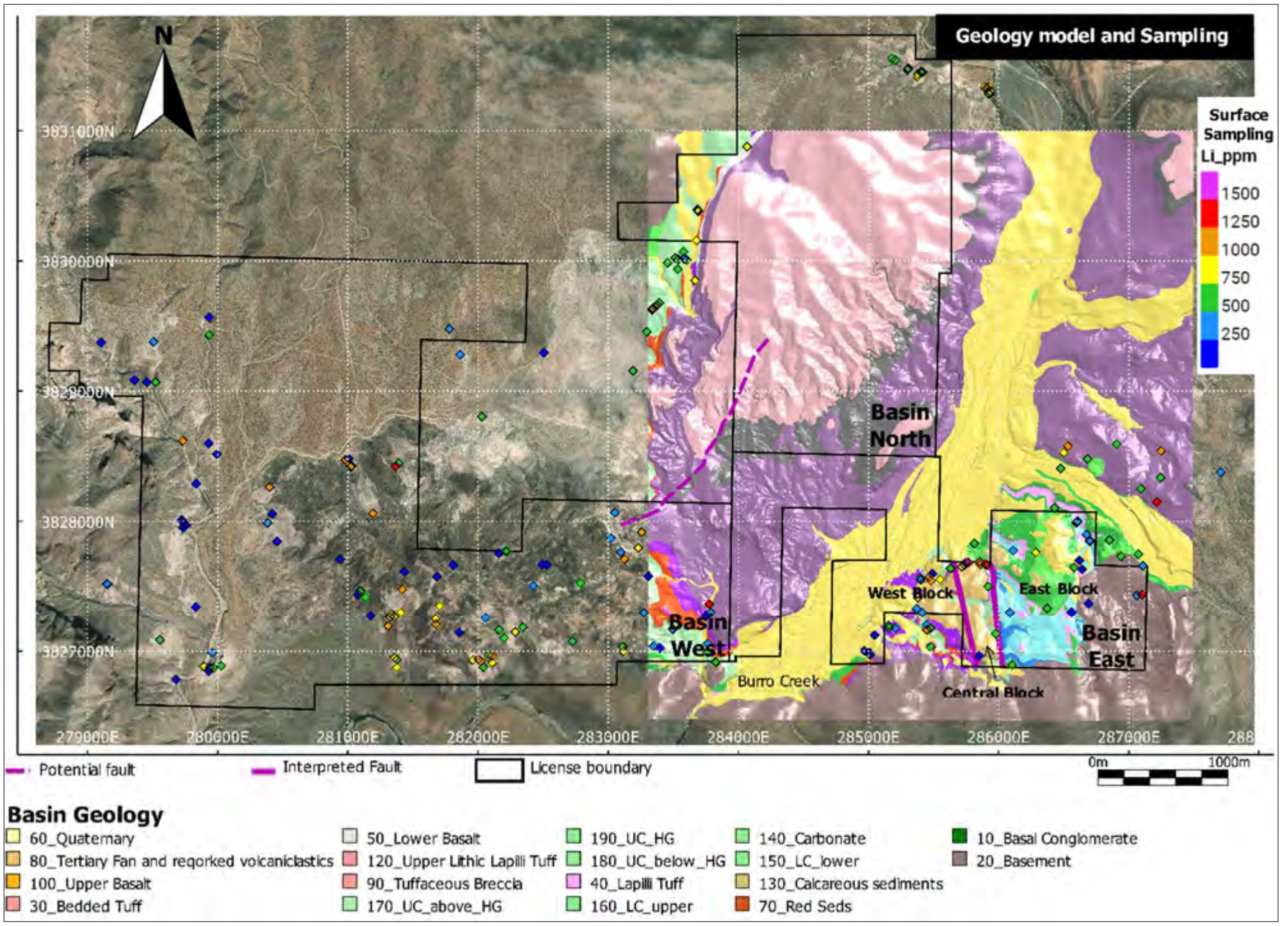


Figure 14-1: Interpreted Faults Overlaid on Surface Geology

14.4.2 Lithological Domains

ABH presents plan images of the final lithology model in Figure 14-2, displaying drillhole collars relative to license boundaries and surface geology. It is important to note that not all drillholes were deep enough to intersect the Lower Clay unit.

Cross-sectional views of the lithology model are provided in Figure 14-3, with section locations indicated in Figure 14-2. These views show the model in relation to down-hole bar plots of raw lithium (Li) grades. Sections extending outside the license area are clearly marked.

Li mineralization is strongly controlled by stratigraphy, making lithology modelling essential for both understanding the geology and enabling domaining for resource estimation. Li-bearing clay-altered tuffs are the primary hosts for mineralization, divided into an upper and lower unit by a thin, barren lapilli tuff marker horizon. The highest and most consistent Li grades (approximately 400–2000 ppm) are found in the upper Li-bearing clay, while the lower clay generally has lower grades (approximately 250–1200 ppm) and occasionally contains barren, sandy, or carbonate-rich waste horizons. Lithologies above and below these tuffs are considered barren, with background Li levels generally below 300 ppm.

The Upper Clay unit is further divided into three subdomains, coded as 170_UC_above_HG, 190_UC_HG, and 180_UC_below_HG. The Lower Clay unit contains two subdomains, coded as 160_LC_Upper and 150_LC_Lower. ABH observed that the LC_Lower subdomain pinches out towards the north, and the Li grades in the LC_Upper subdomain decrease significantly, almost resulting in barren clay.

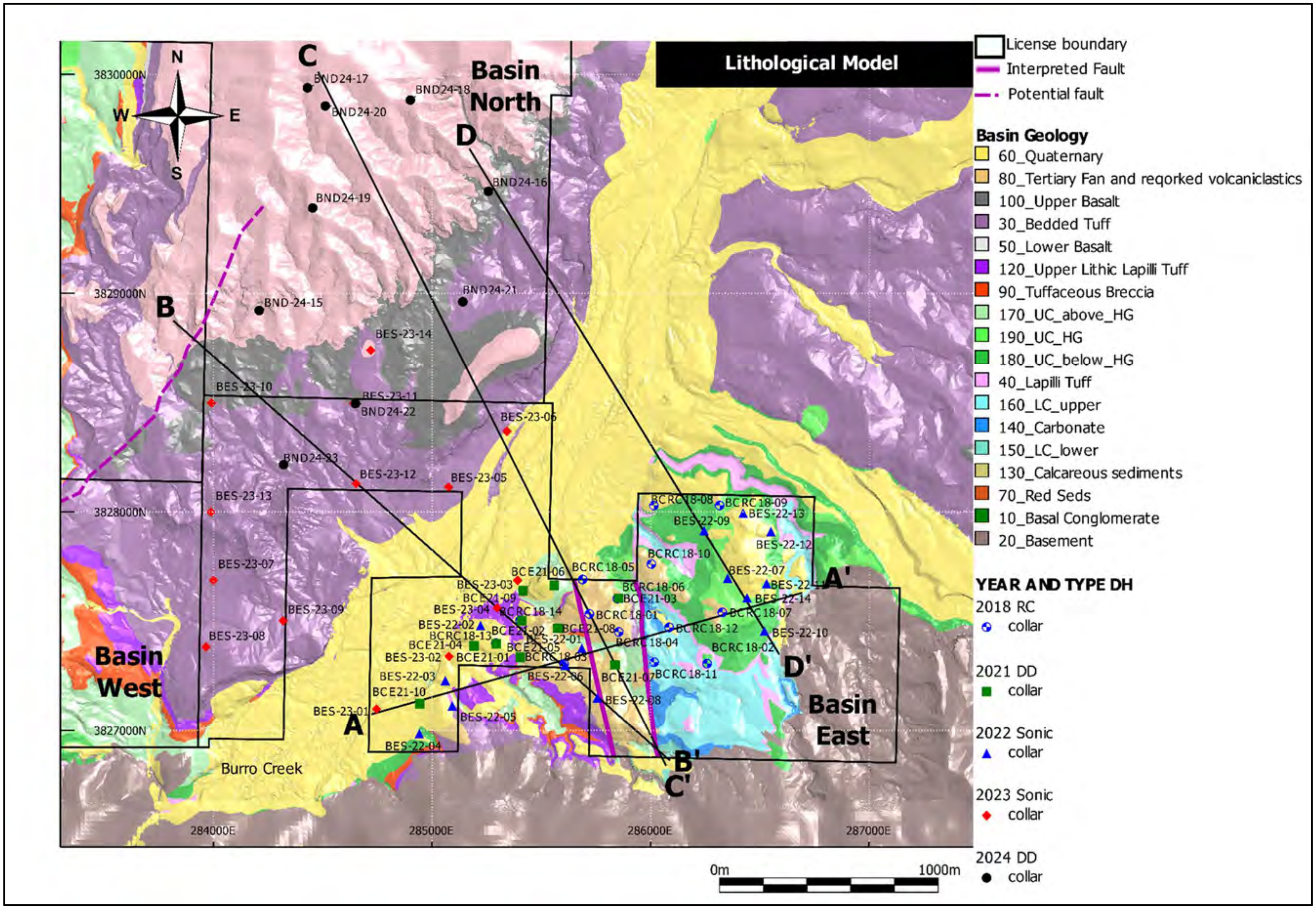


Figure 14-2: ABH Lithology Model

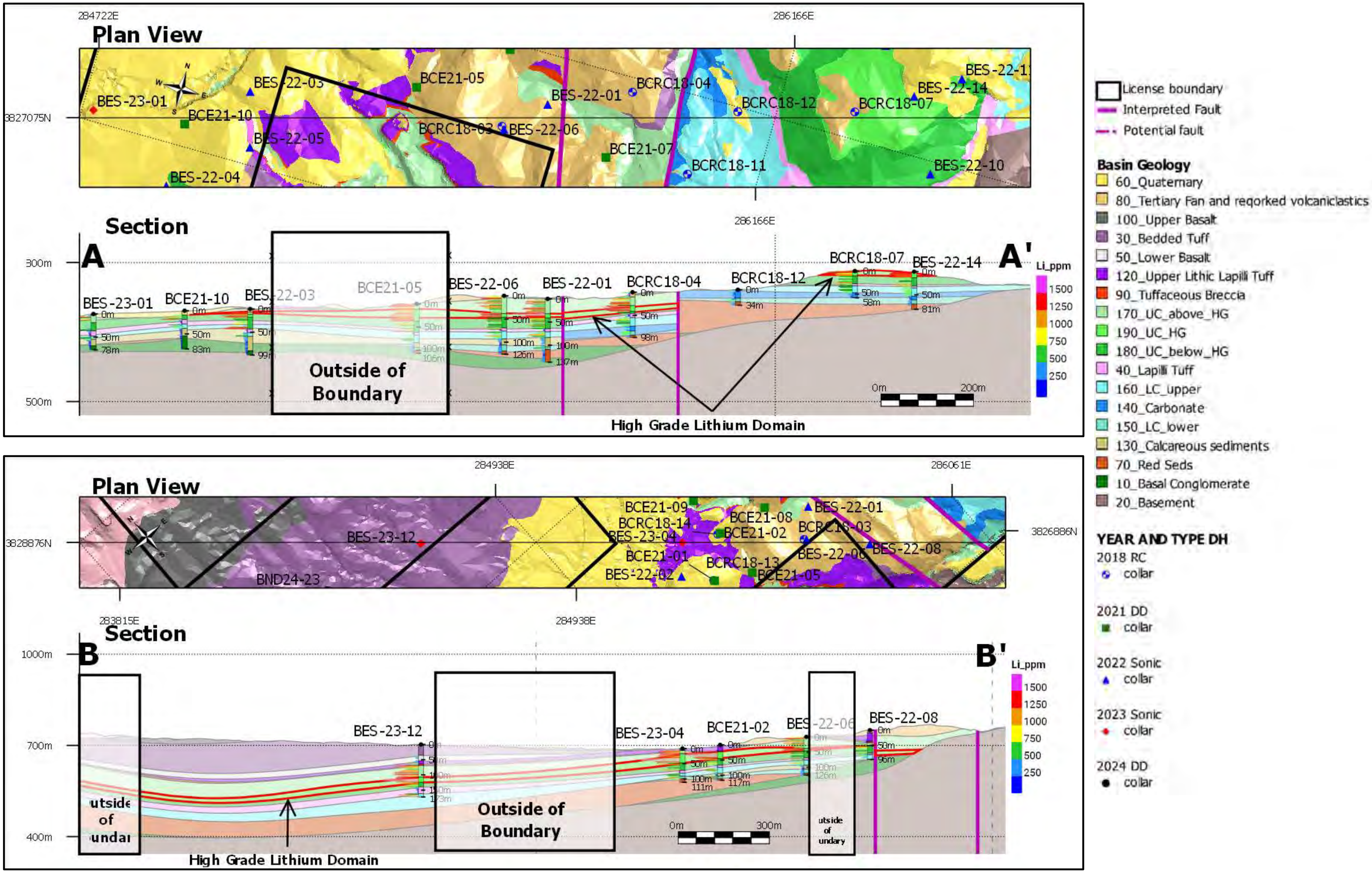


Figure 14-3: Cross-Sections Through ABH Estimation Domain Model with Respect to Drillhole Lithium Assays

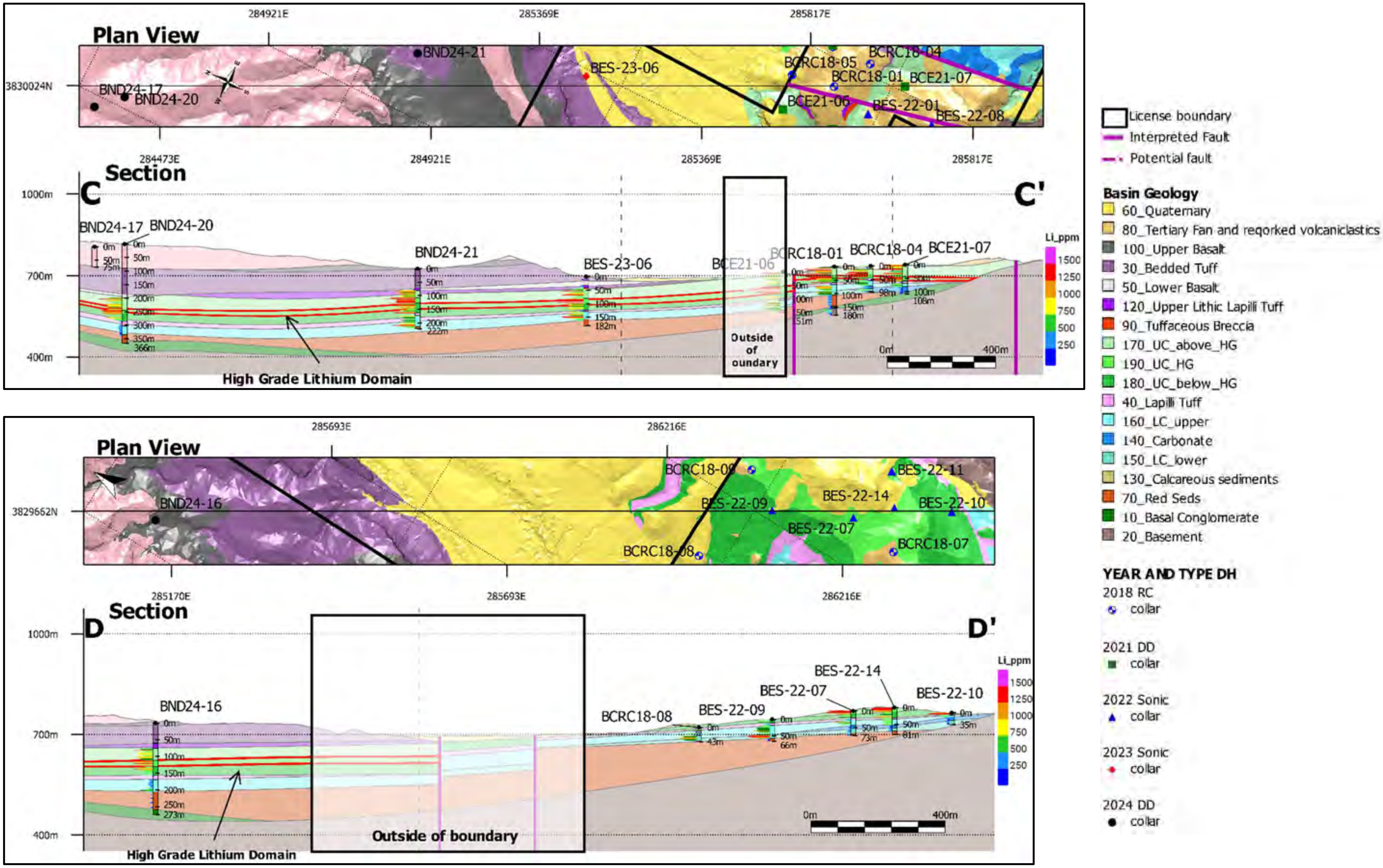


Figure 14-4: Cross-Sections Through ABH Estimation Domain Model with Respect to Drillhole Lithium Assays

ABH Engineering has modelled fourteen major lithological units, which are offset by a fault model based on the interpretation of grouped lithology logging and surface geological mapping provided by the Company. The surface mapping unit names are given in italics and brackets. The lithological units are described as follows:

- **Proterozoic Basement** (*PCu*) [Basement]: This unit is exposed at the surface in the highlands to the south of the model area. Elsewhere, it forms a deep, irregular erosive surface upon which the rest of the stratigraphy is deposited. Three drillholes (BCRC18-01, BES22-05, and BND24-18) penetrate deep enough to intersect basement rocks, consisting of undifferentiated gneisses and coarse-grained igneous intrusive rocks.

- **Basal Conglomerate** (*Tcgl*) [Basal Conglomerate]: This mixed volcaniclastic and sedimentary unit contains clasts of basement rock and drapes over the Proterozoic basement. Most drillholes do not reach this depth, but the full thickness is intersected in three holes (BCRC18-01 from 146.3 m to 154.021 m, BES22-05 from 62.18 m to 81.048 m, and BND24-18 from 259.75 m to 262.73 m) in the Central and West blocks. In the southeast and southwest extremities, this unit is encountered at shallower depths (approximately 30–60 m below surface).

- **Red Sediments** (*Tredseds*) [Red Seds]: This unit conformably overlies the Basal Conglomerate or Proterozoic Basement. Most drillholes terminate above or within the upper few meters of this unit. It has a maximum thickness of 41 m in the Central block (based on BCRC18-01) but thins significantly (3 m in BCRC18-02) and pinches out to the south. The top contact is intersected at depths around 100 m in the Central block and 25 to 50 m in the East block, indicating significant vertical offset across the N-S fault. Twin drilling and extension of BCRC18-03 with a sonic rig (BES-22-06) revealed greater depths to the top of the Red Sediments in the West block (~120 m depth), showing the West block is downthrown relative to other fault blocks. The stratigraphy dips gently to the north-northwest in Basin East, with the top of this unit at a maximum depth of 212 m in BES-23-07 northwest of Burro Creek.

- **Tuffs and Sediments** (*Tts*) [Lower Clay, Calcareous Sediments; Carbonate]: This unit is mapped extensively at the surface in the southern and eastern parts of the license area. Drillhole logging shows it forms the base and is gradational with the lithium-bearing clay package. It includes tuffs, sometimes clay-altered and weakly or not lithium-bearing, interbedded with carbonates and sediments in the south. Previously modelled as a single unit, it is now considered part of the lower lithium-bearing clay-altered tuffs. This reappraisal, supported by detailed lithological work from the 2023 sonic drilling, shows lateral continuity of thin internal sedimentary layers over about 3 km. Surface mapping and drillhole assays reveal that the Tts unit is difficult to distinguish from weakly mineralized Lower Clay. The southern and eastern limits of clay mineralization in the East block are not well defined by surface mapping. Drilling shows that the Lower Clay thins and pinches out to the south but may be open to the east of the E block, requiring further confirmation by surface sampling and/or drilling.

- **Clay-Rich Tuff** (*TClay*) [Upper Clay, Lower Clay]: This Li-bearing unit consists of upper and lower layers of clay-altered tuffs, separated by a thin, non-Li-bearing lapilli tuff (Ttl) horizon. Though not differentiated in surface mapping, these layers are modelled separately in the 3D geological model. Thin horizons of hot spring sinter deposits occur within or at the contacts of the clay-rich tuff but are not modelled separately due to their small volume. The TClay dips gently towards the north and west, thinning to the southeast where it onlaps the Proterozoic Basement. The maximum thickness of the Upper Clay is 104.39 m in BND24-19 in the Northwest Basin East licenses, while the Lower Clay reaches a maximum of 43.4 m in BCE21-03 in the Central Block. Both layers thin and/or have variable thickness depending on the relative elevation of fault blocks and erosion depth. In all fault blocks, TClay mineralization is open to the north-northwest and dips under Burro Creek. Sonic drilling in 2023 confirmed continuous mineralization under and northwest of Burro Creek. Previously thought to pinch out to the north in the East block, the 2022 sonic drilling showed it is open to the north. The East block, uplifted relative to the Central and West blocks, has more deeply eroded Upper Clay. Internal stratigraphic units within the Upper and Lower Clay are further subdivided based on sedimentary or volcaniclastic characteristics and assay patterns.

- **Lapilli Tuff** (*Ttl*) [Lapilli Tuff]: This distinctive marker unit forms a thin layer (≤ 15 m thick) within the Li-bearing clay-rich tuff, separating the upper and lower TClay layers. It is logged in all drillholes intersecting both upper and lower TClay. The lapilli tuff serves as a good indicator for the dip of the surrounding clay-rich tuff and the relative offsets of the fault blocks. It dips at approximately 4° to the north-northwest in the West block, 3° to the north in the Central block, and 3° to the north-northwest in the East block. It pinches out within the Upper and Lower Clay to the south and was previously thought to pinch out to the north based on 2018 surface mapping. However, 2022 sonic drilling indicates continuity down-dip in the East block, similar to other fault blocks.

- **Bedded Tuffs, Tuff Breccias, and Basalts** (*Ttbxb*) [Upper Bedded Tuff, Upper Basalt, Bedded Tuff, Lower Basalt, Upper Lithic Lapilli Tuff, Tuffaceous Breccia]: This group was mapped as a single lithological unit at surface (Ttbxb), but drilling reveals it comprises multiple units: upper bedded tuff, upper basalt, lower bedded tuff, lower basalt, lithic lapilli tuff, and tuffaceous breccia, deposited on an erosional surface. Modelled as a cap overlying the Li-bearing clay-rich tuff, the basal contact surface is irregular. Throughout the drill-defined area, this surface and the unit above dip approximately 4° to the northwest. In the central and eastern parts of the area, this unit has been largely eroded, forming the tops of small hills and peaks. In the northwest, it is extensively mapped at surface, covering the majority of the northwest highlands within the license area, with a maximum drill-defined thickness of 132 m in BES-23-10 in the NW corner of the Basin East Extension license.

- **Quaternary Deposits** [Quaternary]: Alluvial fan (Qa and Qao) and landslide (Qlstb) deposits were modelled as a single unit where they overlie the Li-bearing TClay unit, indicating erosion of the TClay unit. Small patches were either not modelled or grouped with the bedded tuffs and tuff breccias to simplify modelling. Geophysical data and surface mapping by the client (GPR survey carried out in 2021-2022) were used to constrain the depth of Quaternary sediments in Burro Creek, where no drilling has occurred.

14.4.3 Weathering Domains

Oxidation logging primarily coincides with intervals of Quaternary deposits and a volcaniclastic tuff and breccia unit located stratigraphically above the clay-altered Li-bearing tuffs. Consequently, ABH Engineering has determined that the depth of oxidation is not significant to the Mineral Resource Estimate (MRE), and therefore, separate weathering domains have not been modelled.

14.4.4 Mineralization Domains

The objective of mineralization modelling is to develop geologically relevant and statistically based domains that differentiate between various styles of mineralization and grade populations. This allows for the application of appropriate interpolation and estimation techniques, forming a solid foundation for block model estimation. ABH Engineering evaluated the statistics and spatial distribution of lithium (Li) concerning the lithology and fault models.

Lithium mineralization at Basin East is predominantly contained within two clay-rich tuffaceous sedimentary layers, known as the Upper and Lower Clay. Therefore, the primary domain boundaries are defined by the upper and lower contacts of these two layers. The control of Li mineralization is likely influenced by changes in the physical and chemical properties of the host tuffaceous lithology, resulting in grade patterns that reflect the internal stratigraphy of the host rock. ABH has observed that within individual fault blocks, drillholes exhibit similar down-hole grade profiles, where local highs and lows occur at comparable stratigraphic levels in adjacent drillholes, accounting for the local dip of the unit. Similar relationships are observed in adjacent drillholes separated by faults, considering vertical fault offsets, though local differences in grade profile and internal stratigraphy exist between fault blocks. These observations suggest that, besides offsetting mineralization, faults fundamentally control mineralization, possibly serving as conduits for Li-bearing hydrothermal fluids or forming separate fault-bounded basins with varying internal stratigraphy.

The 2024 diamond drilling program has significantly enhanced the lithological and geochemical data for the project, increasing the assay database by approximately 20% by length. Consequently, ABH conducted a comprehensive reappraisal of the lithium-bearing clay stratigraphy based on detailed lithology logging. ABH has identified the following subdomains within the Upper and Lower Clay:

- **UC_above_HG**: This subdomain forms the uppermost part of the Upper Clay, comprising clay-altered tuffs and tuffaceous sediments interbedded with very thin layers of lapilli tuff, travertine, carbonate, or sinter. Lapilli tuff is more prevalent to the northwest, while travertine or carbonate is more common to the southeast. The Li grade profile and internal stratigraphy (sedimentary or volcanic, matrix composition, and clast size) show short-range vertical variability on an approximately 2 m scale. The base of this unit is often marked by a lithic lapilli tuff. This subdomain is absent from the East block due to erosion.

- **UC_HG**: This subdomain consists of strongly clay-altered tuffaceous sediment, marked by a sudden increase in Li grades. The upper contact is often defined by an interval of pure clay. This domain is relatively homogeneous in sedimentology, with a smooth down-hole Li profile peaking in the center. Histograms show this domain comprises a high-grade Li subpopulation, averaging around 1240 ppm Li. This high-grade subdomain is best developed in the West fault block, where it is continuous over 2.5 km down-dip to the northwest. However, it is now recognized in all fault blocks based on the new reappraisal of stratigraphy. In the East block, uplifted relative to the Central and West blocks, most of the layer has been eroded, only preserved on the peaks of low hills. Northwest of Burro Creek, this subdomain maintains a consistent thickness between 14 to 21 m with minimal composition variation. The subdomain also shows anomalous molybdenum values ranging from 51 to 641 ppm; however, the nature of Mo mineralization is not yet understood and has not been considered in any MRE to date.
- **UC_below_HG**: This subdomain comprises the lower part of the Upper Clay. The upper and lower contacts are marked by spikes in Ca and Mg assays, with the base consisting of a thin Li-bearing lithic lapilli tuff. This basal lithic lapilli tuff is distinct from the barren Lapilli Tuff below it, which occurs between the Upper and Lower Clays.
- **LC_upper**: This subdomain forms the upper part of the Lower Clay, just below the Lapilli Tuff. It comprises clay-altered tuffs interbedded with very thin layers of ash lapilli tuff. Li assays are slightly elevated in the center of this subdomain, while K, Mg, and Ca are elevated at the upper and lower contacts.
- **LC_lower**: This subdomain forms the base of the Lower Clay, lying atop the Red Seds. It comprises clay-altered tuffs interbedded with sandy layers, carbonate, and/or hot spring sinter deposits. In the southeast part of the license area, a waste horizon of carbonate or calcareous sedimentary rocks occurs between the LC_upper and LC_lower subdomains. This internal waste horizon thins to the northwest and pinches out within the Lower Clay, bringing the LC_upper and LC_lower subdomains into contact. LC_lower has a higher calcium content (approximately 10% to 20% Ca) compared to other mineralization subdomains (around 1% to 10% Ca).

The final mineralization wireframes include the sub-divisions of the Upper and Lower Clay as described above, clipped within individual fault blocks by the fault model, as presented in Figure 14-2.

14.5 Post-Domaining Statistical Analysis

14.5.1 Introduction

Before performing any grade interpolation, ABH conducted a classical statistical analysis on all domained and composited assay data from exploration drillholes. The purpose of this analysis was to evaluate the suitability of the data for grade estimation. The statistics help confirm that the estimation domains have been appropriately modelled and ensure that the grade distribution remains as consistent as possible throughout each domain, allowing for the assumption of stationarity.

14.5.2 Compositing

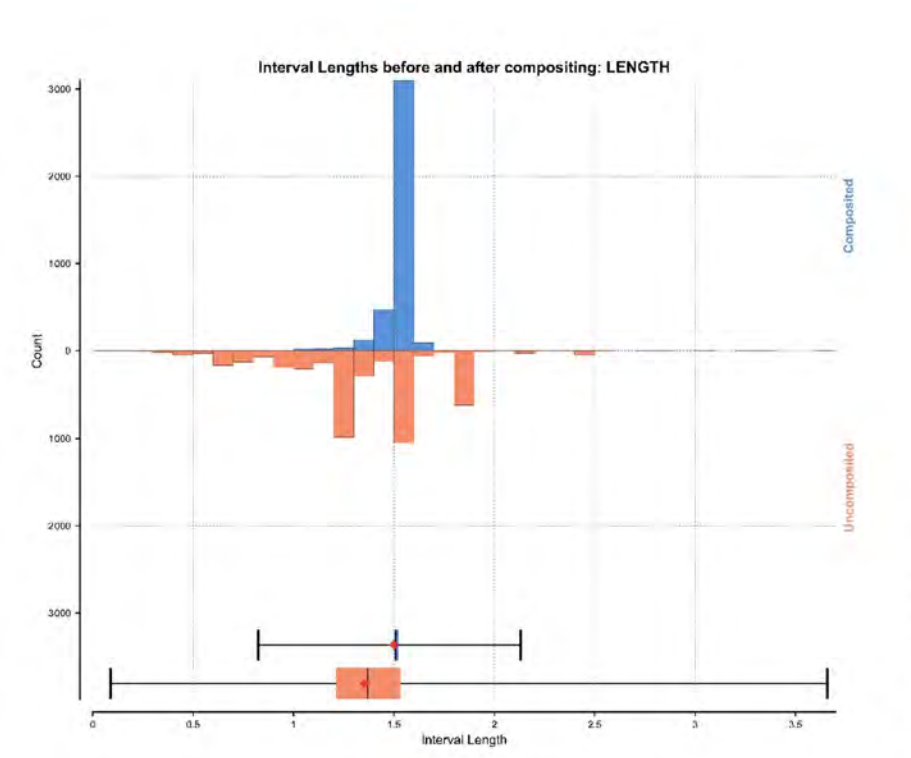
To ensure an unbiased model, it is essential that all samples used in geostatistical analysis and grade estimation are of uniform length. This uniformity guarantees equal support in the model. Data compositing is the process used to create equal-length samples, which helps to reduce inherent variability within the population and considers the scale of potential mining selectivity and the resolution appropriate for the mineralization style.

Reverse Circulation (RC) drilling was typically sampled at intervals of 5 feet (1.5 meters). Diamond drilling was sampled at intervals of 5 feet or smaller, while sonic drilling was sampled at intervals of 3 to 6 feet. Overall, 76% of the samples were 1.5 meters or less in length. Observations of raw Li grades in diamond, RC, and sonic drilling show similar down-hole grade profiles within a fault block. To maintain grade variability with depth, all samples were composited to 1.5 meters (5 feet) within domain boundaries. This length corresponds approximately to the RC sampling interval.

Compositing slightly limits outlier values while maintaining a mean grade similar to the raw data (less than 1.1% difference; see Table 14-2). For composite samples, log histograms have a similar shape, mean, and median as the raw data but exhibit a shorter range. Compositing within wireframes preserves the shape of the population distribution, demonstrating that the composited data accurately reflects the underlying data patterns.

Table 14-2: Statistics of Raw And 1.5m Composite Drillhole Data for Lithium

Domain		Fault Block	Sample Type	Number of samples	Mean Li [ppm]	Standard deviation	CoV	Minimum [ppm]	Maximum [ppm]	% difference mean grade
Upper Clay mineralization	UC_above_HG	W	Raw	836	786.679	265.23	0.337152	115	1,858	
			Composites	657	784.731	217.924	0.277706	239.878	1,540.04	-0.25%
		C	Raw	88	821.364	305.284	0.371679	131	1,600	
			Composites	76	800.557	291.529	0.364158	166.381	1,556.76	-2.53%
		E	Raw	-	-	-	-	-	-	
			Composites	-	-	-	-	-	-	-
	UC_HG	W	Raw	505	1,240.27	384.001	0.309611	133.5	2,791	
			Composites	402	1,255.58	311.919	0.248427	581.235	2,074	1.23%
		C	Raw	49	1,172.65	322.908	0.275366	490	2,150	
			Composites	40	1,199.74	261.68	0.218114	646.6	1,969.67	2.31%
		E	Raw	32	1020	235.66	0.231039	500	1,450	
			Composites	27	1,033.65	211.528	0.204643	500	1,439.33	1.34%
	UC_below_HG	W	Raw	604	701.885	234.299	0.333813	125	1,580	
			Composites	511	683.66	195.361	0.285758	125	1,399.92	-2.60%
		C	Raw	64	713.859	184.652	0.258667	401	1,300	
			Composites	56	699.364	163.629	0.233968	407.028	1,129.98	-2.03%
		E	Raw	86	613.517	226.684	0.369483	185.5	1,590	
			Composites	76	624.877	208.594	0.333817	339.271	1,387.12	1.85%
Lower Clay mineralization	LC_Upper	W	Raw	495	529.904	274.026	0.517124	25.3	1,278	
			Composites	436	546.688	256.618	0.469405	64.3249	1,265.86	3.17%
		C	Raw	78	697.397	226.622	0.324954	244	1,450	
			Composites	68	715.127	198.098	0.277011	382.789	1,285.88	2.54%
		E	Raw	123	495.276	187.49	0.378556	165	980	
			Composites	119	501.52	170.259	0.339478	200.542	933.66	1.26%
	LC_Lower	W	Raw	107	489.307	311.925	0.637482	98.4	1,463	
			Composites	82	485.341	288.019	0.593438	98.4091	1,369.83	-0.81%
		C	Raw	49	737.806	344.061	0.46633	189	1,910	
			Composites	39	774.734	298.658	0.385498	376.956	1,686.15	5.01%
		E	Raw	89	352.628	332.036	0.941605	59.9	1,290	
			Composites	74	397.793	355.383	0.893387	75.5205	1,213.9	12.81%



	Composited	Uncomposited
Count	3,868	4,298
Length	5,807.7	5,815.1
Mean	1.50147	1.35298
SD	0.0710083	0.382294
CV	0.0472925	0.282558
Variance	0.00504217	0.146149
Minimum	0.823	0.09
Q1	1.5	1.21
Q2	1.50892	1.37
Q3	1.524	1.53
Maximum	2.13	3.66

Figure 14-5: General Statistics of Raw and 1.5m Composite Drillhole Data for Lithium

14.5.3 Boundary Analysis

ABH conducted a boundary analysis for Li to determine the appropriate method for selecting and estimating samples across wireframe boundaries. Mean grades were calculated at intervals of 1 m or 2 m (3 or 6 ft) from the wireframe boundaries. This allowed an assessment of the average grade changes across these boundaries. Figure 14-5 presents boundary analysis plots for the Upper Clay domains (UC_above_HG, UC_HG, UC_below_HG) and Lower Clay domains (LC_upper, LC_lower). The analysis revealed that in all cases, the average grades exhibit sharp increases or decreases across the boundaries, with changes ranging from approximately 25% to 50% within 2 m (6 ft) of the contact. A visual assessment comparing drillhole intercepts inside and outside the final wireframes also confirmed the presence of clear hard boundaries.

Based on these findings, ABH decided to treat all wireframe boundaries as hard boundaries for estimation purposes. This means that only samples within the relevant wireframe were used to interpolate block grades for that domain. Given the vertical offset across faults and the distinct differences in vertical grade profiles between fault blocks, ABH applied hard boundaries between the fault-block sub-domains.

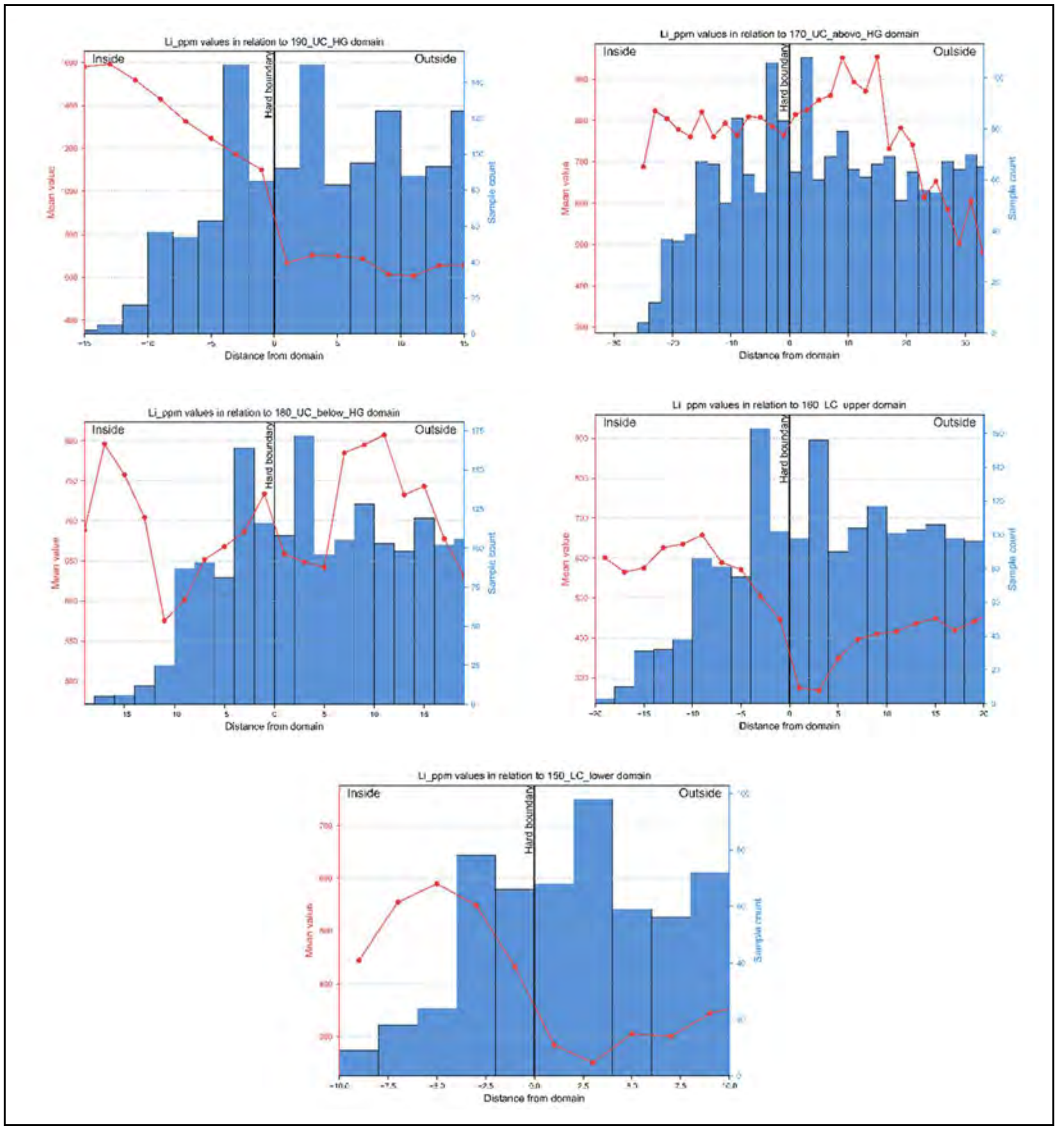


Figure 14-6: Boundary Analysis Plots

14.5.4 Evaluation of Outliers

As part of the statistical analysis, we evaluated the location, spatial distribution, and impact of high-grade composites for each estimation domain. The presence of very high-grade samples can disproportionately influence grade interpolations relative to most of the lower-grade dataset. Assessing high grades is crucial to determine if additional sub-domaining is necessary, if grade caps or restricted search strategies should be applied, or if the high grades are an inherent characteristic of the mineralization that should be reflected in the final block model.

After thorough analysis, ABH concluded that capping the grades is unnecessary for this type of deposit. This decision is supported by duplicate samples of high-grade intercepts, which exhibited a variance within 10%, as illustrated in Figure 12-6 Chapter 12. Therefore, the high-grade data are considered reliable and are appropriately represented in the final block model.

14.6 Geostatistical Analysis

ABH conducted a geostatistical study (variography) to investigate grade continuity within mineralization domains and derive parameters for grade interpolation. This study aimed to assess the 3-D variability and spatial relationships between composite samples and to fit appropriate variogram models for use in block grade interpolation. The analysis was performed on 1.5 m (5 ft) composite Li (ppm) samples within domains, either individually or grouped by fault block or stratigraphy as appropriate.

The initial variography focused on the largest and best-informed model area: the West block Upper Clay. This area comprised grouped domains UC_above_HG, UC_HG, and UC_below_HG for the West block only. The following methodology was employed:

- The dip and strike of the initial variogram were aligned with the best-fit plane parallel to the plane of mineralization, i.e., the bedding.
- A radial variogram map was generated in the dip–strike plane of the mineralization, with the major axis aligned to the principal direction of continuity and anisotropy. The semi-major axis direction was set perpendicular to the major axis, and the minor axis direction was oriented normal to the dip–strike plane.
- An experimental omni-directional variogram with approximately 2 m (6 ft) lags was used to analyze the down-hole variance and characterize the nugget effect.
- Major and semi-major axis experimental variograms were generated using lag distances of 100–150 m (330–500 ft), reflecting the minimum drillhole spacing. Minor axis experimental variograms were generated using lag distances of approximately 5 m (16 ft).
- Variogram models were fitted to the experimental directional variograms to obtain normalized nugget, sill values, and ranges.

The nugget variance (0.1 to 0.2) and minor semi-variogram (ranges of 5 to 12 m / 16 to 39 ft) were clearly modeled for all domains (UC_above_HG, UC_HG, UC_below_HG, LC_upper, and LC_lower). Major and semi-major semi-variograms were modeled for grouped West block Upper Clay domains only. The sill was reached within the 200 to 700 m (656 to 2,297 ft) range, largely controlled by drillhole spacing, with little or no structure observed in the semi-major axis. This outcome is expected due to the relatively wide drillhole spacing. Consequently, the semi-major range was set to be the same as that modeled for the major axis.

For other domains, structures could not be modeled for major and semi-major semi-variograms due to the irregular distribution of drillholes with respect to domain boundaries or the wide drillhole spacing. Therefore, the variogram ranges were set the same as for the West block Upper

Clay. Variogram orientations were based on the average dip of stratigraphy within individual fault blocks. Variogram model parameters are presented in Table 14-5.

Given that the nugget variance and minor semi-variogram were clearly modeled for all domains, ABH considers it appropriate to use Ordinary Kriging for the estimation of Li. This technique better reflects the observed vertical patterns in Li grades in the block model while accounting for any short-range variability (nugget). Although the major and semi-major semi-variograms have lower confidence, they are consistent with the current geological understanding of grade distribution continuity parallel to the stratigraphy.

Lithium presence in the Basin deposit is strongly controlled by stratigraphy, with mineralization occurring as thin sub-horizontal layers within the TClay. The most rapid grade changes are observed in the down-hole direction, orthogonal to stratigraphic contacts. Considering the short-range, rapid vertical change in grade (approximately 5 m / 16 ft) compared to the wide lateral spacing of data (drill spacing at 150 to 650 m / 500 to 2,100 ft), the variography yielded expected results. Future infill drilling is anticipated to enable higher quality major and semi-major semi-variograms to be modeled.

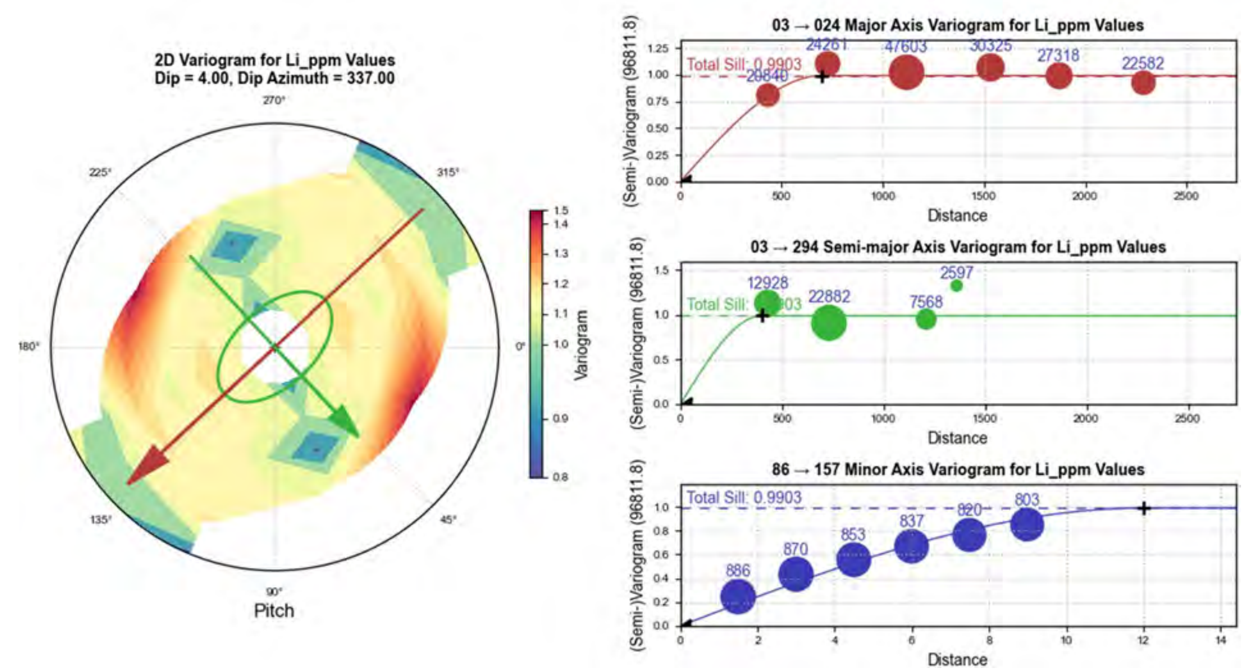


Figure 14-7: Example Variogram Models for Li: 3D Variogram Model for West Block Upper Clay

Table 14-3: Variogram Model Parameters

Domain		Fault Block	Variance	Nugget	Normalized Nugget	Normalized sill	Structure	Alpha	Major	Semi-major	Minor	Dip (°)	Dip Azi. (°)	Pitch (°)
Upper Clay	UC_above_H	W	47,597.43	2,985.22	0.1	0.9	Spherical		700	400	11	4	333	91
		C	81,580.16	16,316.03	0.2	0.8	Spherical		200	200	7.5	3	9	90
		E	-	-	-	-	-	-	-	-	-	-	-	-
	UC_HG	W	100,123.47	0.00	0.0	1.0	Spherical		700	400	9	4	0	48
		C	70,213.33	7,021.33	0.1	0.9	Spherical		200	200	7	3	9	90
		E	44,744.27	4,474.43	0.1	0.9	Spherical		200	200	7	3	330	90
	UC_below_HG	W	38,296.14	9,900.38	0.3	0.8	Spherical		700	400	10	4	0	68
		C	25,871.02	5,174.20	0.2	0.8	Spherical		200	200	5	3	9	90
		E	43,511.59	8,702.32	0.2	0.8	Spherical		200	200	5	3	330	90
Lower Clay	LC_Upper	W	52,126.34	0.00	0.0	0.96	Spherical		700	400	12	4	0	25
		C	32,946.84	3,294.68	0.1	0.9	Spherical		200	200	8.5	3	9	90
		E	28,988.19	2,898.82	0.1	0.9	Spherical		200	200	8.5	3	330	90
	LC_Lower	W	82,955.19	9,332.46	0.1	0.9	Spherical		330	280	12	4	337	153
		C	89,196.63	10,034.62	0.1	0.9	Spherical		200	200	5	3	9	90
		E	126,297.29	14,208.45	0.1	0.9	Spherical		200	200	5	3	330	90

14.7 Block Modelling and Grade Estimation

14.7.1 Block Model Definition

The block model was designed to cover the entire area of the modeled mineralized zones, extending beyond the license boundaries. The geometry and extents of the block model are detailed in Table 14-6. The parent block dimensions are 25x25x5 meters, and they are subdivided into smaller blocks measuring 6.25x6.25x1.25 meters (parent blocks divided by a factor of 4) to accurately capture the geometry and volumes of the lithological boundaries. The block model was not rotated. The block model is coded based on lithology, domain, and license boundary wireframes.

Table 14-4: Basin East Block Model Dimensions

Dimension	Origin	Block Size (m)	Number of Blocks	Minimum Sub-blocking (m)
X	283,300	25	168	6.25
Y	3,826,600	25	112	6.25
Z	200	5	160	1.25

14.7.2 Grade Interpolation

Lithium (Li, ppm) block grades were estimated within the Upper and Lower Clay and the internal waste domains (Lapilli Tuff, Calcareous Sediments, and Carbonate). The complete search parameters are detailed in Table 14-7. Lithium is the primary economic element for this project. The internal waste domains (Lapilli Tuff, Calcareous Sediments, and Carbonate) are not significant sources of lithium; they function as waste horizons within the main Li-bearing unit. These units, particularly the Lapilli Tuff, are considered too thin to be mined separately from the clay-rich tuff; hence, block grades are estimated within these units to assist with mining dilution studies.

ABH employed Ordinary Kriging (OK) to interpolate Li block grades in all mineralization domains. The OK algorithm is preferred over simpler interpolation methods, such as Inverse Distance Weighting (IDW), because it considers factors like nugget variance and weighs samples based not only on relative distances but also on their spatial positions. Additionally, OK accounts for the change of support when considering blocks rather than drillhole composites. For the internal waste domains, ABH used IDW to interpolate Li block grades.

All interpolations were based on 1.5 m (5 ft) composites within mineralization domains using hard boundaries. A three-pass search strategy was employed, with sample restrictions requiring samples from at least three drillholes to inform all blocks in the first and second search passes, and at least two drillholes in the third search pass.

In the first search pass (SVOL1), the dimensions of the search ellipsoid were set to one-quarter of the variogram ranges in the plane of mineralization. For the second pass (SVOL2), the search ellipsoid dimensions were set to half of the variogram ranges, and for the third pass (SVOL3), they were set to the full variogram range. For the fourth pass (SVOL4), applicable only to the West block, the search ellipsoid dimensions were set large enough to fill all remaining model blocks outside the drilled area. A variable search ellipse orientation, based on upper, lower, or internal domain contacts, was used to control the search ellipsoid's orientation for all domains, accounting for slight undulations in domain boundaries or changes in unit thickness.

The search volumes have a high level of confidence up to SVOL3. The SVOL4 search volume was used solely for filling purposes and represents less than 5% of the resource estimation. Figure 14-8 illustrates the extent of the block model estimated by each search volume; note that the areas receiving estimated grades in this image are larger than the areas eventually classified and reported in the Mineral Resource statement.

Table 14-5: Search Parameters

DOMAIN		Fault Block	Search Pass	Ellipsoid Ranges			Number of Samples		Drillhole Limit
				Maximum	Intermediate	Minimum	Minimum	Maximum	Max Samples per Hole
Upper Clay	UC_above_HG	W	**1**	350	200	10	12	20	4
			2	700	400	15	12	20	4
			3	1400	800	25	8	20	4
			4	1400	1400	100	5	20	4
		C	**1**	125	100	10	12	20	4
			2	250	200	20	12	20	4
			3	500	400	20	8	20	4
	UC_HG	W	**1**	350	200	10	12	20	4
			2	700	400	15	12	20	4
			3	1400	800	25	8	20	4
			4	1400	1400	100	5	20	4
		C	**1**	125	100	10	12	20	4
			2	250	200	20	12	20	4
			3	500	400	20	8	20	4
		E	**1**	125	100	10	12	20	4
			2	250	200	20	12	20	4
			3	500	400	20	8	20	4
	UC_below_HG	W	**1**	350	200	10	12	20	4
			2	700	400	15	12	20	4
			3	1400	800	25	8	20	4
			4	1400	1400	100	5	20	4
		C	**1**	125	100	10	12	20	4
			2	250	200	20	12	20	4
			3	500	400	20	8	20	4
		E	**1**	125	100	10	12	20	4
			2	250	200	20	12	20	4
			3	500	400	20	8	20	4
Lower Clay	LC_Upper	W	**1**	350	200	10	12	20	4
			2	700	400	15	12	20	4
			3	1400	800	25	8	20	4
			4	1400	1400	100	5	20	4
		C	**1**	125	100	10	12	20	4
			2	250	200	20	12	20	4
			3	500	400	20	8	20	4
		E	**1**	125	100	10	12	20	4
			2	250	200	20	12	20	4
			3	500	400	20	8	20	4
	LC_Lower	W	**1**	350	200	10	12	20	4
			2	700	400	15	12	20	4
			3	1400	800	25	8	20	4
			4	1400	1400	100	5	20	4
		C	**1**	125	100	10	12	20	4
			2	250	200	20	12	20	4
			3	500	400	20	8	20	4
		E	**1**	125	100	10	12	20	4
			2	250	200	20	12	20	4
			3	500	400	20	8	20	4

Additional parameters	
IDW Power	2
OK block discretization	5x5x2

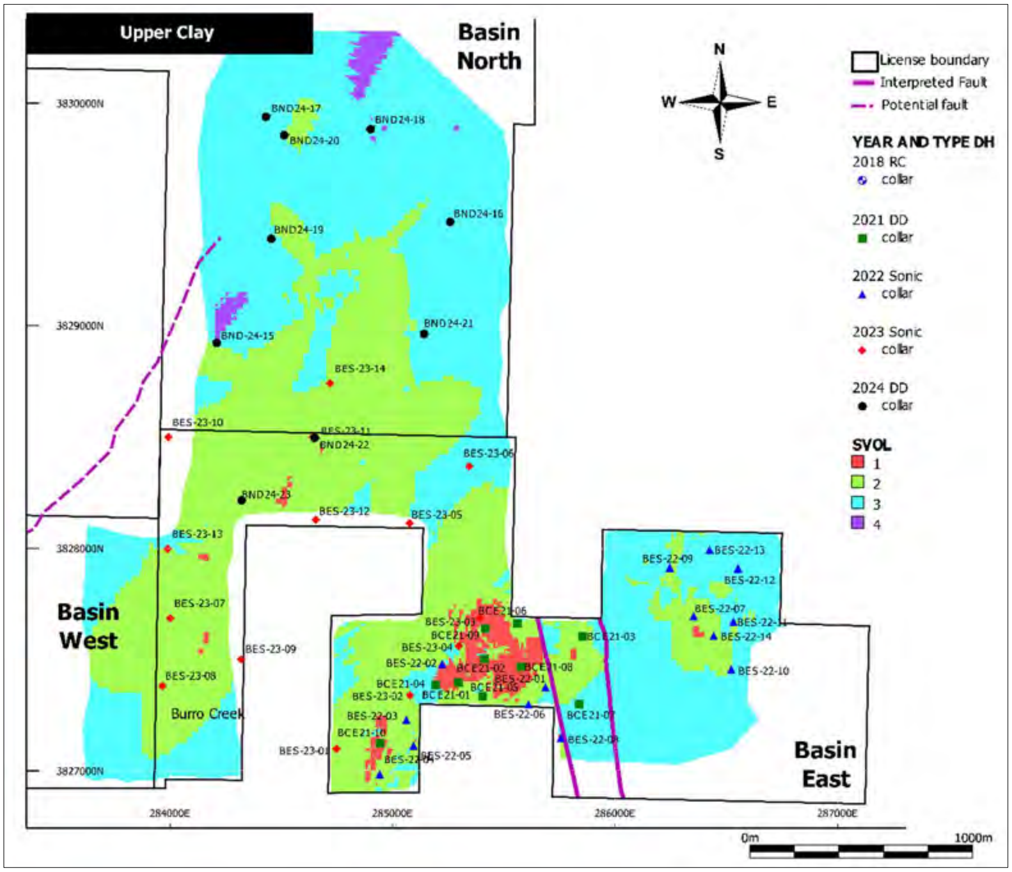


Figure 14-8: Block Model Estimation by Search Volume

14.7.3 Neighbourhood Analysis

Neighbourhood analysis using kriging (KNA) was conducted to optimize block size, sample selection criteria, and discretization for grade interpolation. However, the final selection of search parameters was primarily influenced by factors such as drill spacing, variogram ranges, geological and grade continuity, and the expected size of the selective mining unit.

14.8 Tonnage Estimation

ABH assigned average dry densities to blocks based on the mineralization and lithology domains, as shown in Table 14-6. These densities were determined using volume-displacement sample density measurements, which were then corrected for any moisture loss during laboratory testing. This approach ensures that the density values accurately reflect the in-situ conditions of the material, providing a reliable basis for tonnage estimation. Further details on these calculations are discussed in Section 14.3.2.

Table 14-6: Block Model Assigned Densities

<table>
<tr><th>Lithology</th><th>Domain</th><th>Density (g/cm³)</th><th>Source</th></tr>
<tr><td>Quaternary</td><td rowspan="8">Waste (hanging wall)</td><td>1.70</td><td rowspan="8">Volume-displacement sample density measurements corrected for laboratory moisture loss (2021-2024)</td></tr>
<tr><td>Tertiary Fan and reworked volcaniclastics</td><td>1.73</td></tr>
<tr><td>Upper Bedded Tuff</td><td>1.60</td></tr>
<tr><td>Upper Basalt</td><td>2.70</td></tr>
<tr><td>Bedded Tuff</td><td>1.60</td></tr>
<tr><td>Lower Basalt</td><td>2.40</td></tr>
<tr><td>Upper Lithic Lapilli Tuff</td><td>1.60</td></tr>
<tr><td>Tuffaceous Breccia</td><td>2.0</td></tr>
<tr><td rowspan="3">Upper Clay</td><td>UC_above_HG</td><td>1.75</td><td rowspan="11">Volume-displacement sample density measurements corrected for laboratory moisture loss (2021-2024)</td></tr>
<tr><td>UC_HG</td><td>1.74</td></tr>
<tr><td>UC_below_HG</td><td>1.80</td></tr>
<tr><td>Lapilli Tuff</td><td>Waste (internal)</td><td>1.6</td></tr>
<tr><td>Lower Clay</td><td>LC_upper</td><td>1.82</td></tr>
<tr><td>Calcareous sediments</td><td rowspan="2">Waste (internal)</td><td>2.1</td></tr>
<tr><td>Carbonate</td><td>2.1</td></tr>
<tr><td>Lower Clay</td><td>LC_lower</td><td>1.87</td></tr>
<tr><td>Red Seds</td><td rowspan="3">Waste (footwall)</td><td>2.0</td></tr>
<tr><td>Basal Conglomerate</td><td>2.2</td></tr>
<tr><td>Basement</td><td>2.7</td></tr>
</table>

14.9 Block Model Validation

ABH conducted a thorough validation of the block model using several methods. This included visual inspections comparing block grades with composited drillhole data in 3D and cross-sectional views. Additionally, mean block model grades were compared with mean composite data both globally and within estimation domains, as well as along swath plots. This comprehensive validation process ensures that the block model accurately represents the underlying sample data at both local and global scales and verifies that the estimates are unbiased.

ABH concludes that the block model accurately reflects the current understanding of mineralization distribution, making it a reliable basis for a Mineral Resource statement.

14.9.1 Visual Validation

ABH conducted a visual comparison of block grades against 1.5-meter (5-foot) composite sample grades in both 3D and cross-sectional views. This assessment aimed to evaluate the correlation between the interpolated block model and the composite drillhole data at a local scale. Example cross-sections for lithium (Li) are illustrated in Figure 14-9, with the cross-section locations provided in Figure 14-2.

ABH found that the local block estimates closely matched the nearby composite samples. The block model accurately captured the observed patterns in grade variability from the drillhole composites without excessive vertical smoothing. ABH is confident that the model accurately reflects the input composite data, with appropriate smoothing to account for the change of support between the drillhole composites and the block model. The use of domaining and hard boundaries effectively represents the current understanding of the deposit.

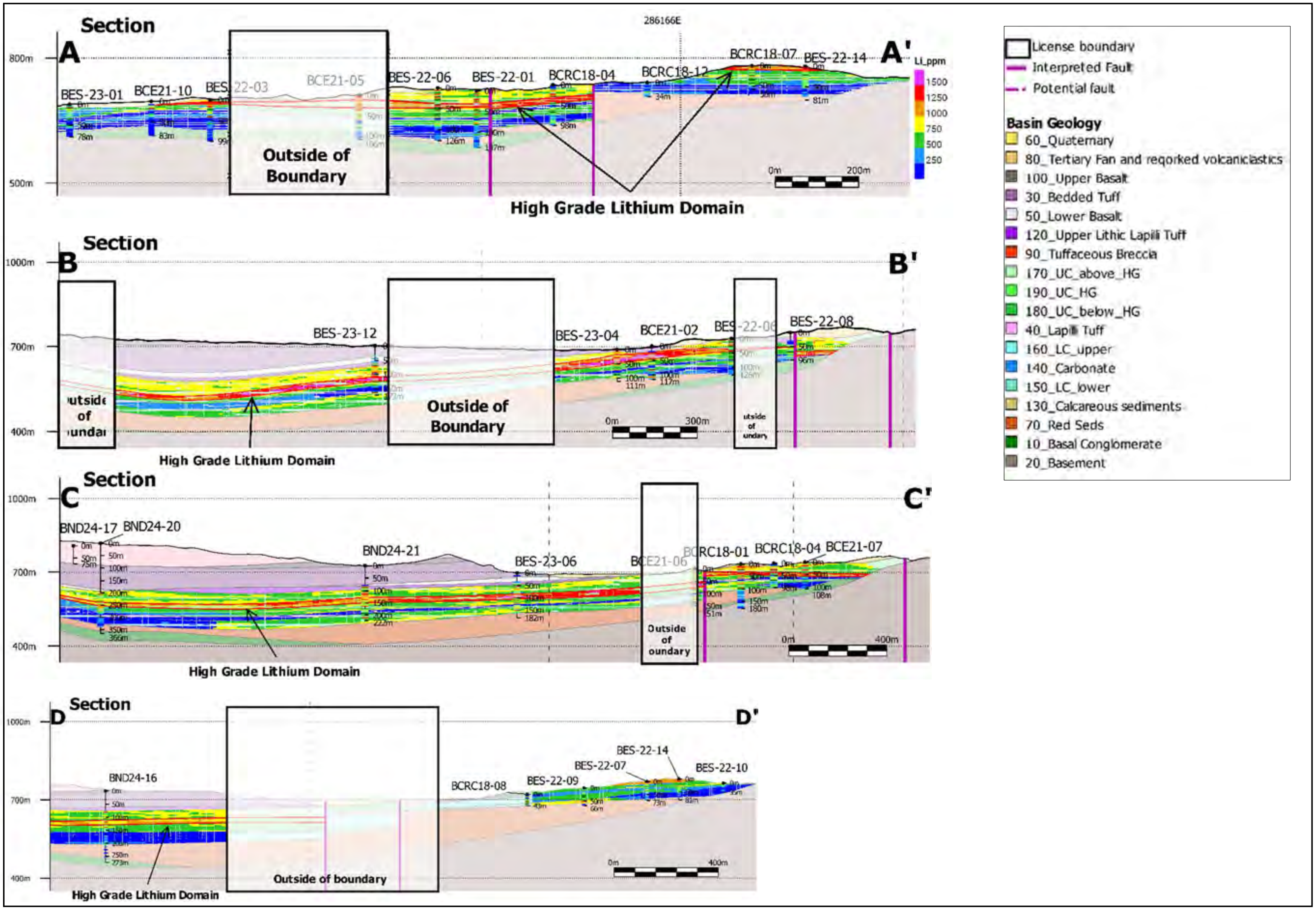


Figure 14-9: Visual Validation of Li Block Grades Against 1.5 M Composite Data

14.9.2 Statistical validation

To evaluate the global accuracy of the block model, the mean estimated block grades were compared with the mean of the composite samples for each domain, focusing on lithium (Li), as presented in Table 14-7.

The results indicate a strong correlation between the average Ordinary Kriging (OK) block grades and the average composite data within the wireframes. Most domains exhibit a mean percentage difference of less than ±6%. Additionally, there are notable reductions in the coefficient of variation, reaching up to approximately 40%. These differences are attributed to the smoothing effect of Ordinary Kriging and the change in support from drillhole composites to blocks. It is important to note that the domain composite mean does not account for clustering; however, clustering is not considered a significant issue due to the fairly even spacing of the majority of the samples.

Table 14-7: Composite Sample and Block Statistics for Li in Mineralization Domains

Domain		Fault Block	Sample Type	Number	Mean Li [ppm]	Standard deviation	CoV	Minimum [ppm]	Maximum [ppm]	% difference	
										Mean grade	CoV
Upper Clay mineralization	UC_above_HG	W	Block Estimates	613,987	780	83	0.11	478	1,203	-1%	-62%
			Composites	657	785	218	0.28	240	1,540		
		C	Block Estimates	15,908	753	126	0.17	439	1,302	-6%	-54%
			Composites	76	801	292	0.36	166	1,557		
		E	Block Estimates	-	-	-	-	-	-		
			Composites	-	-	-	-	-	-	-	
	UC_HG	W	Block Estimates	391,789	1,189	163	0.14	617	1,920	-5%	-45%
			Composites	402	1,256	312	0.25	581	2,074		
		C	Block Estimates	12,831	1,219	88	0.07	892	1,455	2%	-67%
			Composites	40	1,200	262	0.22	647	1,970		
		E	Block Estimates	9,369	1,033	95	0.09	812	1,250	0%	-55%
			Composites	27	1,034	212	0.20	500	1,439		
	UC_below_HG	W	Block Estimates	529,672	645	119	0.18	253	1,002	-6%	-35%
			Composites	511	684	195	0.29	125	1,400		
		C	Block Estimates	8,538	700	53	0.08	560	889	0%	-68%
			Composites	56	699	164	0.23	407	1,130		
		E	Block Estimates	24,567	636	107	0.17	442	1,012	2%	-49%
			Composites	76	625	209	0.33	339	1,387		
Lower Clay mineralization	LC_Upper	W	Block Estimates	431,626	523	248	0.47	59	1,035	-4%	1%
			Composites	436	547	257	0.47	64	1,266		
		C	Block Estimates	14,687	675	103	0.15	456	962	-6%	-45%
			Composites	68	715	198	0.28	383	1,286		
		E	Block Estimates	51,292	504	82	0.16	273	759	0%	-52%
			Composites	119	502	170	0.34	201	934		
	LC_Lower	W	Block Estimates	13,498	629	143	0.23	226	1,052	30%	-62%
			Composites	82	485	288	0.59	98	1,370		
		C	Block Estimates	8,488	683	92	0.13	472	1,024	-12%	-65%
			Composites	39	775	299	0.39	377	1,686		
		E	Block Estimates	39,561	324	234	0.72	115	1,017	-18%	-19%
			Composites	74	398	355	0.89	76	1,214		

14.9.3 Swath plots and grade distribution

As part of the validation process, swath plots were created for the X (easting), Y (northing), and Z (vertical) coordinate directions. These plots involve calculating average grades for both input samples and estimated blocks along a series of vertical and horizontal slices (swaths), which are then plotted on graphs. Essentially, a moving average is computed for blocks and samples along the three coordinate axes. This method allows for the assessment of the block model's fit to the underlying data at an intermediate scale and helps identify any spatial biases in the estimated grades. ABH provides a selection of swath plots in Figure 14-10, Figure 14-11, and Figure 14-12.

Overall, the swath plots demonstrate a very good correlation between the Ordinary Kriging (OK) block model and the sample grades for lithium (Li). There is no evidence of introduced bias, and the OK block models exhibit an appropriate and expected level of smoothing compared to the composites, while still accurately reflecting lateral and vertical grade variations.

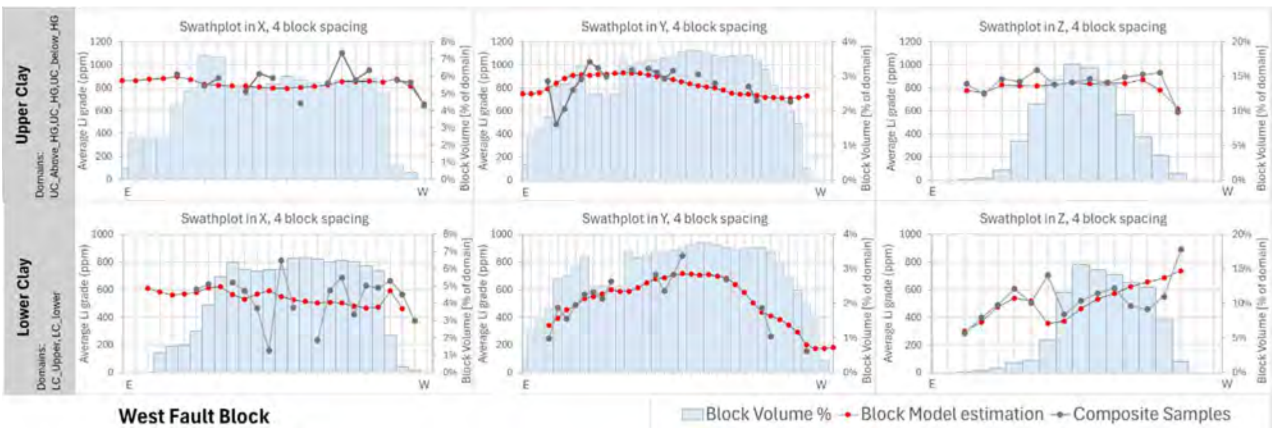


Figure 14-10: Sectional Validation (Swath Plots) for West Block Mineralization Domains

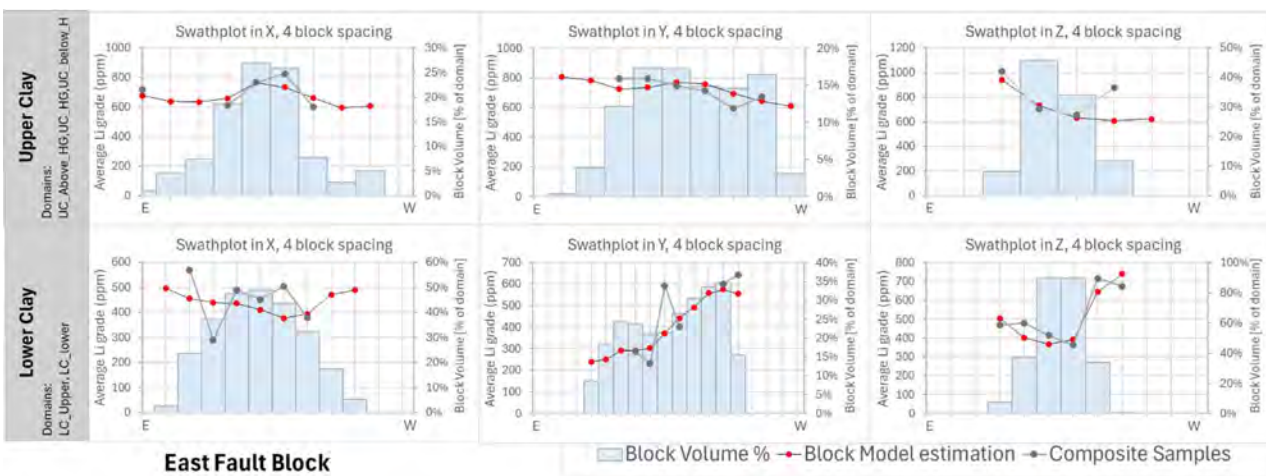


Figure 14-11: Sectional Validation (Swath Plots) for East Block Mineralization Domains

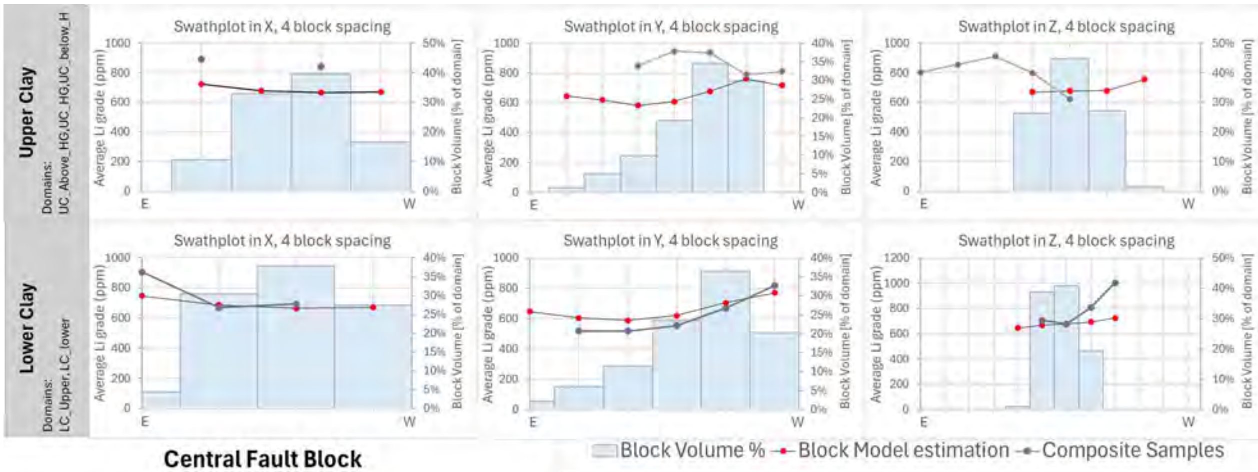


Figure 14-12: Sectional Validation (Swath Plots) or Central Block Mineralization Domains

14.10 Depletion

No mining activities have been conducted on the BHLL site at Basin East.

14.11 Mineral Resource Classification

The Mineral Resource estimate for Basin East has been classified in accordance with the Australasian Code for Reporting of Exploration Results, Mineral Resources, and Ore Reserves (JORC Code, 2012 Edition) and the Canadian Code NI 43-101. This classification was conducted by Damir Cukor, a Qualified Person under NI 43-101, who has over 25 years of experience in Mineral Resource estimation, with vast experience in lithium deposits.

ABH notes that the classification categories assigned in the presented Mineral Resource Estimate (MRE) are equivalent under both the JORC Code (2012) and the CIM Estimation of Mineral Resources & Mineral Reserves Best Practice Guidelines, dated November 29, 2019. Therefore, no reconciliation of material differences between these reporting standards is necessary.

The CIM Standards define the following:

A Mineral Resource is a concentration solid material of economic interest in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction ("RPEEE"). The phrase 'reasonable prospects for eventual economic extraction' implies a judgment by the Qualified Person in respect of the technical and economic factors likely to influence the prospect of economic extraction. The Qualified Person should consider and clearly state the basis for determining that the material has reasonable prospects for eventual economic extraction.

14.11.1 Classification Code and Definitions

Block model tonnage and grade estimates for the Project have been classified according to the terminology and definitions provided in the Australasian Code for Reporting of Exploration Results, Mineral Resources, and Ore Reserves (JORC Code, 2012 Edition).

Mineral Resources are subdivided, in order of increasing geological confidence, into Inferred, Indicated, and Measured categories. An Inferred Mineral Resource has a lower level of confidence than an Indicated Mineral Resource, which in turn has a lower level of confidence than a Measured Mineral Resource.

Inferred Mineral Resources

An 'Inferred Mineral Resource' is the part of a Mineral Resource for which tonnage, grade, and mineral content can be estimated with a low level of confidence. It is inferred from geological evidence and assumed but not verified geological and/or grade continuity. This estimate is based on information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings, and drillholes, which may be limited or of uncertain quality and reliability.

The Inferred category is intended for situations where a mineral concentration or occurrence has been identified, and limited measurements and sampling have been completed, but the data are insufficient to allow the geological and/or grade continuity to be confidently interpreted. It is commonly expected that most of the Inferred Mineral Resources will be upgraded to Indicated Mineral Resources with continued exploration. However, due to the inherent uncertainty of Inferred Mineral Resources, it should not be assumed that such upgrading will always occur.

Indicated Mineral Resources

An 'Indicated Mineral Resource' is the part of a Mineral Resource for which tonnage, densities, shape, physical characteristics, grade, and mineral content can be estimated with a reasonable level of confidence. This estimation is based on exploration, sampling, and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings, and drillholes. The locations are spaced closely enough to assume geological and/or grade continuity but are too widely or inappropriately spaced to confirm it.

Mineralization may be classified as an Indicated Mineral Resource when the nature, quality, amount, and distribution of data allow for a confident interpretation of the geological framework and the assumption of mineralization continuity. The confidence in the estimate is sufficient to apply technical and economic parameters, enabling an evaluation of economic viability.

Measured Mineral Resources

A 'Measured Mineral Resource' is the part of a Mineral Resource for which tonnage, densities, shape, physical characteristics, grade, and mineral content can be estimated with a high level of confidence. This estimation is based on detailed and reliable exploration, sampling, and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings, and drillholes. These locations are spaced closely enough to confirm geological and grade continuity.

Mineralization may be classified as a Measured Mineral Resource when the nature, quality, amount, and distribution of data are such that there is no reasonable doubt, in the opinion of the Competent Person determining the Mineral Resource, that the tonnage and grade of the mineralization can be estimated within close limits. Any variation from the estimate would be unlikely to significantly affect potential economic viability.

This category requires a high level of confidence in and understanding of the geology and controls of mineral deposits. Confidence in the estimate is sufficient to allow the application of technical and economic parameters, enabling an evaluation of economic viability with a greater degree of certainty than an evaluation based on an Indicated Mineral Resource.

14.11.2 Classification Application

The Mineral Resource estimate for Basin East has been classified in accordance with the JORC (2012) Code and NI 43-101 Code by Damir Cukor, a Qualified Person with over 25 years of experience in Mineral Resource estimation, including extensive experience with lithium deposits, particularly sediment-hosted lithium deposits. The classified block model is illustrated in Figure 14-13.

Several factors were considered when determining the appropriate classification criteria:

- JORC Code definitions and guidelines
- Quality of data used in the estimation
- Quantity and density of sample data
- Geological knowledge and understanding, focusing on geological and grade continuity
- Quality of the geostatistics and interpolated block model
- Experience with other deposits of similar style
- These factors are detailed below.

Quality of Data

ABH conducted standard database verification checks, 3D validation, and visual comparisons of 2024 drilling data against the 2018–2023 database, geological maps, and previous lithology models. Statistical comparisons between RC (2018 program), diamond (2021 program), sonic (2022 program), and diamond (2024) drillhole assays confirmed there is no bias in Li assay grades. Visual and statistical checks between three RC-DD twin pairs and one RC-Sonic pair demonstrated excellent correlation between twinned drillhole assays.

Throughout all drilling campaigns, a QA/QC program was in place. QA/QC samples, including blanks, field duplicates (2018, 2023, and 2024), coarse reject duplicates (2021 only), and CRM, were inserted into the sample stream 'blind' to the laboratory at an overall insertion rate of 11%. Although the QA/QC sample insertion rate is slightly below industry standards (15% is considered baseline), no issues were identified, and the results demonstrated good accuracy and precision.

ABH is confident that the database quality is sufficient for constructing geological model wireframes, the associated block model, and the resultant MRE.

Quantity of Data

There is adequate drilling density in the central part of the deposit to clearly model lithology and fault offsets, with spacing of 100–200 m (330–660 ft). In the eastern parts of the deposit, drilling is less regularly spaced, widening to 150–400 m (490–1,310 ft), and is sparser in the northwest parts, with spacing of 300–650 m (980–2,100 ft). Drilling data is supported by surface geological mapping, local surface sampling, and geophysical surveys.

There is a robust amount of data, allowing the average dry density of mineralized lithologies to be calculated with good confidence.

Understanding of Geological and Grade Continuity

The stratigraphy in the Basin area is well-defined, with Li mineralization occurring consistently as a stratabound, clay-altered, tuffaceous sedimentary package. This package includes a higher-grade Upper Clay and a lower-grade Lower Clay layer, separated by a thin, barren Lapilli Tuff. The mineralized units are broadly planar and have a consistent gentle dip within individual fault blocks. Fault blocks can be clearly defined based on vertical offsets in the stratigraphy.

Geological and grade continuity is considered very good in all fault blocks, with drill-defined continuity of mineralized Upper Clay extending approximately 2.5 km (8,200 ft) parallel to the down-dip direction (N and NW). Evidence from surface mapping and geophysical surveys suggests that mineralization continues outside the drill-defined area (northwest under alluvial sediments and hangingwall stratigraphy, and west into the Basin West license area), with a low risk of being eroded by the Burro Creek feature.

Quality of Geostatistics and Grade Interpolation

A satisfactory variogram model was produced, with reasonable structures observed for the drillhole spacing and style of mineralization. Good down-hole variograms were modeled for all domains, showing low nugget variance. The use of hard boundaries and Ordinary Kriging in grade estimation replicates the observed patterns in drillhole data, where highs and lows in down-hole Li grade profiles correspond to planar stratigraphic horizons within the mineralized unit. Visual validation of the model is good, and swath plots perform well, achieving the desired level of smoothing while adequately representing spatial variations in grade.

Classification Summary

ABH concludes that the Mineral Resources can be classified into Measured, Indicated, and Inferred categories. The criteria used to differentiate between these categories, as well as unclassified material, are detailed below:

Measured

Upper Clay and Lower Clay mineralization have been classified as Measured based on first search pass SVOL 1, as detailed in Table 14-7. This corresponds to one-fourth of the variogram range for each domain, with the following ranges:

- West Block: Maximum range = 350 m (1148 ft), Intermediate range = 200 m (656 ft), Minimum range = 10 m (33 ft)
- East and Central Blocks: Maximum range = 125 m (410 ft), Intermediate range = 100 m (328 ft), Minimum range = 10 m (33 ft)

In these areas, drilling density is sufficient to provide high confidence in local block grade estimates.

Indicated

Upper Clay and Lower Clay mineralization have been classified as Indicated based on second search pass SVOL 2, as detailed in Table 14-7. This corresponds to half of the variogram range for each domain, with the following ranges:

- West Block: Maximum range = 700 m (2296 ft), Intermediate range = 400 m (1312 ft), Minimum range = 15 m (49 ft)
- East and Central Blocks: Maximum range = 250 m (820 ft), Intermediate range = 200 m (656 ft), Minimum range = 20 m (66 ft)

In these areas, drilling density is sufficient to model moderate quality variograms, providing moderate confidence in local block grade estimates.

Inferred

Upper Clay and Lower Clay mineralization have been classified as Inferred based on third search pass SVOL 3 and SVOL 4 (<5% blocks), as detailed in Table 14-7. This corresponds to the full variogram range for each domain, with the following ranges:

- West Block: Maximum range = 1400 m (4593 ft), Intermediate range = 800 m (2624 ft), Minimum range = 25 m (82 ft)
- East and Central Blocks: Maximum range = 500 m (1640 ft), Intermediate range = 400 m (1312 ft), Minimum range = 20 m (66 ft)

There is excellent confidence in the geological continuity of mineralized units within fault blocks in the northwest (or down-dip) direction. However, blocks estimated in the Burro Creek area are classified as Inferred due to uncertainty about the thickness of the alluvium and potential faulting. Additionally, the area drilled in 2018, specifically around borehole BRCR1805 and its surroundings, is classified as Inferred due to required remediation.

Peripheral mineralization or any additional modeled mineralization extending well beyond the exploration drilling, where mineralization is open and geological continuity is not yet confirmed, has not been included in the Mineral Resource. These areas provide drill planning information.

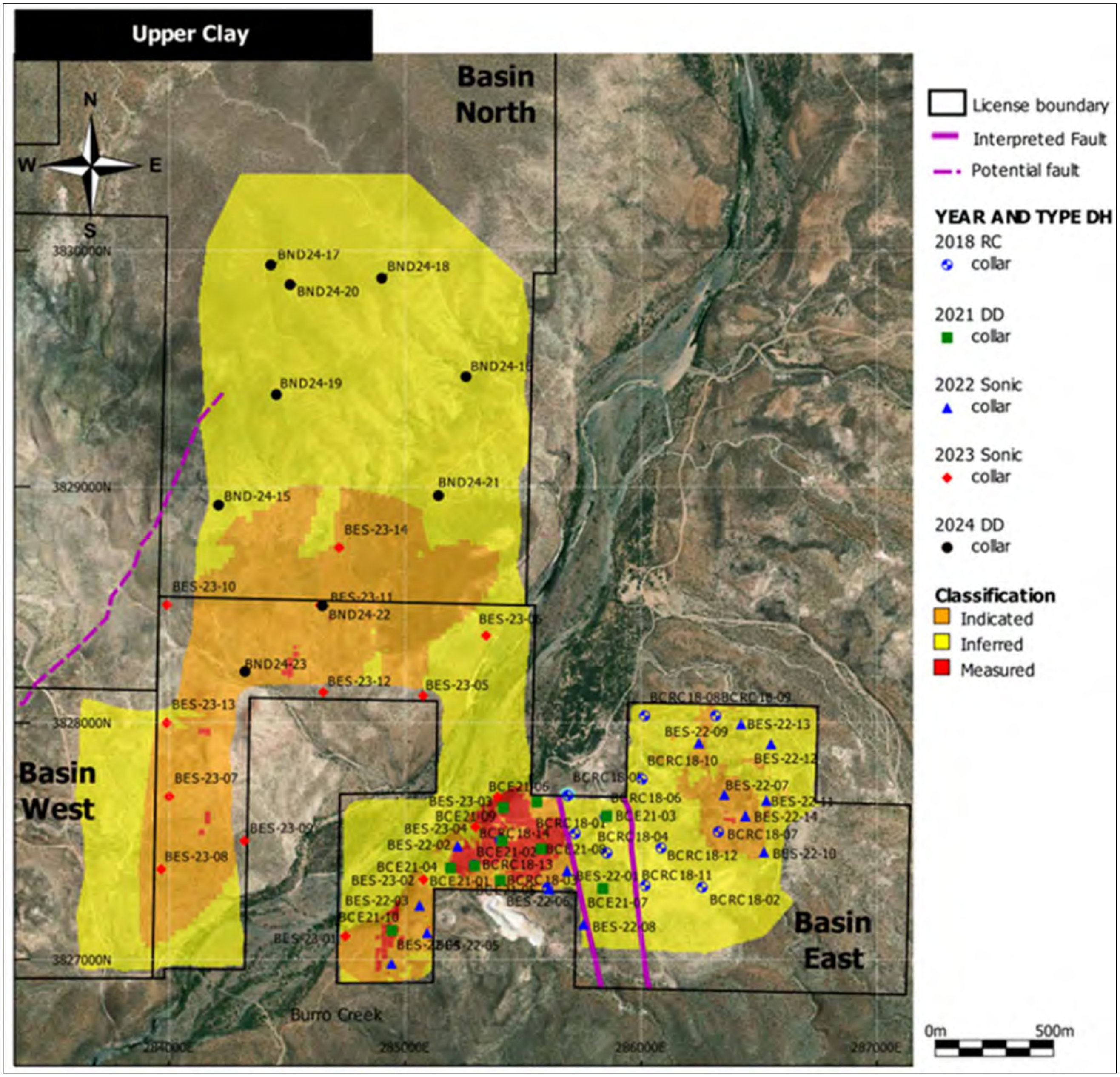


Figure 14-13: Mineral Resource Model Within License Colored by Classification Category

14.12 Reasonable Prospects for Eventual Economic Extraction

14.12.1 Environmental and Social Issues

ABH has thoroughly examined the current environmental and social context to identify any material risks to the Project in relation to the reporting of Mineral Resources (further detailed in Section 20). Despite the Project's proximity to protected areas, the presence of sensitive species, and regional water shortages—which will likely necessitate stringent future management and complicate federal permitting processes—ABH has not identified any environmental or social risks that would currently prevent the determination of Reasonable Prospects for Eventual Economic Extraction (RPEEE) for the reporting of Mineral Resources.

As the Project advances toward reporting Mineral Reserves, a more comprehensive assessment of environmental and social issues and risks will be required. Should the Project progress sufficiently, obtaining permission to commence operations will necessitate a detailed Environmental and Social Impact Assessment (ESIA) to secure federal environmental approvals under the National Environmental Protection Act (NEPA). Further secondary environmental approvals will also be required post-agency approval.

14.12.2 Economic and Technical Parameters

To ensure that the reported Mineral Resource exhibits 'reasonable prospects for eventual economic extraction' as mandated by JORC guidelines, ABH conducted a cut-off grade analysis and a preliminary open pit optimization study.

The parameters used for pit optimization are detailed in Table 14-8. ABH cautions that, given the early stage of the Project, these numbers are preliminary, and most cost estimates are based on ABH's experience and benchmarking of similar projects. The parameters have been updated, incorporating information from various publicly reported lithium clay projects since the previous Mineral Resource Estimate (MRE) for the Basin Project, with particular emphasis on projects with similar clay mineralogy.

ABH underscores the importance for BHLL to advance their own processing testwork and operational parameters to develop precise RPEEE estimates for the Project before proceeding with any Preliminary Economic Assessments or pre-feasibility studies.

Table 14-8: Pit Optimization Parameters

Parameters	Units	Value	Comment
Pit Slope			
Footwall	(Deg)	45	ABH assumption
Hangingwall	(Deg)	45	ABH assumption
Mining Factors			
Dilution	(%)	0	ABH assumption
Recovery	(%)	100	ABH assumption
Processing			
Recovery Li	(%)	72	ABH estimate based on preliminary testwork results and similar projects reported in public domain
Operating Costs			
Processing, Mining, G&A	(USD/t_{ore})	35	Estimate based on preliminary met testwork results and similar projects reported in public domain
Selling Cost (Royalty)	(%)	6	State of Arizona royalty
Metal Price			
Lithium Carbonate	(USD/t_{LCE})	17,200	Long-term price based on including a 30% as per normal practice for Mineral Resource Estimates

14.13 Mineral Resource Statement

The 2024 Mineral Resource statement for the Basin East lithium deposit is presented in Table 14-9. This statement was prepared by Damir Cukor of ABH, who is recognized as a Competent Person for this type of mineralization and is reported in accordance with the terminology and definitions specified in the JORC Code (2012).

ABH has assessed that there are reasonable prospects for economic extraction based on several factors: results from metallurgical testwork, a lithium carbonate equivalent (LCE) price of USD 17,200 per tonne, and conceptual operating efficiencies and cost estimates derived from similar projects. The Mineral Resource was reported using a pit optimization and cut-off grade analysis.

It is important to note that Mineral Resources are not Mineral Reserves, and there is no certainty that further exploration and analysis will convert these Mineral Resources into Mineral Reserves. Additionally, there is no assurance that Inferred Mineral Resources will be upgraded to higher confidence categories with additional work.

Table 14-9: Mineral Resource Statement for Basin East, Basin East Extension and Basin North effective 2nd July 2024.

Classification	Domain	Tonnes	Mean Grade	Contained Metal
		Mt	Li (ppm)	LCE (kt)
Measured	Upper Clay	13	720	48
	Upper Clay HG	7	1,316	49
	Lower Clay	1	687	2
	SubTotal	**20**	**929**	**99**
Indicated	Upper Clay	90	794	382
	Upper Clay HG	18	1,302	126
	Lower Clay	14	713	52
	SubTotal	**122**	**860**	**560**
Inferred	Upper Clay	316	741	1,246
	Upper Clay HG	90	1,154	555
	Lower Clay	92	709	348
	SubTotal	**499**	**810**	**2,150**

- *Mineral Resource statement has an effective date of 2nd July 2024.*
- *The Mineral Resource is reported using a cut-off grade of 550 ppm Li and is constrained to an optimized open pit shell, which was generated using the following assumptions: lithium carbonate metal prices of 17,200 USD/tLCE; State of Arizona royalty (selling cost) of 6%; operating costs of 35 USD/ tore; Li recovery of 72%; mining dilution and recovery of 0% and 100%; and pit slope angle of 45°.*
- *Tonnages are reported in metric units.*
- *Rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade and contained metal content which are not considered material.*
- *Conversion factor of Li metal to lithium carbonate equivalent (LCE) = 5.323*
- *The figures above are reported on a gross basis given Bradda's 100% interest in the property*

14.14 Sensitivity Analysis

Grade-tonnage curves were generated for the Basin resource to illustrate the sensitivity of the Mineral Resource to various lithium cut-off values (Figure 14-14,Figure 14-15, and Figure 14-16). The Indicated Mineral Resource shows significant sensitivity at cut-off grades ranging from 650 to 800 ppm, while the Inferred Mineral Resource exhibits notable sensitivity at cut-off grades from 700 to 850 ppm. The sensitivity of contained lithium carbonate equivalent (LCE) to the selected lithium cut-off grades is detailed in Table 14-10.

Table 14-10: Grade-Tonnage Sensitivity to Cut-Off Grade*

Li cut-off grade (ppm)	Measured			Indicated			Inferred		
	Tonnage above cut-off	Average grade above cut-off	Contained metal above cut-off	Tonnage above cut-off	Average grade above cut-off	Contained metal above cut-off	Tonnage above cut-off	Average grade above cut-off	Contained metal above cut-off
	Mt	Li (ppm)	LCE (kt)	Mt	Li (ppm)	LCE (kt)	Mt	Li (ppm)	LCE (kt)
450	21	916	101	127	847	573	532	791	2,238
550	**20**	**929**	**99**	**122**	**860**	**559**	**499**	**810**	**2,150**
650	17	992	88	112	884	526	430	842	1,926
750	11	1,130	69	84	944	420	264	929	1,306
850	8	1,248	56	44	1,071	253	123	1,085	710
1000	7	1,319	49	20	1,282	136	79	1,182	499

**This table does not constitute a Mineral Resource, as defined by the JORC Code, but is an expression of the sensitivity of the average grade and contained tonnage of LCE to a selection of different Li cut-off grades*

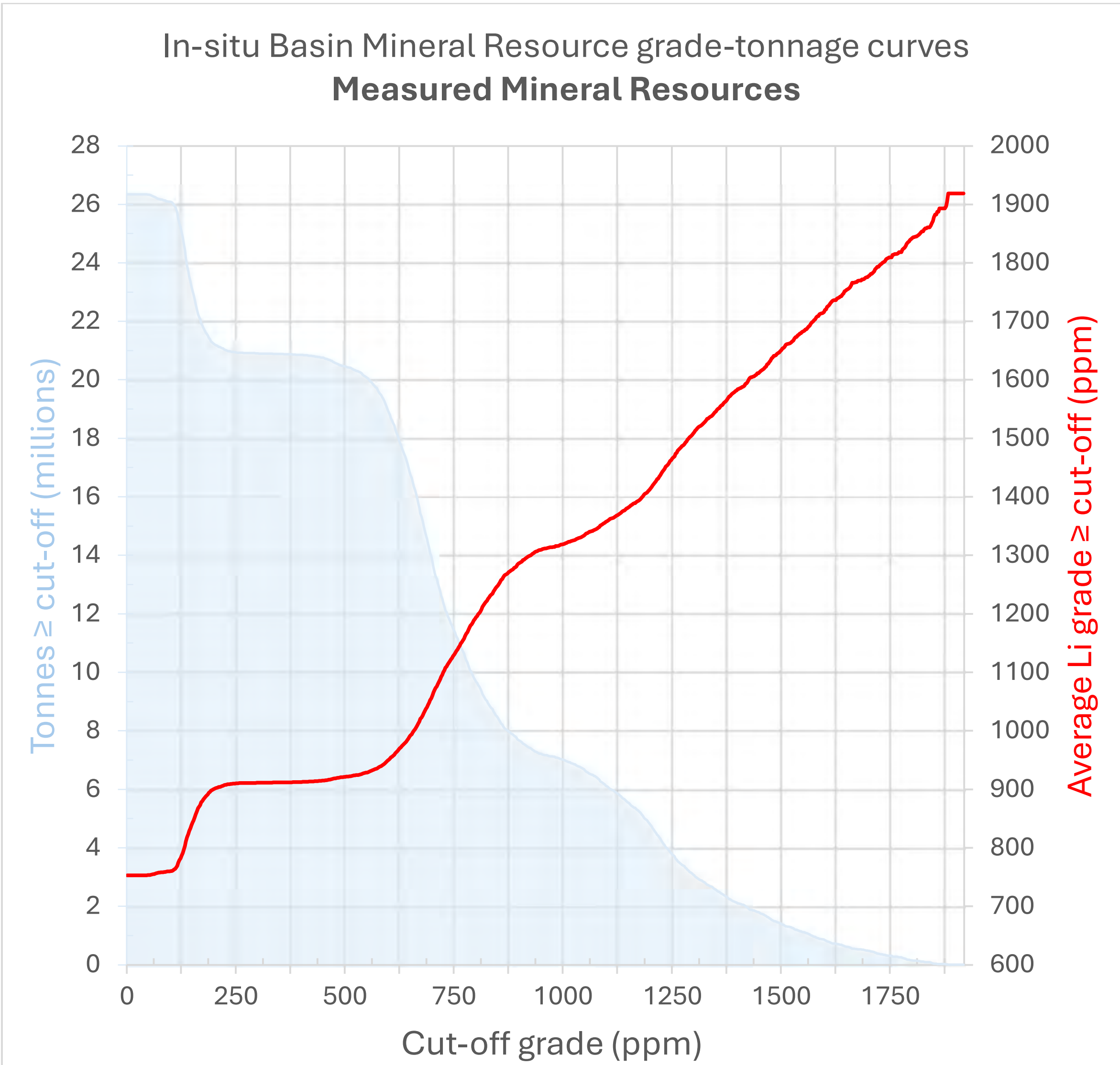


Figure 14-14: Basin Measured Mineral Resources Grade-Tonnage Curves

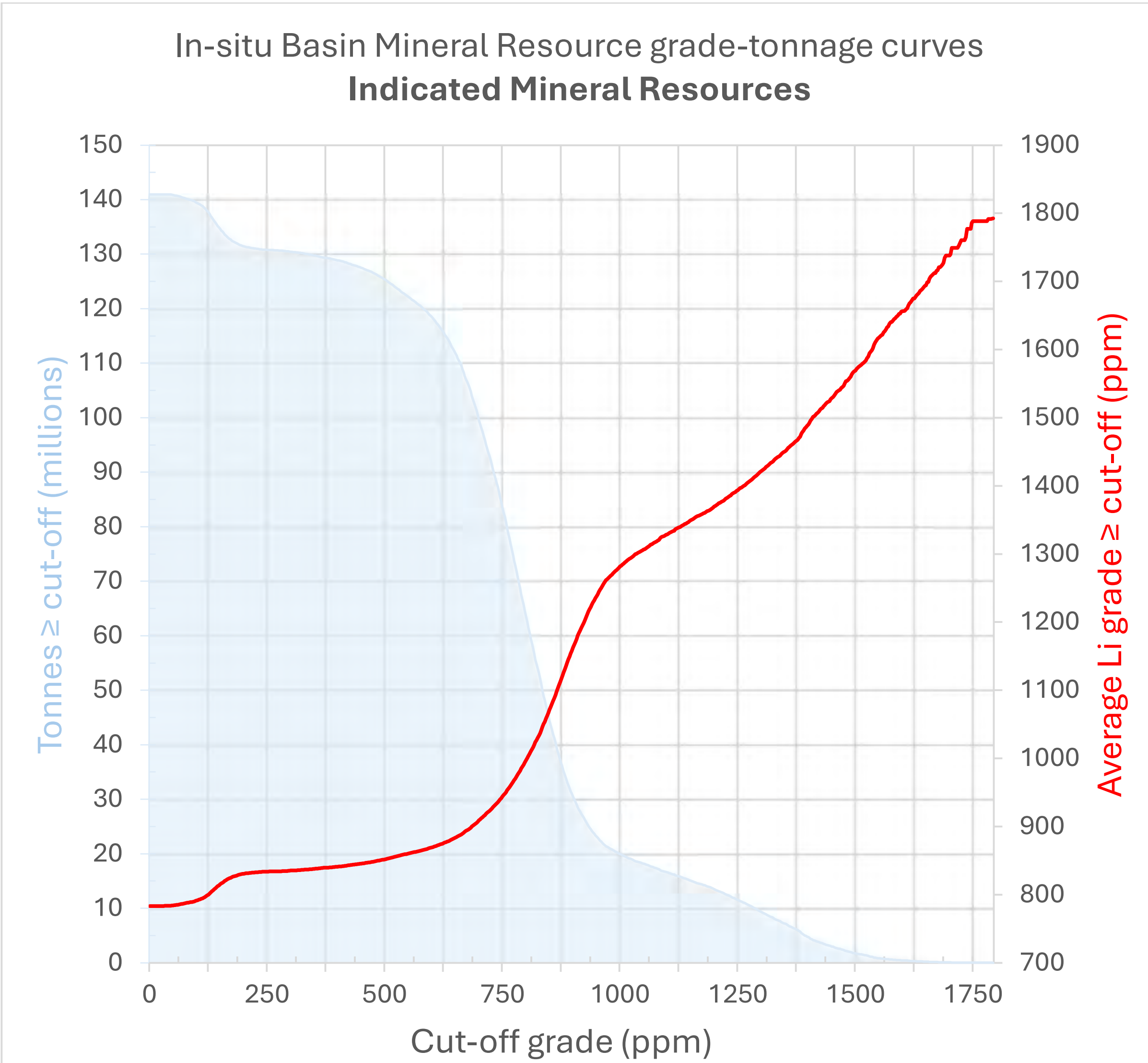


Figure 14-15: Basin Indicated Mineral Resources Grade-Tonnage Curves

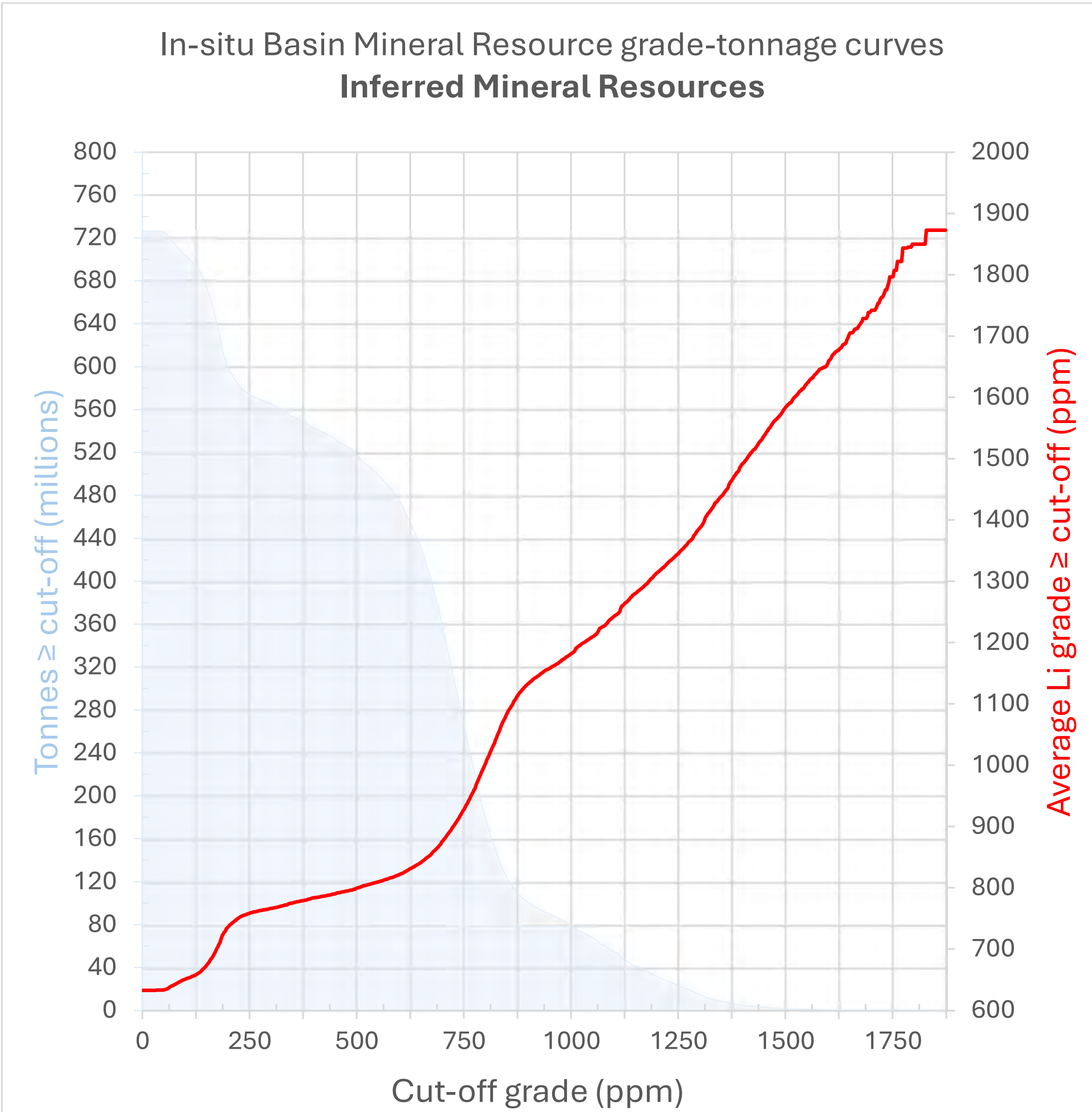


Figure 14-16: Basin Inferred Mineral Resource Grade-Tonnage Curves

14.15 Comparison with Previous Estimate

The previous Mineral Resource statement for Basin was effective as of September 1, 2023, based on a Mineral Resource model produced by SRK during Q3 of 2023. A comparison of that Mineral Resource statement with the current Mineral Resource statement, produced during Q3 of 2024, is provided in Table 14-13.

The Q3 2024 Mineral Resource shows nearly double the Inferred tonnage compared to the Q4 2022 Mineral Resource. This increase is attributed to the significant expansion of wide-spaced drilling coverage to the northwest of Burro Creek in the Basin East Extension license area. This drilling indicated, with low confidence, that mineralization, including the high-grade subdomain, is continuous and only shallowly buried in this area.

The Indicated contained lithium carbonate equivalent (LCE) has increased by approximately 15%. This increase is consistent with the revised dry density determination, leading to improved tonnage estimation. Additionally, the increase is due to the new classification in the western part of Burro Creek, where there is good drilling density within half the calculated variogram range for that area.

Measured blocks were also reported due to the high amount of drilling and the quality of the information presented in the eastern part of the western block, which meets the distance requirements of one-fourth the defined variogram range.

The average lithium grade for Inferred Resources has decreased by up to 10%, from 900 ppm to 810 ppm. This reduction is partly due to the addition of significant Lower Clay tonnage as a result of the 2024 drilling, as this unit generally has a lower grade than the Upper Clay.

Table 14-11: Mineral Resource Estimate Comparison

Model	Reporting Pit (price assumption)	Cut-off Grade (ppm)	Classification	Tonnes (Mt)	Li (ppm)	LCE (kt)
SRK (2022 Q4)	18,000 USD/t_{LCE}	300	Measured	-	-	-
			Indicated	21	891	100
			Inferred	73	694	271
SRK (2023 Q4)	22,000 USD/t_{LCE}	550	Measured	-	-	-
			Indicated	17	940	85
			Inferred	210	900	1,000
ABH Engineering (2024 Q4)	17,200 USD/t_{LCE}	550	Measured	20	929	99
			Indicated	122	860	560
			Inferred	499	810	2,150

**Rounding may result in apparent summation differences between tonnes, grade and contained metal content*

15. MINERAL RESERVE ESTIMATE

This section is not applicable at the current stage of the project.

16. MINING METHODS

This section is not applicable at the current stage of the project.

17. RECOVERY METHODS

This section is not applicable at the current stage of the project.

18. PROJECT INFRASTRUCTURE

This section is not applicable at the current stage of the project.

19. MARKET STUDIES AND CONTRACTS

This section is not applicable at the current stage of the project.

20. ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

20.1 Environmental and Social Management

Before commencing fieldwork, the GFOP (Section 4.3.4) mandates the consideration of environmental and cultural management. During the last drilling campaign, the positions of drill pads and access routes were modified based on environmental and cultural mapping.

The company has used a combination of reverse circulation (RC), diamond and sonic drilling. Sonic drilling does not require any water for the drilling process. Diamond and RC drilling does require water for the drilling process and the company trucks it into site when necessary, in order to minimize the environmental impact.

The company does not currently have an Environmental Management System (EMS) or health and safety code in place currently.

20.2 Environmental Studies

The company has not carried out an ESIA or an EIS study thus far. It will be required by the US EPA and Arizona State authorities.

During the MEP and ML application processes, a brief study was carried out, which included identifying the whereabouts of native plant species. An archaeological study was also conducted as part of the processes.

A comprehensive Baseline Water Resources study was published by Lynker Corporation for Zenolith in July, 2023 to examine the viability of developing the Basin project. The purpose of the study was to document baseline water resources and water quality. The study was to support a preliminary environmental review process and a future Pre-Environmental Assessment. Three sections are contained in the report that provide data, analysis, and results to prepare for future exploration and mining. Possible impacts on surrounding communities and nearby resources are also considered. The three sections that make up the report are as follows:

- Regional Geology and Climate
- Groundwater Resources
- Surface Water Resources

20.2.1 Regional Geology and Climate

The regional geology of the Basin Lithium Project can be found in section 7 of this report and was summarized in the Lynker study. The average weather for the project area can be found in section 4 of this report.

The numerous faults and fractures, located in the project area have been found in previous studies of the Bagdad Mine to be permeable pathways for groundwater. Some water-bearing zones occur in volcanic, granitic, and metamorphic and consolidated sedimentary rocks in the uplands; however, valley-bottom unconsolidated sedimentary basin-fill deposits are water-saturated and host the principal aquifer.

Climate patterns were taken from weather stations in the vicinity and are shown in Figure 20-1. Precipitation and potential evapotranspiration data were collected from climate records dating back to 2002 from Goodwin Mesa and Moss Basin weather stations. The daily records were averaged from January 2002 to March 2023 to develop key climate parameters for the purpose of the study.

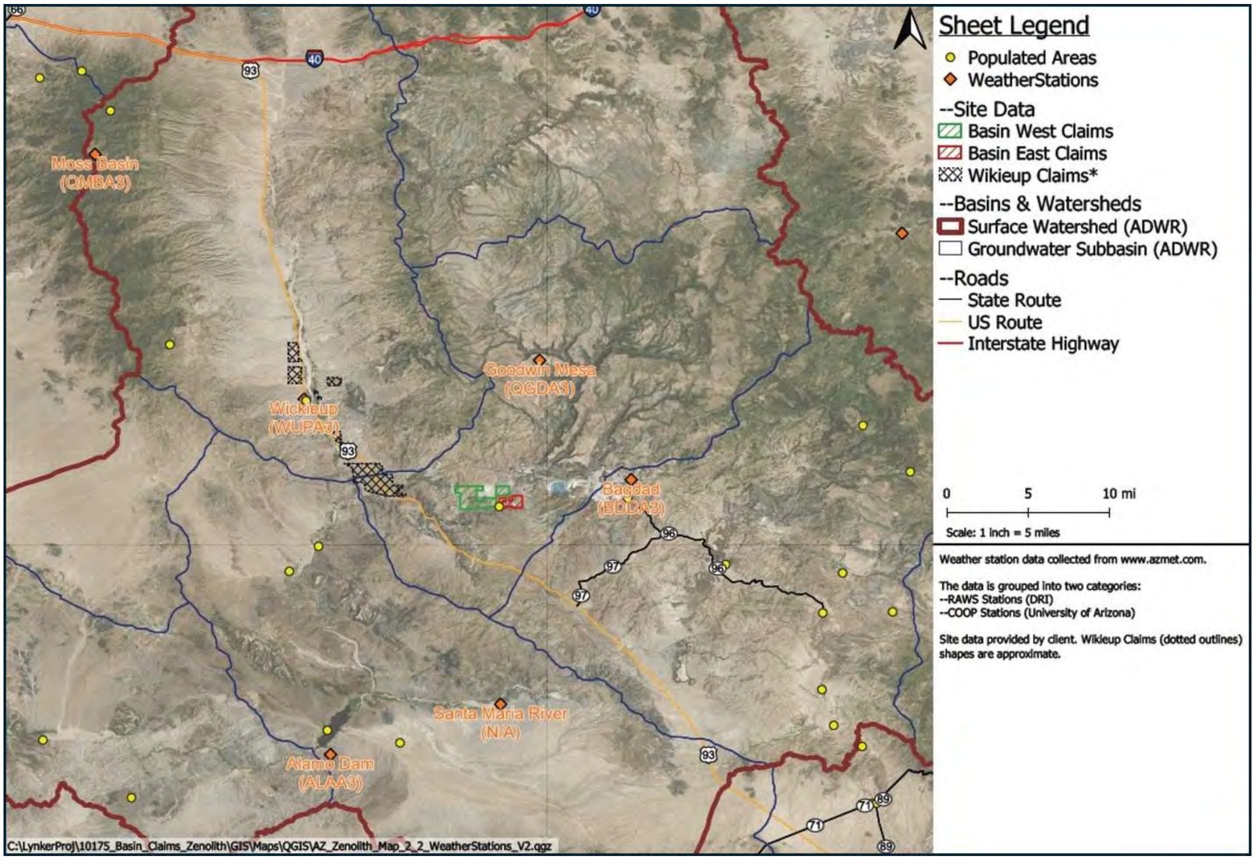


Figure 20-1: Weather Stations in the Vicinity of the Project Area. The Red and Green Outline are the Basin East and West Claims Respectively.

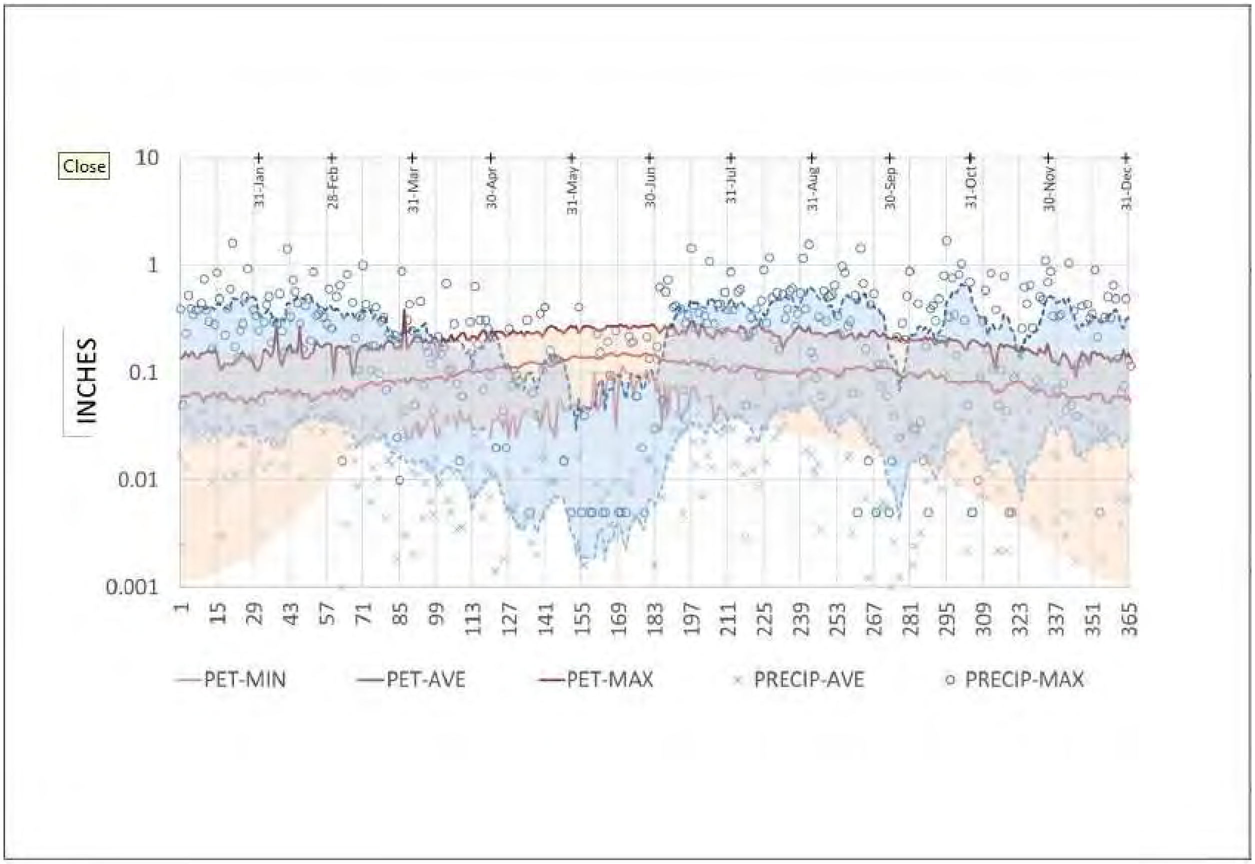


Figure 20-2: PET and Precipitation Average and Maximum Readings

These analyses are important for two primary reasons:

- Water Budget Assessment: Precipitation and PET are critical for evaluating the inflow and outflow of water at the project site. Future water budget analyses, which form the basis for mine water management, will depend on the climatic data assessed here. Simplifying these datasets or using coarse resolutions (e.g., annual vs. daily) can reduce the effectiveness of water budgets for meaningful surface and groundwater assessments.
- Vegetation Management: PET can be influenced by managing vegetation, particularly around surface water courses. Transpiration (the removal of meteoric water from the subsurface by vegetation) constitutes a significant portion of the water outflow in the study area. Therefore, removing invasive species and improving vegetation management can enhance groundwater recharge. Conversely, promoting vegetative growth at the boundaries of the ordinary high-water mark (OHWM) and planned mining activities can decrease the volume of dewatering needed for mining operations.

During the current study, the authors had also determined the ordinary high-water mark (OHWM) along the streams of the property. The OHWM is a boundary line along the shorelines of rivers, streams, and lakes. It represents the average highest point where the water reaches over time under normal conditions. This mark is significant for legal and regulatory purposes, as it delineates where federal and state jurisdiction begins and ends concerning water and land use rights, environmental protections, and development regulations.

The OHWM is essential for determining the lateral boundaries of U.S. Army Corps of Engineers (USACE) jurisdiction in non-tidal streams. Similarly, the determination of bankfull stage (BFS), which assesses stream condition, is crucial for evaluating permit requirements and understanding interactions between surface water and groundwater.

The determination of the Ordinary High Water Mark (OHWM) depends solely on physical characteristics of streams and involves mapping and surveying. Initially, aerial photography was utilized to estimate the OHWM boundary along the banks of Burro Creek and surrounding water features like washes. Figure 20-3 illustrates these estimated areas prone to inundation. These inundation zones play a critical role in establishing water budgets necessary for future mining permits. They are focal points for surface water runoff concentration and groundwater recharge. Comprehensive understanding of the factors contributing to inundation is essential for developing prudent and secure water management strategies for mining operations.

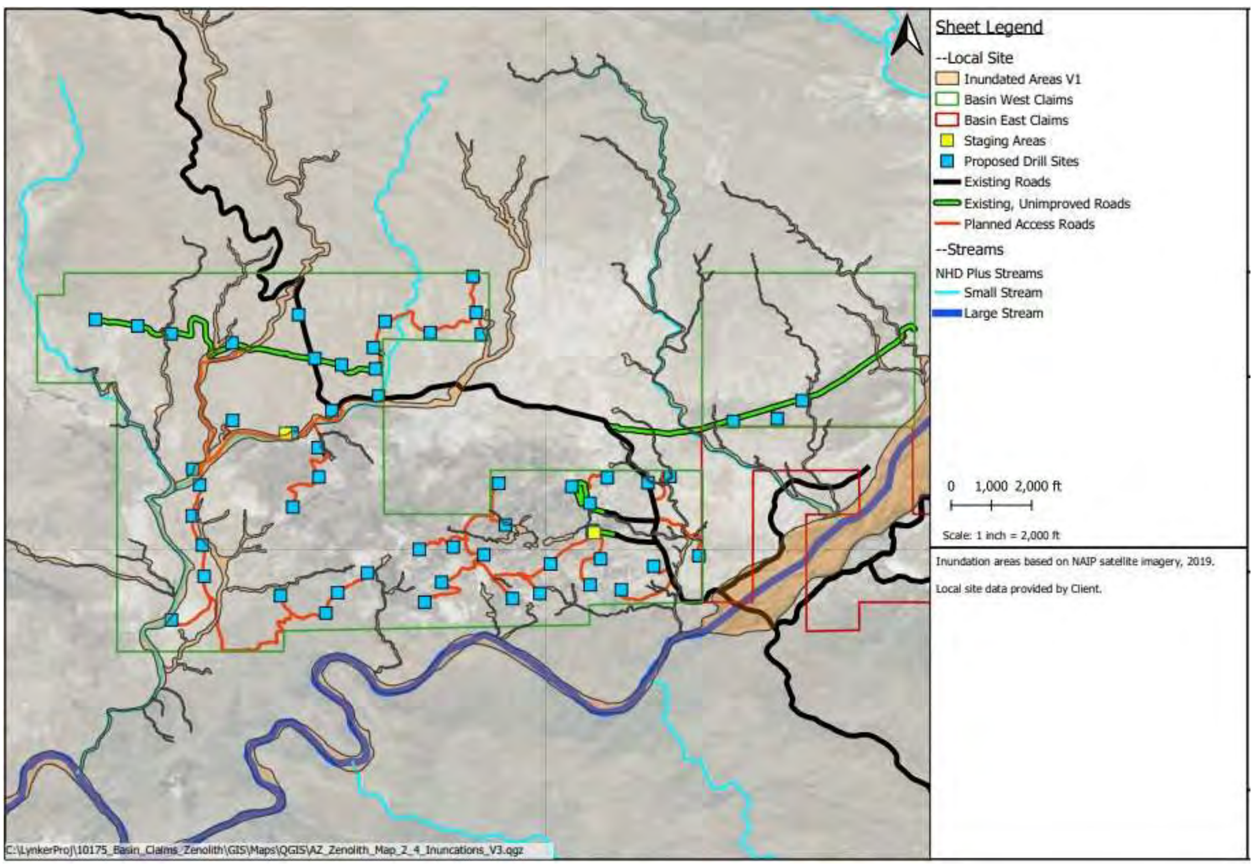


Figure 20-3: Proposed Drilling Area for Determination of Waterwell

20.2.2 Groundwater Resources

The Burro Creek Groundwater Basin (BCGB) is situated within the larger Bill Williams which covers approximately 8,288 km^2 (3,200 mi^2) within the Yavapai, Mohave, and La Paz Counties in west central Arizona. The basin is lightly populated and includes several small communities.

Groundwater within the basin is a primary source for irrigation, mining, domestic and stock water supply. Much of the basin is rugged, inaccessible and consists of some rangeland for low-intensity livestock grazing.

Most of the water that is used at the Bagdad mine is imported from Big Sandy Basin.

20.2.2.1BCGB Aquifer Characteristics

Groundwater exists in three geological formations:

- Basin-fill deposits
- Terrace and channel deposits
- Crystalline and volcanic rocks

Most of the aquifers are hosted by crystalline and volcanic rocks (schist, gneiss, and granite). In areas where these rocks are abundant, these bedrocks may produce sufficient water to support low-yield domestic or stock uses. Perennial and ephemeral springs sometimes flow from these rocks, also with a low yield.

The basin-fill deposit aquifers are composed of boulder to pebble-sized conglomerates and interbedded, coarse to fine-grained sandstone, siltstone, mudstone, and occasionally rhyolitic and basaltic tuffs.

Generally, groundwater moves in the same direction as surficial water - from the mountainous areas of the basin, downstream to where Burro Creek exits the basin. Most of the recharge is generated through infiltration of stream flow and precipitation along mountain fronts.

20.2.2.2Conceptual Hydrogeology of the Basin Claim Deposit Area

Natural groundwater recharge in the study area primarily originates from precipitation in the higher elevations of the basins. Additionally, there is a small amount of recharge from groundwater flowing from the upstream Peach Springs Basin and from the infiltration of ephemeral surface water. Precipitation is more abundant at higher elevations due to orographic processes and cooler average temperatures, which reduce evapotranspiration rates. This occasionally results in surplus precipitation that can directly recharge aquifers or contribute to runoff.

However, the limited precipitation that falls directly onto the valley floors does not typically recharge the aquifers due to high rates of evapotranspiration from the land surface and the unsaturated zone.

The faults and fractures within the area may recharge the groundwater directly by infiltrating faults and fractures or through permeable rocks from the mountainous regions. Toward the low-elevation alluvial basins. Water that does not infiltrate the ground becomes runoff and is directed to ephemeral stream channels. Some of this groundwater will enter the streambeds and becomes the recharge for basin-fill aquifers. This process is illustrated by Figure 20-4 below.

In the alluvial basins of the study area, groundwater moves through permeable sediments from regions of high hydraulic head toward discharge areas, primarily along Burro Creek. Current groundwater flow patterns likely resemble those established before human impact, with the exception of the depression zone surrounding the Bagdad Mine.

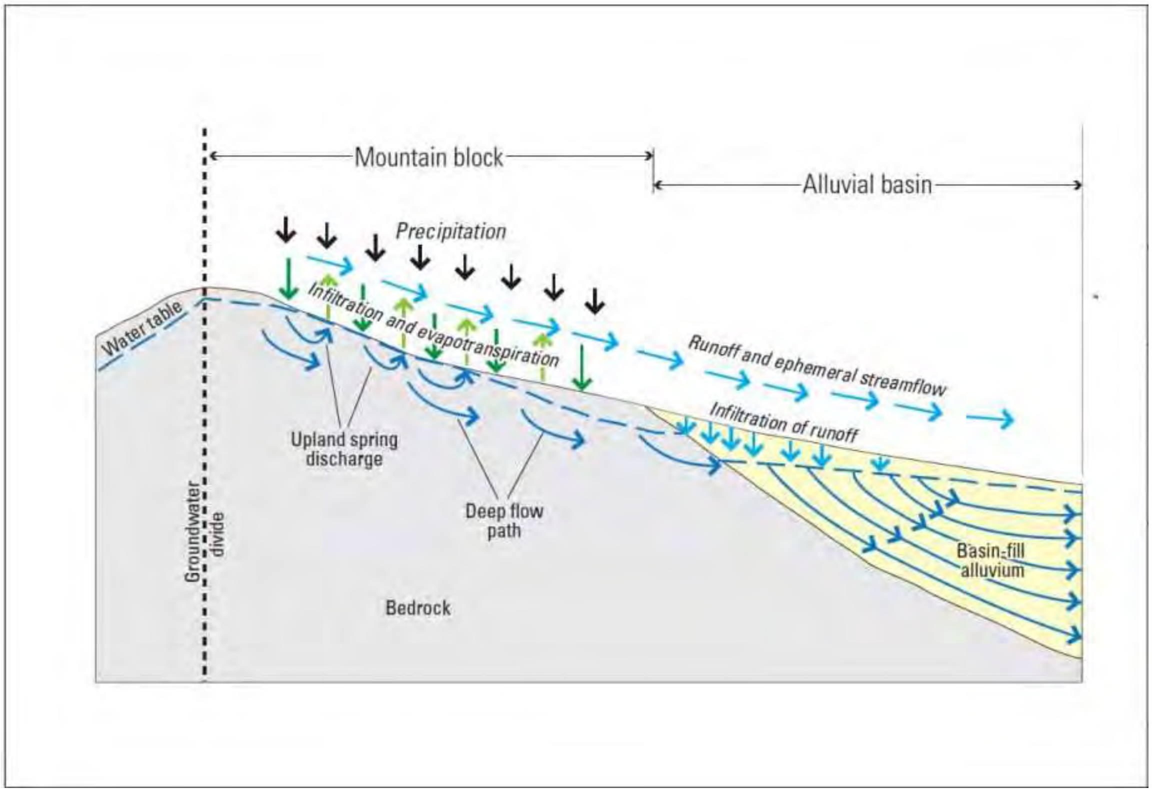


Figure 20-4: Illustration of Surface Runoff and Groundwater Infiltration. Water Moves from the Higher Mountainous Regions Towards the Low Lying Basin

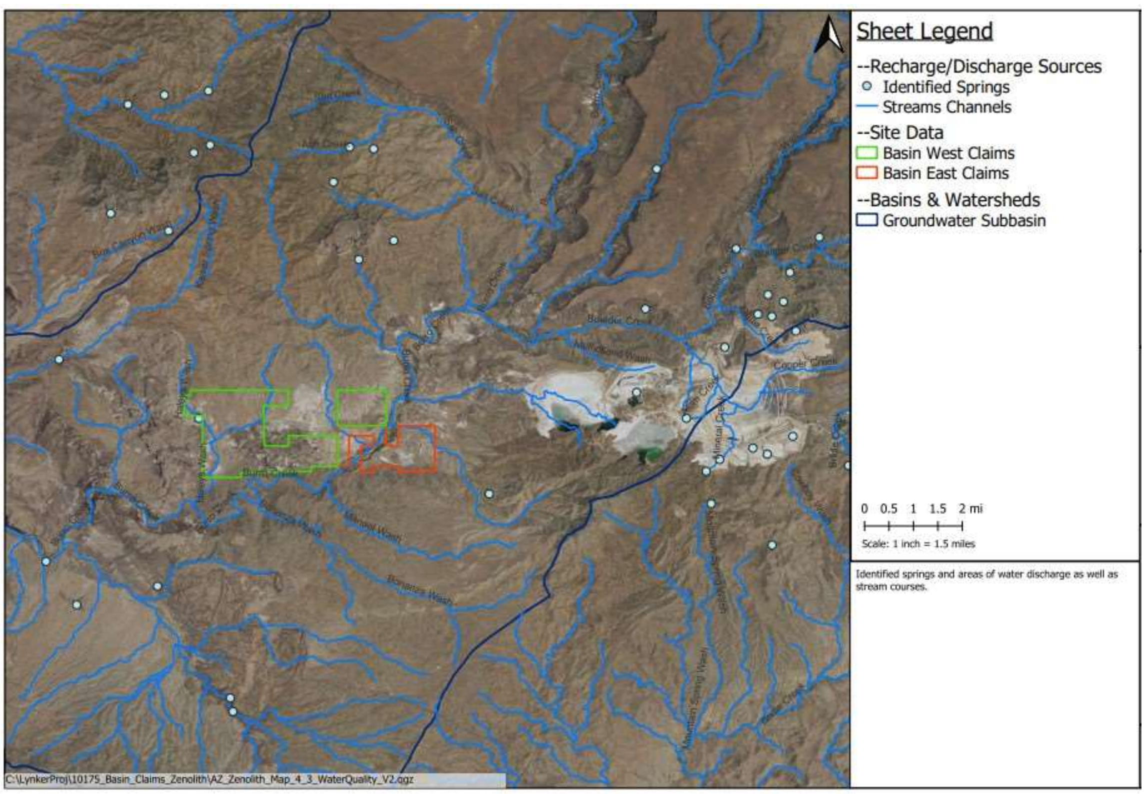


Figure 20-5: Springs and Surface Water Channels

A study was conducted using satellite data to estimate basin-scale groundwater discharge by vegetation suggested that phreatic evapotranspiration occurs along washes at the project including Burro Creek, however, the amount is considered negligible. The vegetation draws groundwater through bank storage and soil moisture.

Based on estimates from the numerical model developed for Bagdad Mine indicates that groundwater management in the Basin area is likely.

20.2.2.3 Groundwater Quality

Groundwater quality samples were difficult to obtain due to the remote and sparsely populated region. There were limited opportunities to collect water for groundwater for testing from wells and springs.

The 2003-2009 Arizona Department of Environmental Quality (ADEQ) Bill Williams Basin Baseline Groundwater Quality Report be regarded as the most complete and comprehensive water quality analysis. The results, however, are likely biased due to the clustering of samples around Bagdad Mine and due to the complexity and remoteness of the area.

Table 20-1: Groundwater Geochemistry Statistics and BTV Estimates

ANALYTE	N	# DETECTS	UNITS	MIN	MEAN	MAX	BTV	BTV METHOD
TEMPERATURE	9	9	CELCIUS	2.26E+01	2.31E+01	2.39E+01	2.40E+01	95% USL
pH	15	15	-	7.20E+00	-8.63E+00	8.30E+00	7.18E+00	95% USL
SPECIFIC CONDUCTANCE	15	15	micoS/cm	4.50E+02	1.31E+03	3.40E+03	4.10E+03	95% WH USL
TOTAL DISSOLVED SOLIDS	9	9	mg/L	2.80E+02	1.12E+03	2.80E+03	3.65E+03	95% WH USL
TOTAL SUSPENDED SOLIDS	12	3	mg/L	6.00E+00	8.00E+00	9.00E+00	1.31E+01	95% USL
TURBIDITY	15	15	NTU	2.00E-02	5.93E+00	3.40E+01	4.38E+01	95% WH USL
HARDNESS, TOTAL	15	15	mg/L	5.00E+01	5.02E+02	1.70E+03	2.82E+03	95% USL
BICARBONATE	15	0	mg/L	N/A	N/A	N/A	N/A	INSUFFICIENT DETECTS
CARBONATE	15	0	mg/L	N/A	N/A	N/A	N/A	INSUFFICIENT DETECTS

Table 20-2: Dissolved Metals in Groundwater and BTV Estimates

ANALYTE	N	# DETECTS	UNITS	MIN	MEAN	MAX	BTV	BTV METHOD
ALUMINUM	7	0	mg/L	N/A	N/A	N/A	N/A	INSUFFICIENT DETECTS
ANTIMONY	15	0	mg/L	N/A	N/A	N/A	N/A	INSUFFICIENT DETECTS
ARSENIC	15	4	mg/L	7.70E-03	3.86E-02	1.20E-01	6.94E-02	95% Gamma USL
BARIUM	15	4	mg/L	5.10E-02	1.46E-01	3.30E-01	2.29E-01	95% Gamma USL
BERYLLIUM	15	0	mg/L	N/A	N/A	N/A	N/A	INSUFFICIENT DETECTS
BORON	15	8	mg/L	1.10E-01	3.04E-01	1.00E+00	7.36E-01	95% KM USL (Lognormal)
CADMIUM	15	0	mg/L	N/A	N/A	N/A	N/A	INSUFFICIENT DETECTS
CHROMIUM	15	0	mg/L	N/A	N/A	N/A	N/A	INSUFFICIENT DETECTS
COPPER	15	2	mg/L	2.60E-02	3.15E-02	3.70E-02	3.70E-02	95% USL
IRON	15	3	mg/L	1.50E-01	4.20E-01	8.90E-01	4.90E-01	95% KM USL (Lognormal)
LEAD	15	0	mg/L	N/A	N/A	N/A	N/A	INSUFFICIENT DETECTS
MAGNESIUM	9	9	mg/L	1.10E+00	5.79E+01	1.80E+02	2.74E+02	95% WH USL
MANGANESE	15	2	mg/L	8.40E-02	8.95E-02	9.50E-02	1.16E-01	95% KM Chebyshev UPL
MERCURY	15	0	mg/L	N/A	N/A	N/A	N/A	INSUFFICIENT DETECTS
NICKEL	15	0	mg/L	N/A	N/A	N/A	N/A	INSUFFICIENT DETECTS
SELENIUM	15	1	mg/L	8.20E-03	8.20E-03	8.20E-03	N/A	INSUFFICIENT DETECTS
SILVER	15	0	mg/L	N/A	N/A	N/A	N/A	INSUFFICIENT DETECTS
SODIUM	9	9	mg/L	2.10E+01	1.15E+02	2.50E+02	3.89E+02	95% WH USL
THALLIUM	3	3	mg/L	1.80E-01	8.47E-01	1.80E+00	1.80E+00	95% USL
ZINC	15	10	mg/L	7.30E-02	7.05E-01	3.50E+00	3.25E+00	95% Gamma USL

Table 20-3: Major Total Ions in Groundwater

ANALYTE	N	# DETECTS	UNITS	MIN	MEAN	MAX	BTV	BTV METHOD
CALCIUM	6	6	mg/L	5.30E+01	9.07E+01	1.10E+02	1.43E+02	95% WH USL
MAGNESIUM	6	6	mg/L	1.50E+01	2.55E+01	4.10E+01	4.87E+01	95% WH USL
PHOSPHORUS	13	4	mg/L	6.00E-03	1.68E-02	3.90E-02	4.00E-02	95% Gamma USL
POTASSIUM	6	6	mg/L	1.40E+00	3.53E+00	6.40E+00	7.20E+00	95% WH USL
SODIUM	6	6	mg/L	1.60E+01	9.18E+01	2.70E+02	3.14E+02	95% WH USL
CHLORIDE	15	15	mg/L	1.70E+01	1.30E+02	3.40E+02	5.70E+02	95% WH USL
FLUORIDE	15	15	mg/L	4.50E-01	2.33E+00	8.80E+00	8.26E+00	95% WH USL
NITRATE + NITRITE	4	4	mg/L	1.50E-01	2.44E+00	4.39E+00	1.37E+01	95% USL
AMMONIA-NITROGEN	9	6	mg/L	8.90E-01	2.00E+00	3.80E+00	8.22E+00	95% Gamma USL
TOTAL KJELDAHL NITROGEN	13	5	mg/L	3.00E-02	5.12E-02	7.90E-02	2.38E-01	95% Gamma USL
SULFATE	15	15	mg/L	1.00E+01	2.90E+02	1.40E+03	1.40E+03	95% USL

According to ADEQ's baseline report, the overall groundwater quality of the BCGB is considered fair to good, as half of the samples met all health and aesthetics-based water quality standards. Out of the samples collected, 49% exceeded aesthetics-based standards, while 28% exceeded health-based standards.

Gross alpha commonly exceeded health-based standards at 29% where nucleotides samples were taken. Uranium and radium also exceeded their health-based standards at 24% and 7% respectively.

The inorganic constituents most frequently exceeding water quality standards were arsenic (found in 10% of the samples), fluoride (4%), and nitrate (3%). The highest arsenic levels were detected in samples from Kaiser Warm Spring in Burro Creek, measuring 0.12 mg/L. Arsenic concentrations are influenced by factors like aquifer residence time, the presence of an oxidizing environment, and geological composition (e.g., volcanic materials). Additionally, reactions that affect arsenic levels also impact fluoride concentrations, such as interactions with clays or hydroxyl ions.

Fluoride concentrations above 5 mg/L are regulated by calcium through the precipitation or dissolution of fluorite. In a closed hydrologic system, calcium is removed from the solution due to calcium carbonate precipitation and the formation of smectite clays. High levels of dissolved fluoride can occur in calcium-depleted groundwater if there is a source of fluoride ions available.

Of the three instances of nitrate exceedances, two recorded levels of 110 mg/L at shallow wells in the Bagdad area. Elevated nitrate concentrations are likely due to effluent from septic systems and waste from livestock corrals near water sources. Similar sources have been shown to affect nitrate levels in isolated wells in other groundwater basins.

20.2.2.4 Primary Users of Groundwater

Historically, groundwater in the basin has primarily been used for irrigated agriculture in the Big Sandy Valley. Since the early 1970s, however, most of the pumped groundwater has been transported by pipeline to the Bagdad Mine. Approximately 2,000 acre-feet of groundwater are extracted annually, with 95 percent of this water utilized at the mine. The basin has a low population density, with Wikieup being the largest community. Recent residential development includes scattered homes in the northern part of the basin, which consists mainly of a mix of private and State Trust lands. Many ranches have sold off most of their private land for development while continuing to graze on adjacent State Trust lands. Although livestock grazing is the predominant land use in the basin, it uses relatively little groundwater.

20.2.3 Surface Water Resources

The Bill Williams River Watershed (Figure 1.1) spans about 5,373 square miles in west-central Arizona. The main Bill Williams River is approximately 50 miles long. The watershed contains three major rivers: the Bill Williams River, the Big Sandy River, and the Santa Maria River, with the latter two forming the headwaters of the Bill Williams River at Alamo Lake. The Big Sandy River drainage features over 100 miles of both perennial and ephemeral streams flowing from the north, and the Burro Creek Sub-Watershed joins the Big Sandy roughly 17 miles upstream from Alamo Lake.

The Burro Creek sub-watershed covers about 712 square miles and drains southwest into the Big Sandy River. It features interrupted perennial flow in the upper reaches near the confluence with Conger Creek, becomes perennial near Francis Creek, and is intermittent or ephemeral in the upper and middle reaches near Boulder Creek. After a 7-mile perennial segment, it has a short intermittent or ephemeral stretch before joining the Big Sandy River.

20.2.3.1Burro Creek Hydrology

Burro Creek is 98.5 km (61.2 mi) and is a tributary of the Big Sandy River, which, along with the Santa Maria River, feeds into the Bill Williams River. As the main tributary to the Big Sandy River, Burro Creek drains a watershed of 687 square miles and often contributes more water to the joint river than the Big Sandy itself, depending on rainfall patterns. It originates on the western slope of Ferguson Ridge, located between the Mohan and Santa Maria Mountains, within the Luis Maria Baca Float No. 5 land grant in Yavapai County. Burro Creek flows southwest, south of the Aquarius Mountains through Bozarth Mesa. It crosses over Highway 93 after flowing into Mohave County. It turns in a western direction and flows into the Big Sandy River.

Burro Creek flows through narrow, steep-walled canyons for most of its length, restricting it to a single channel with minimal lateral migration. The alluvial sections that do occur are narrower and more limited in extent compared to rivers in plains or valleys. In many areas, bedrock is close to the surface. Near its confluence with the Big Sandy River, the canyons widen into a larger basin, featuring more alluvial deposits than found upstream.

Burro Creek is considered a perennial stream, typically flowing year-round; however, some sections can dry up during droughts. Even in the driest periods, a series of discontinuous pools of standing water can be found along its bed. Perennial tributaries include Francis Creek, Boulder Creek, and Pine Creek. Several ephemeral washes and creeks, such as Conger Creek, Wilder Creek, and Black Canyon, also flow into Burro Creek. The climate within the Burro Creek watershed varies significantly with elevation, with annual precipitation ranging from 15 to 20 inches in the mountainous areas, decreasing to 5 to 6 inches near the Basin claim areas.

20.2.3.2Surface Water Quality

Surface water sampled in Burro Creek near the Basin Claim Deposit areas was consistently well-oxygenated with alkaline pH values, reflecting the stream's productive nature. Dissolved oxygen saturation varied seasonally, with late summer peaks similar to other sites along Burro and Francis Creeks, reaching 170%—the highest supersaturation recorded in the Bill Williams River watershed. Concurrently, pH levels reached 9.0 standard units, also the highest noted in the survey. This productivity is partially sustained by elevated nitrate-nitrogen levels in this section of the creek. During summer and early fall, the stream supports abundant periphytic algae and submerged macrophytes, including Myriophyllum, Potamogeton, and Marsilea, an aquatic fern. Consequently, the physicochemical characteristics of Burro Creek in this area are primarily influenced by photosynthetic processes. Figure 20-6 shows the locations of the surface water sampling sites considered in this report.

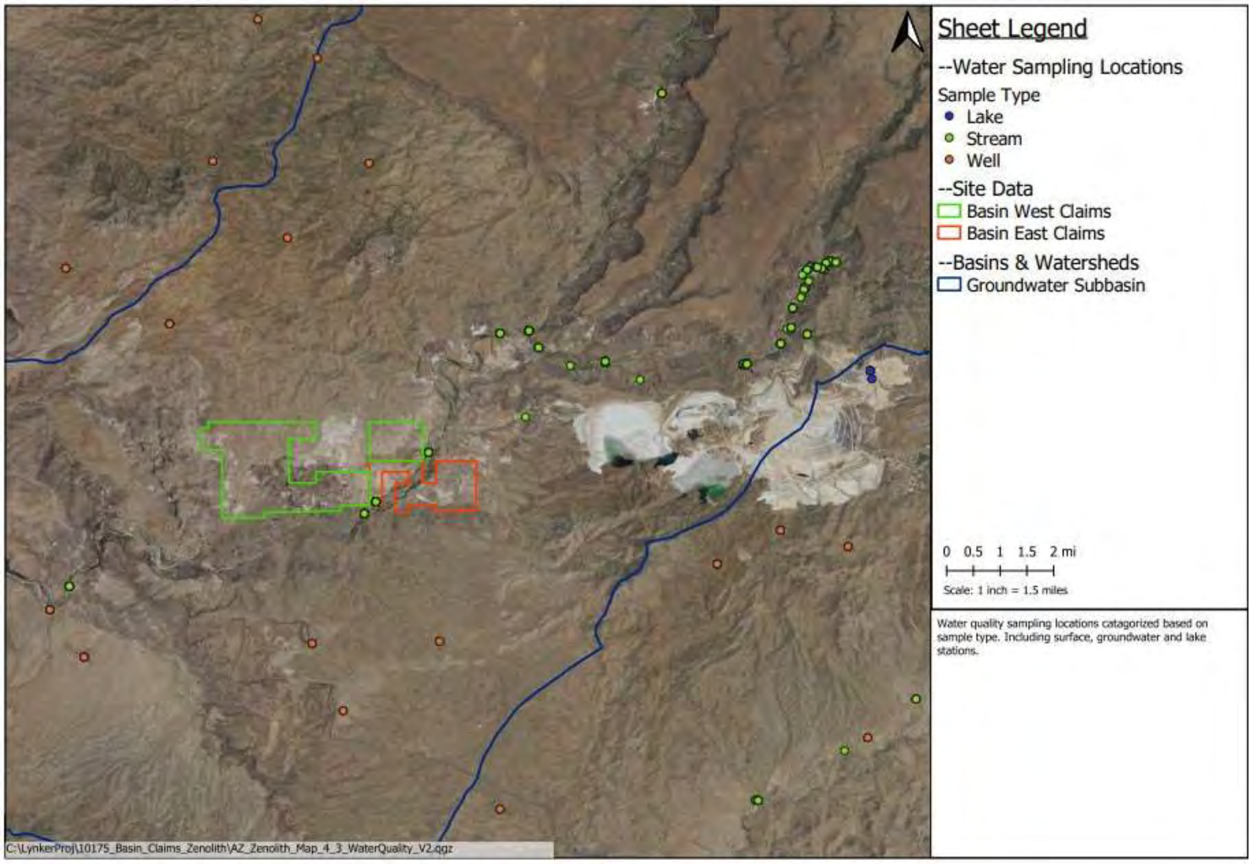


Figure 20-6: Surface Water Sampling Locations

Table 20-4: Surface Water Geochemistry Statistics and BTV Estimates

ANALYTE / PARAMETER	N	# DETECTS	UNITS	MIN	MEAN	MAX	BTV	BTV METHOD
TEMPERATURE	125	125	CELCIUS	4.12E+00	16.95E+01	2.65E+01	2.65E+01	95% USL
PH	184	184	-	9.73E+00	9.10E+00	5.64E+00	5.64E+00	95% USL
SPECIFIC CONDUCTANCE	148	148	micoS/cm	7.70E+00	6.08E+02	5.67E+03	5.67E+03	95% USL
OXIDATION REDUCTION POTENTIAL (ORP)	32	27	mV	1.10E+00	1.89E+02	4.92E+02	4.92E+02	95% USL
DISSOLVED OXYGEN (DO)	83	83	mg/L	3.50E+00	9.09E+00	1.68E+01	3.50E+00	95% USL
TOTAL DISSOLVED SOLIDS	100	100	mg/L	4.50E-01	3.45E+02	7.62E+02	7.62E+02	95% USL
TOTAL SUSPENDED SOLIDS	51	30	mg/L	9.35E-01	6.27E+02	1.24E+04	3.41E+03	95% Gamma USL
TURBIDITY	38	38	NTU	6.10E-01	1.58E+01	1.20E+02	1.20E+02	95% USL
ALKALINITY, TOTAL	100	100	mg/L	4.70E+01	2.53E+02	4.22E+02	3.68E+02	95% UPL (t)
CARBONATE	34	20	mg/L	3.10E+00	9.82E+00	2.40E+01	6.10E+01	95% Gamma USL
BICARBONATE	34	34	mg/L	7.40E+01	2.70E+02	4.80E+02	6.47E+02	95% WH USL
ORGANIC CARBON (DISSOLVED)	9	9	mg/L	3.40E+00	7.00E+00	1.17E+01	1.49E+01	95% WH USL
ORGANIC CARBON (TOTAL)	11	11	mg/L	3.40E+00	1.02E+01	2.25E+01	2.83E+01	95% WH USL

Table 20-5: Major Ions in Surface Water and BTV Estimates

ANALYTE	N	# DETECTS	UNITS	MIN	MEAN	MAX	BTV	BTV METHOD
CALCIUM (TOTAL)	69	69	mg/L	1.60E+01	4.60E+01	9.90E+01	1.26E+02	95% USL
SODIUM (TOTAL)	41	41	mg/L	2.00E+00	4.87E+01	9.10E+01	9.10E+01	95% USL
POTASSIUM (TOTAL)	41	41	mg/L	2.00E+00	6.14E+00	8.70E+00	8.70E+00	95% USL
PHOSPHORUS (TOTAL)	39	21	mg/L	2.40E-02	9.12E-02	2.20E-01	2.20E-01	95% USL
CHLORIDE (TOTAL)	41	40	mg/L	4.40E+00	2.84E+01	6.10E+01	6.10E+01	95% USL
FLUORIDE (TOTAL)	41	36	mg/L	2.30E-01	6.40E-01	1.10E+00	1.10E+00	95% USL
NITRATE (TOTAL)	4	3	mg/L	3.60E-02	5.03E-02	5.80E-02	5.80E-02	95% USL
NITRATE + NITRITE (TOTAL)	37	7	mg/L	3.20E-02	5.54E-02	1.20E-01	4.00E-01	95% USL
AMMONIA-NITROGEN (TOTAL)	40	3	mg/L	2.10E-02	1.10E-01	2.80E-01	1.00E+00	95% USL
TOTAL KJELDAHL NITROGEN (TOTAL)	41	35	mg/L	7.00E-02	5.92E-01	6.80E+00	6.80E+00	95% USL
NITRITE (TOTAL)	3	0	mg/L	N/A	N/A	N/A	N/A	INSUFFICIENT DETECTS
SULFATE (TOTAL)	78	70	mg/L	3.00E+00	4.39E+01	1.50E+02	1.50E+02	95% USL

ANALYTE	N	# DETECTS	UNITS	MIN	MEAN	MAX	BTV	BTV METHOD
SULFIDE (TOTAL)	22	7	mg/L	2.00E-02	3.00E-02	5.00E-02	5.00E-02	95% USL
FECAL COLIFORM (TOTAL)	18	14	CFUs/L	2.00E+00	2.56E+02	3.46E+03	3.46E+03	95% USL
FECAL STREPTOCOCCUS GROUP BACTERIA (TOTAL)	12	12	CFUs/L	8.00E+00	7.40E+01	4.00E+02	4.00E+02	95% USL
ESCHERICHIA COLI (TOTAL)	41	30	CFUs/L	1.00E+00	2.25E+01	2.81E+02	2.81E+02	95% USL
CHLOROPHYLL A, CORRECTED FOR PHEOPHYTIN (TOTAL)	2	2	CFUs/L	1.12E+00	1.68E+00	2.24E+00	2.24E+00	MAX

In the waters near the Basin Claim Deposit areas of Burro Creek, the dominant chemical composition included sodium and calcium cations, along with bicarbonate and sulfate anions. At the lowest points of Burro Creek, sulfate can be traced back to mining-related sources in the Boulder Creek watershed. During peak flows, fluoride levels either reached or exceeded recommended limits for drinking water, comparable to levels observed in Boulder Creek and likely originating from there.

Table 20-6: Dissolved Metals in Surface Water Statistics and BTC Estimates

ANALYTE	N	# DETECTS	UNITS	MIN	MEAN	MAX	BTV	BTV METHOD
ALUMINUM	0	0	µg/L	N/A	N/A	N/A	N/A	INSUFFICIENT N
ANTIMONY	34	0	µg/L	N/A	N/A	N/A	N/A	INSUFFICIENT DETECTS
ARSENIC	63	52	µg/L	4.00E-03	1.02E+01	2.80E+01	2.80E+01	95% USL
BARIUM	13	5	µg/L	1.40E-02	5.82E+00	2.90E+01	2.90E+01	95% USL
BERYLLIUM	58	0	µg/L	N/A	N/A	N/A	N/A	INSUFFICIENT DETECTS
BORON	7	5	µg/L	1.70E-01	2.12E-01	2.50E-01	2.50E-01	95% USL
CADMIUM	56	2	µg/L	6.00E+00	8.00E+00	1.00E+01	1.00E+01	MAX
CHROMIUM	79	1	µg/L	1.00E+01	1.00E+01	1.00E+01	1.00E+01	MAX
COBALT	5	3	µg/L	3.10E-04	1.77E-01	5.30E-01	5.30E-01	MAX
COPPER	63	7	µg/L	4.30E-04	3.85E-01	9.20E-01	9.20E-01	MAX
IRON	29	17	µg/L	2.00E+01	6.32E+02	1.02E+04	1.02E+04	95% USL
LEAD	38	0	µg/L	N/A	N/A	N/A	N/A	INSUFFICIENT DETECTS
MAGNESIUM	66	66	µg/L	3.80E+00	2.56E+01	4.90E+01	5.10E+01	95% USL
MANGANESE	35	23	µg/L	7.10E-03	3.20E+01	2.60E+02	2.33E+02	95% Gamma USL
MERCURY	115	67	µg/L	1.00E-01	2.18E+00	1.11E+01	1.11E+01	95% USL
MOLYBDENUM	5	5	µg/L	5.10E-03	1.29E+00	6.40E+00	6.40E+00	MAX
NICKEL	13	7	µg/L	5.50E-04	4.01E-01	1.60E+00	1.60E+00	MAX
SELENIUM	40	4	µg/L	1.00E-01	1.00E-01	1.00E-01	1.00E-01	MAX
SILVER	72	0	µg/L	N/A	N/A	N/A	N/A	INSUFFICIENT DETECTS
STRONTIUM	5	5	µg/L	4.20E-01	5.28E-01	7.10E-01	7.53E-01	95% HW USL
THALLIUM	13	1	µg/L	1.30E-01	1.30E-01	1.30E-01	1.30E-01	MAX
URANIUM	4	3	µg/L	6.00E-01	3.67E+00	5.20E+00	5.20E+00	MAX
VANADIUM	5	2	µg/L	2.80E-03	4.50E-03	6.20E-03	6.20E-03	MAX
ZINC	62	8	µg/L	5.60E-03	5.60E-03	3.00E+01	5.00E+01	95% USL

Table 20-7: Total Metals in Surface Water Statistics and BTV Estimates

ANALYTE	N	# DETECTS	UNITS	MIN	MEAN	MAX	BTV	BTV METHOD
ALUMINUM	5	3	µg/L	9.90E-02	5.03E-01	1.00E+00	N/A	INSUFFICIENT N
ANTIMONY	37	1	µg/L	8.50E-05	8.50E-05	8.50E-05	8.50E-05	MAX
ARSENIC	71	59	µg/L	3.70E-03	1.04E+01	2.90E+01	2.08E+01	95% UPL
BARIUM	22	7	µg/L	1.60E-02	8.73E+00	2.90E+01	2.90E+01	95% UPL
BERYLLIUM	66	0	µg/L	N/A	N/A	N/A	N/A	INSUFFICIENT DETECTS
BORON	43	34	µg/L	1.80E-01	2.10E+02	1.90E+03	1.44E+03	95% KM Chebyshev UPL
CADMIUM	64	2	µg/L	4.00E+00	4.50E+00	7.00E+00	7.00E+00	MAX
CHROMIUM	64	4	µg/L	2.70E+01	3.23E+01	4.20E+01	4.20E+01	95% UPL
COBALT	5	2	µg/L	3.40E-04	2.80E-01	5.60E-01	5.60E-01	MAX
COPPER	69	8	µg/L	7.60E-04	9.86E+00	3.60E+01	2.38E+01	95% KM Chebyshev UPL
IRON	46	42	µg/L	2.20E-01	7.29E+02	5.08E+03	6.06E+03	95% KM Chebyshev UPL
LEAD	52	5	µg/L	2.00E-01	1.15E+01	3.40E+01	2.48E+01	95% KM Chebyshev UPL
MAGNESIUM	69	69	µg/L	5.00E+00	2.49E+01	5.30E+01	5.30E+01	95% USL
MANGANESE	71	45	µg/L	1.30E-02	6.90E+01	5.10E+02	3.79E+02	95% KM Chebyshev UPL
MERCURY	88	23	µg/L	5.67E-01	8.23E+01	1.36E+03	6.59E+02	95% KM Chebyshev UPL
MOLYBDENUM	5	5	µg/L	5.90E-03	1.17E+00	5.80E+00	5.80E+00	95% UPL
NICKEL	18	5	µg/L	5.50E-04	3.01E-01	1.50E+00	2.99E+00	95% KM Chebyshev UPL
SELENIUM	64	13	µg/L	1.00E-01	1.38E-01	2.00E-01	3.92E-01	95% KM Chebyshev UPL
SILVER	44	0	µg/L	N/A	N/A	N/A	N/A	INSUFFICIENT DETECTS
STRONTIUM	16	0	µg/L	N/A	N/A	N/A	N/A	INSUFFICIENT DETECTS
THALLIUM	16	0	µg/L	N/A	N/A	N/A	N/A	INSUFFICIENT DETECTS
URANIUM	3	3	µg/L	5.80E-03	6.40E-03	7.20E-03	N/A	INSUFFICIENT N
VANADIUM	5	2	µg/L	3.20E-03	4.80E-03	6.40E-03	N/A	INSUFFICIENT N
ZINC	68	7	µg/L	5.40E-03	6.26E+01	2.70E+02	2.70E+02	95% USL

The primary users of surface water at the Basin project include irrigation and agricultural needs.

20.2 Vegetation and Wildlife Surveys

BHLL has conducted comprehensive surveys on vegetation, wildlife biology, and cultural aspects across its mining lease areas. The primary goal was to identify sensitive species, including those protected under state and/or federal regulations. The findings from these surveys have directly influenced the management strategies implemented for the exploration program. Key measures include adjusting the placement of access routes and drill pads to steer clear of sensitive zones. The outcomes of these surveys are detailed in the following sections.

20.2.1 Vegetation Studies

The Basin Project area encompasses two distinct vegetation landcover types. One is the Sonoran Paloverde-Mixed Cacti Desert Scrub, found on hillsides, mesas, and upper bajadas. This type consists of sparse xeromorphic deciduous and evergreen tall shrubs. The other type, located along Burro Creek, is the North American Warm Desert Lower Montane Riparian Woodland and Shrubland ecosystem. Typically, this ecosystem is found in mountain canyons and valleys in southern Arizona.

The Basin Project area features two distinct types of vegetation cover. One is the Sonoran Paloverde-Mixed Cacti Desert Scrub, which predominates on hillsides, mesas, and upper bajadas. This type is characterized by sparse, drought-resistant deciduous and evergreen tall shrubs adapted to arid conditions.

The second type is the North American Warm Desert Lower Montane Riparian Woodland and Shrubland ecosystem, situated along Burro Creek. This ecosystem is typically found in mountain canyons and valleys across southern Arizona. It includes a mix of woodland and shrubland species suited to the region's warmer, semi-arid environment.

20.2.1.1 Basin East and Basin East Extension

Several Arizona protected plant species have been identified within the project area, including foothill palo verde, desert willow, mesquite, ocotillo, cholla cactus, hedgehog cactus, and barrel cactus. BHL has conducted a valuation as mandated by the Arizona State Land Department (ASLD) to assess the compensation required for any impacts on these plants resulting from the exploration program. BHL is obligated to make payments to ASLD if any of these protected plant species are affected by the exploration activities.

No federally listed threatened or endangered plant species were discovered within the Basin East and Basin East Extension project areas. While no federally listed noxious weeds or known invasive species were observed, evidence of noxious weeds listed under the Arizona Department of Agriculture Regulated and Restricted Noxious Weeds regulation was found within the Basin East area. These weeds have been documented, but no additional management actions are deemed necessary at this time.

20.2.1.2 Basin West and Basin West Extension

Botanical studies were conducted in three distinct parts of the Basin West claims area: Basin West Section 12, Basin West (west of Section 12), and the Basin West extension area. These studies were carried out specifically to assess the botanical diversity and ecological significance within these regions.

Figure 20-7: Native Cacti Species at the Basin Project. 1. Saguaro Cactus 2. Barrel Cactus 3. Hedgehog Cactus 4. Cholla

These cacti were found in potential drilling areas or access routes. It is recommended that future operations avoid areas where the cacti are present. The botanical studies conducted identified the following vegetation at basin west.

Basin West Section 12:

No federally listed threatened or endangered species or BLM sensitive species were found within the project area. However, several saguaro and barrel cactus plants were identified, along with two Engelmann hedgehog cactus plants.

West of Section 12:

A population of the federally protected Arizona cliffrose (Purshia subintegra) was discovered within the project area, comprising approximately 110 individuals. The Arizona cliffrose is classified as 'Endangered' by the U.S. Fish and Wildlife Service (FWS). Additionally, an area with potential cliffrose habitat and saguaro forests along the southern edge of the project area were identified.

Basin West Extension:

A small population of the federally listed Arizona cliffrose was found in this area, overlapping with the population identified west of Section 12. The site also supports rare species associated with the Arizona cliffrose, particularly within the Clay Hills ACEC. Another potential site suitable for the Arizona cliffrose, along with associated species, was also identified. Furthermore, an area of saguaro forest was noted along the warmer southern slopes of the Burro Creek in this extension area.

It is probable that future mining operations in the Basin West ML area will need to undergo consultation with the U.S. Fish and Wildlife Service in accordance with section 7 of the Endangered Species Act.

Basin North:

The proposed drill sites are situated on flat land areas where fewer cactus species are present compared to the foothills. However, five drill sites in the eastern section and two in the western section host individuals of the four Arizona protected species, as shown in Figure 20-2.

20.2.2 Wildlife Studies

Baseline wildlife surveys have been conducted in Basin West, the eastern parts of Basin West Extension, and Basin North to determine the presence or absence of federally or state-listed species. A species of particular concern is the Sonoran Desert Tortoise (Gopherus morafkai), which is classified as "Critically Endangered" by the International Union for the Conservation of Nature (IUCN) Red List (IUCN, 2022) and "Threatened" by the U.S. Fish and Wildlife Service (FWS, 2022a).

The analyses included all state and federally designated species and/or the signs of recent activity observed during the survey, as well as those with a high likelihood of occurrence based on literature research and species modeling.

Basin West and Basin West Extension:

Wildlife studies were also conducted in three parts for each of Basin West Section 12, Basin West (west of Section 12), and the Basin West extension area.

Basin West Section 12 features dense shrub and cacti habitats combined with variable topography, soils, rock outcrops, and ephemeral drainage, providing essential resources for both resident and migratory species to survive year-round or seasonally. No potential habitat suitable for the Sonoran Desert Tortoise (SDT) was identified.

West of Section 12, five species with federal or state special status were identified:

- Javelina (Tayassu tajacu)
- Mule Deer (Odocoileus hemionus)
- Mourning Dove (Zenaida macroura)
- Verdin (Auriparus flaviceps)
- Sonoran Desert Tortoise (Gopherus morafkai)

In the Basin West Extension, eight species with federal or state special status were observed, or their signs were detected in the area:

- Harris' Antelope Squirrel (Ammospermophilus harrisii)
- Javelina (Tayassu tajacu)
- Mule Deer (Odocoileus hemionus)
- Regal Horned Lizard (Phrynosoma solare)
- Gambel's Quail (Callipepla gambelii)
- Gila Woodpecker (Melanerpes uropygialis)

- Gilded Flicker (Colaptes chrysoides)
- Verdin (Auriparus flaviceps)

For all areas where species of conservation importance were identified, the studies provided recommended mitigation measures to avoid or minimize impacts on these species. These measures have influenced and continue to inform the design and execution of the exploration drilling program.

If not done already, these studies suggest that an avian survey being conducted in the spring to determine what types of species might inhabit the project area.

Basin North

In the "non-ACEC" area of Basin North, seven species with federal special status were identified as potentially occurring, including five bird species protected under the Migratory Bird Treaty Act. The study also concluded that there was no or very limited potential for the Sonoran Desert Tortoise to reside near the proposed drilling areas. It recommended further studies ahead of potential mining to better understand the actual or potential presence of special species.

20.3 Protected Areas

Two protected areas overlap and adjoin the Basin project areas: to the north of Basin West is the Clay Hills Research Natural Area of Critical Environmental Concern (ACEC), and to the west of Basin North is the Burro Creek Riparian and Cultural ACEC.

The Burro Creek Riparian and Cultural Area of Critical Environmental Concern (ACEC) spans 22,682 acres (9,200 hectares) and is notable for its scenic qualities featuring riparian vegetation, cliffs, and shorelines. It offers opportunities for water-based recreation, solitude, and serves as habitat for diverse wildlife, including raptor species such as the bald eagle (Haliaeetus leucocephalus) and common black hawk (Buteogallus anthracinus).

While exploration and mining activities are permitted under the Resource Management Plan (RMP) for this ACEC, any activities requiring permits within this area may necessitate additional assessment and the implementation of management measures to mitigate impacts on sensitive areas.

The Clay Hills Research Natural Area of Critical Environmental Concern (ACEC) spans 1,114 acres (450 hectares) and is essential habitat for the Arizona cliffrose. This area is fully withdrawn from location and mineral entry, meaning BHL does not possess any licenses for activities within this area.

20.4 Waste and Tailings Disposal

The location and size of a waste and tailings disposal from mining and processing have not been considered at this level of study.

20.5 Environmental Permitting

See 4.3Licenses and Permits

It is anticipated that BHL's projects, as they progress towards mine planning and permitting, will likely necessitate the preparation and approval of an Environmental Impact Statement (EIS) by the relevant agency. This requirement stems from the anticipated scale and location of the mining project. The EIS will be founded upon a comprehensive Environmental and Social Impact Assessment (ESIA).

To facilitate this process, BHL will need to develop a detailed permitting strategy that includes a schedule and budget for the necessary assessments and approvals. This strategy will be crucial in ensuring that all regulatory requirements are met and that potential environmental and social impacts are thoroughly assessed and mitigated.

20.6 Cultural Heritage

The Basin area is notable as the westernmost known occurrence of the Prescott Culture. Stonewalls from Prescott pueblos, some standing over 2.4 meters (8 feet) tall, bear evidence of the Yavapai and Hualapai peoples who inhabited the region during historic times.

As part of the permitting process for the State Mineral Lease tenement package, the Company conducted an archaeological survey. This survey identified and mapped several Native American sites, none of which have been classified as 'major sites'. These sites have been carefully managed and integrated into the exploration activities conducted thus far. Currently, the process of accommodating these sites is ongoing as part of the new State Mineral Exploration Permits.

20.6 Community Engagement

BHL is obligated to engage with stakeholders, including state, federal, and Native tribe governments, with varying requirements depending on land ownership (State Trust, private, or federal public lands). Additionally, the National Environmental Policy Act (NEPA) process imposes specific consultation obligations, which are strictly regulated for all parties involved.

Regular engagements have occurred between BHL and local, regional, and state-level stakeholders, aligned with the extent of the Project's activities. In 2022, the neighboring Bagdad Mine proposed establishing a temporary accommodation camp for employees involved in an expansion project, which faced opposition from residents in the Kirkland and Wickenburg areas.

BHL intends to expand and enhance its community engagement efforts commensurate with the increasing nature and scale of its project activities. This approach underscores their commitment to fostering productive relationships and addressing community concerns effectively.

20.7 Key Issues that May Impact the Project

ABH agrees with SRK that there are still key issues which need to be addressed as the company moves forward and are listed below, these factors may have financial consequences or may impact the reputation of the company.

- **Water Management:** Due to the scarcity of water availability in arid desert regions such as the Basin area, this will most likely be one of the major hurdles to overcome by BHL.
- **Proximity to Protected Areas:** The region has high value habitat areas that are protected under the Federal ACECs. The impact of mining activities and potential site infrastructure will need to be assessed as part of environmental studies in the future as the project progresses.
- **Species of Concern:** While conducting an environmental assessment, the company noted that there are several species of concern in the region. These species include the Sonoran Desert Tortoise and Desert Cliffrose. A more in-depth analysis will be conducted in the future to understand the extent to which these species exist on the property. BHL will need to turn to the Fish and Wildlife Service to ensure compliance with the Endangered Species Act s. 7. The legislation is a way to ensure that federal agencies do not take actions that are likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction of adverse modification of designated critical habitats.[18]
- **Anti-Mining Opposition:** Like most mining projects, there are groups within nearby communities that oppose mining activities. Examples of anti-mining groups include the Arizona Wilderness Coalition and the Arizona Mining Reform Coalition. Indigenous groups in the region have also expressed their concerns regarding mining activities. The Hualapai people have opposed Hawkstone's exploration activities at the Big Sandy Lithium Project.[19] Rio Tinto's proposed Resolution Copper Mine is also under scrutiny after a federal appeals court refused to reconsider whether the government may have improperly transferred sacred Native American land to the company.[20]
- **In-Migration:** Because of the rural environment around the Basin Project, an expanded drilling program or future mine development is expected to attract more people to nearby towns and communities. This population influx would place greater demands on local services and infrastructure. BHL must therefore strategize accommodation and related services for additional employees moving to the area, aiming to minimize disruptions to the current host communities.
- **Permitting Delays and Complexity:** While Arizona is known for its supportive stance on mining activities, navigating environmental permitting processes in the U.S.A. can be notably intricate, especially when federal approvals are required, as is the case with the Basin project. The NEPA (National Environmental Policy Act) procedures often face legal challenges, potentially affecting project timelines and budgets. Permitting risks in the Basin area are further compounded by the project's proximity to protected areas and sensitive species, issues that are likely to raise concerns among diverse stakeholders. The Basin team must engage in thorough planning to mitigate these impacts as much as feasible once federal permitting processes begin.
- **Community Involvement:** Remains limited to interactions with local and national regulatory bodies. To broaden engagement, it is necessary to conduct stakeholder

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[18] Understanding Endangered Species Act Section 7 Regulation Changes, from the SWCA website
[19] Lithium Mining Threatens Arizona Tribe's Sacred Spring, from Earth Justice website
[20] "Indigenous group to take fight against Arizona copper mine to Supreme Court", From Mining.com website

mapping and create a plan for engaging with external parties. This will foster constructive relationships with all interested and affected stakeholders.

20.8 Mine Closure Plans

Reclamation and closure obligations require remediation of impacts arising from drilling activities. On the ASDL land, these obligations are stated in the GFOP approvals letters. Requirements include profiling and revegetation of impacted areas and planning for control of water runoff to avoid erosion.

On BLM land (Basin North and West), a financial guarantee must be lodged with the applicable BLM office and accepted by the State office prior to commencement of drilling operations

Currently, there is a financial guarantee in effect for Basin North totaling USD $37,100. At this initial stage of exploration, no detailed mine closure plans or cost estimates have been developed because no specific mine plans have been formulated yet.

Before proceeding with any mining activities on the leased land, BHL must obtain authorization from the Arizona State Land Department (ASLD). This authorization will be in the form of approved Mine Operation, Reclamation, and Closure Plans, ensuring that proper measures are in place to responsibly manage and reclaim the site once mining operations commence.

21. CAPITAL AND OPERATING COSTS

This section is not applicable at the current stage of the project.

22. ECONOMIC ANALYSIS

This section is not applicable at the current stage of the project.

23. ADJACENT PROPERTIES

23.1 Bagdad Mine, Freeport McMoRan (FCX)

Bagdad is a copper and molybdenum mine, operated by Freeport-McMoRan Inc., located 10 km (6 miles) east of Basin East. The mine exploits a porphyry copper deposit containing both oxide and sulphide Cu-Mo mineralization. Sulphide ore minerals primarily include chalcopyrite and molybdenite, with secondary chalcocite, while oxide minerals such as chrysocolla, malachite, and azurite are also present (FCX, 2022). Originally commissioned in 1928 as a mill to process ore from an underground mine, it transitioned to an open-pit operation in 1945. FCX has owned and operated the Bagdad mine since 2007. In 2020 alone, the mine produced more than 216 million pounds of copper metal (FCX, 2022).

Today, operations at Bagdad include a concentrator for Cu and Mo concentrate production, a solvent extraction and electrowinning plant producing copper cathode, and a pressure leach plant for molybdenum concentrate processing. The mine supports a skilled workforce living in the nearby town of Bagdad, which has a population of 2,000 people.

23.2 Big Sandy Project, Arizona Lithium Ltd. (AZL)

Arziona Lithium (formerly Hawkstone Mining) is currently advancing the Big Sandy Project which is a flat lying mineralized sedimentary deposit which has an analcime and potassic alteration overprint. It is situated 24 km northwest of Basin East. Lithium is contained within a green lacustrine horizon that can be traced for over 11 km to the north and south. The sedimentary body extends 2 km to the east as a flat sheet at or near surface.

In July 2019, AZL completed a 37-hole DD program which intersected up to 66 m (216.54 ft) of flat lying sediment hosted Li mineralization with lithium grades of 4,360 Li over 1 m (3.28 ft).

On September 26, 2019, an initial Mineral Resource estimate, compliant with JORC code (Joint Ore Reserves Committee), was disclosed for Big Sandy. This estimate includes both Indicated and Inferred resources totaling 32.5 million tonnes, with an average grade of 1,850 parts per million (ppm) lithium, equivalent to 320,800 tonnes of Lithium Carbonate Equivalent (LCE). The reported resources are based on a cutoff grade of 800 ppm lithium.

A Scoping Study commenced in February 2022, followed by the completion of a Definitive Feasibility study based on encouraging results of the scoping study in November 2022.

Most recently (June 11, 2024, ASX announcement) the company has received approval from the BLM to commence drilling under a Pernit of Exploration. The drill program will have the aim of expanding the total Indicated and Inferred JORC Resource.

24. OTHER RELEVANT DATA AND INFORMATION

There is no other relevant data or information to state in this report.

25. CONCLUSIONS

A significant lithium clay deposit has been identified by Bradda Head on its Basin Lithium Project. The deposit is hosted in Miocene basin fill tuffaceous units altered to lithium-bearing clays. The generally planar stratigraphy displays a shallow dip to the north. Lithium mineralization is hosted in the clay units, and correlates very well with lithology. In the geologic model, the clay units are subdivided into the higher-grade Upper TClay and the Lower TClay units, separated by an unmineralized lapilli tuff unit. The Upper clay is further subdivided into the high-grade core unit, flanked both top and bottom by lower-grade lithium units. The Lower Clay is subdivided into two units, the Upper-Lower Clay and the Lower-Lower Clay units. Modelling domains are based on these sub-units, further divided by fault boundaries, which create fault blocks with distinct grade variations between adjacent blocks, implying that the faults delivered lithium-bearing hydrothermal solutions and that the fault blocks form sub-basins.

In the Basin East area, the lithium-bearing clay units outcrop or are shallowly capped - up to 20m, by Tuffaceous Breccias or Lower Basalt units. The Basin North area is characterized by thicker capping of the lithium clay units, between 50m and 200m of Bedded Lithic Tuff and Upper Basalt units. The geologic continuity has been demonstrated to be very good throughout the areas thus far mapped, sampled and drilled.

Metallurgical work thus far has indicated a potential recovery of about 75%, possibly higher. Several issues have been encountered, including high acid consumption rates and difficulties in separating out deleterious metals. Further test work is required.

Additional risks to the project comprise of environmental, social and governance factors. It should be noted that the Basin Li Project is in an early stage, at resource development, and that environmental studies and stakeholder consultation are planned at later stages of the project development, to be handled by experts in those fields. The issues currently identified include:

- Water necessary for processing - permits will need to be obtained.
- Any discharge of water will also require permitting; dry stacking of tailings would be advantageous.
- Water course diversion during the mining process – Burro creek and its tributaries will need to be studied for subsequent engineered diversion methodology.
- Proximity to ACEC areas – environmental studies will have to consider potential impact of the mining on the neighboring protected areas.
- Species at risk – necessary studies will include habitat identification for local species-at-risk, including the Sonoran Desert Tortoise and the Arizona Cliffrose. EPA's Section 7 will need to be addressed, in consultation with the Fish and Wildlife Service.
- Stakeholder consultation – several groups will need to be included in the consultation process, including local native tribes and several local NGO's (Arizona Wilderness Coalition and Arizona Mining Reform Coalition).

The issues above, managed and addressed in a timely manner, are not likely to constitute critical barriers to the project's advancement

26. RECOMMENDATIONS

It is recommended to continue exploration of the Basin Lithium Project through drill target development and to plan for additional drilling to expand the resources. The areas of Basin West and Basin West Extension are both prospective for further target development; resources in Basin East are open to the west for step-out drilling. Secondarily, the resource will also need to be upgraded in stages to Indicated and Measured Classification. Permitting for the upcoming drill phases will be necessary. The following measures are recommended with the estimated costs stated in USD:

- Metallurgical Testing: **$175,000**

- **3-D seismic Survey:** to aid in drill target definition, covering both Basin West and Basin West Extension (detailed gravity survey also would be acceptable):

  4 square miles @ 75,000 USD: **$ 300,000**

- **Geological mapping and surface rock sampling: $ 75,000**

- **Basin West Drilling**: A 24-hole program, once the EA has been approved by the BLM, is recommended

  The 24-hole program would consist of holes drilled to depths of 500 to 800 feet for a total of 16,800 feet or 5,120 meters. The estimate cost per meter, depending upon the method, would range between USD $100 to USD $350 per meter, RC versus core/sonic. If using sonic or core, the direct drilling cost would be roughly USD $1,792,000, plus additional costs for water truck ($120,000), assays ($50/sample, 3,000 samples equal USD $150,000. An estimated total is:

  - RC Drilling: $512,000

  Or:

  - Core Drilling: $1,792,000
  - Assays: $150,000
  - Water truck, water: $120,000
  - Road construction/rehabilitation: $150,000
  - Labor/management/oversight: $100,000
  - Environmental/archeologist: $25,000

  Total RC: $1,057,000

  Or:

  Total Core/Sonic: $2,337,000

- **Basin North Drilling:**
  A 7-hole program at Basin North is recommended, pending Notice of Intent amendment approval by the BLM.
  To acquire BLM permission at Basin North, additional environmental, cultural, and botanical/biological work would be required over the specific areas proposed to be disturbed and not exceed 5.0 acres in disturbance. The drilling at BN would continue to increase the size of the resource towards the north, approaching the margins of the sedimentary basin. The holes would range in depth of 800 to 1,000 feet, using RC at $100 per meter or $350 per meter for core. The depths are beyond sonic capabilities. If looking at 7 holes at 900 feet average, is 6,300 feet or 1,920 meters. This equates to about USD $192,000 for RC or $672,000 for core.

  - RC Drilling: $192,000

  Or

  - Core: $672,000
  - Assays: $35,000
  - Water purchase and delivery: $100,000
  - Road building & Rehab: $100,000
  - Environmental work: $50,000
  - Management and oversight: $75,000

  Total RC: **$552,000**

  Or

  Total Core/Sonic: **$1,032,000**

- **Basin East Drilling:**

Recommendation of a 3-to-4-hole program to define a horst feature, likely using RC as a form of drilling.

4 holes at 350 feet each, 1,400 feet or 427 meters. At $100 per meter, estimated RC cost of $42,700

  - Road building and rehabilitation: $5,000
  - Assays at $50/sample x 200 samples: $10,000
  - Water usage: $5,000
  - Oversight: $5,000

  Total RC: **$67,700**

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CERTIFICATE OF QUALIFIED PERSON

I, Damir Cukor of 12689 Ocean Cliff Drive, Surrey, British Columbia, do hereby certify that:

1) I am Vice President of Geology with ABH Engineering 315 2630 Croydon Drive, Surrey, British Columbia.
2) I am a graduate of the University of British Columbia in 1985 with a BSc. in Geology.
3) I have practiced my profession continuously since 1985. I have had over 39 years of experience in roles of increasing responsibility, from filed geologist to senior resource geologist and exploration manager on large mineral exploration projects.
4) I am a member of good standing of the Association of Professional Engineers and Geoscientists of the Province of British Columbia.
5) I have read the definition of "qualified person" set out in both National Instrument 43-101 and certify that by reason of education, experience, independence, and affiliation with a professional association, I meet the requirements of an Independent Qualified Person as defined in National Instrument 43-101.
6) This report titled "NI 43-101 Technical Report and Mineral Resource Estimate Update for The Basin Lithium Project", dated August 12, 2024, is based on a study of the data, and literature and available on the Basin Lithium Property. I am responsible for Sections 1.1 to 1.11, 1.13 to 12, and 14 to 26 of this report.
7) I have visited the property on April 23 and 24, 2024, validating the drill hole collar locations and I have performed independent validation sampling of a set of ¼ core samples of selected sections of mineralized witness core.
8) As of the date of this certificate, to the best of my knowledge, information, and belief, the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.
9) I am independent of the issuer applying all the tests in section 1.5 of National Instrument 43-101.
10) I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

/s/ "Damir Cukor"
Senior Geologist

ABH Engineering
Damir Cukor, P.Geo., BSc.

CERTIFICATE OF QUALIFIED PERSON

I, Brent Hilscher of 2978 147A St, Surrey, British Columbia, do hereby certify that:

1) I am currently employed as Vice President of Mineral Processing for ABH Engineering Inc. with an office at #315 2630 Croydon Dr Surrey, BC V3Z 6T3.

2) I am a graduate of the University of British Columbia in 1999 with a B.A.Sc. in Mining and Mineral Processing Engineering.

3) I have practiced my profession continuously since 2000. I have had over 24 years of combined experience in process operations, engineering, economics, and design. I have worked on a variety of operations and engineering studies for gold, silver, copper, molybdenum, lead and zinc deposits throughout the world. I have personally led over 70 ore sorting studies or construction projects for the mining industry.

4) I am a member in good standing of the Association of Professional Engineers and Geoscientists of the province of British Columbia #37465.

5) I have read the definition of "qualified person" set out in both National Instrument 43-101 and certify that by reason of education, experience, independence, and affiliation with a professional association, I meet the requirements of an Independent Qualified Person as defined in National Instrument 43-101.

6) This report titled "NI 43-101 Technical Report and Mineral Resource Estimate Update for The Basin Lithium Project**"** dated August 12, 2024, is based on a study of the data, and literature and available on the Basin Lithium Property. I am responsible for Sections 1.12 and 13 of this report.

7) I have not visited the Basin Lithium Property.

8) As of the date of this certificate, to the best of my knowledge, information, and belief, the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.
9) I am independent of the issuer applying all the tests in section 1.5 of National Instrument 43-101.
10) I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

/s/ "Brent Hilscher",
Senior Process Engineer

ABH Engineering
Brent Hilscher, P.Eng., B.A.Sc.

APPENDIX A: JORC TABLE

Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.*	• The sampling and assay procedures conducted from 2018 to 2024 for the lithium exploration program at Basin East and North adhere to industry-standard practices. Here's a summary of the procedures used during each program year: • 2024 DD Program: • -Whole-core samples were taken, with interval lengths determined based on geological logging but rarely exceeding 2.1m. • 2023 Sonic Program: • - Half-core samples were taken at intervals of 1.22, 1.52, or 1.83 m (m) (4, 5, or 6 feet (ft)). • 2022 Sonic Program: • - Half-core samples were taken at intervals of 1.22 or 1.83 m (4 or 6 ft). • 2021 Diamond Drill (DD) Program: • - Whole-core samples were taken, with interval lengths determined based on geological logging but rarely exceeding 1.8 m (5.9 ft) in length. • 2018 Reverse Circulation (RC) Program: • - Drill chips were collected in 1.52 m (5 ft) intervals from the inner tube of a reverse circulation drill rig using an attached cyclone. • Assay Sample Preparation (2018-2022):*

Criteria	JORC Code explanation	Commentary
		• - Samples were prepared at ALS facility in Tucson, USA. • - Samples were dried for 24 hours at ≤80°C. Very wet samples were further dried for 12–24 hours. • - Preparation followed ALS standard procedure PREP-31y, which included initial crushing (70% passing a 2.0 mm mesh), separation of a 250g sample via a rotary splitter, and pulverization (>85% passing a 75-micron aperture mesh). • - Hyperspectral analysis and multi-element assays (ME-MS61: four-acid digestion with ICP-MS 48 element finish) were conducted at ALS laboratories in Elko, USA, and North Vancouver, Canada, respectively. • 2023 Assay Sample Preparation: • - Samples were prepared at an SGS laboratory in Burnaby, British Columbia. • - Samples were dried at 105°C for 24 hours, crushed to 3/8 inch with 75% passing a 2 mm mesh, and split by riffle or rotary splitter into 250g splits. • - Samples were pulverized by chrome steel rings to >85% passing a 75-micron mesh. • 2024 Assay Sample Preparation: • - Samples were prepared in the same way as the 2023 drill program. • Overall, these procedures ensure consistency and reliability in sample collection, preparation, and analysis, adhering to industry standards for mineral exploration and resource evaluation.
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	• In 2024, BHLL completed 9 diamond drill holes at Basin East and Basin North using KP Exploration Inc. The holes were drilled using a track mounted Versadrill Canada rig model Kmn1.4S. The company converted to a triple tube core capture technique to enable better recoveries. HQ3 sized core was used with an inner diameter of 61.1 mm.

Criteria	JORC Code explanation	Commentary
		• In 2023, BHHL conducted drilling operations by creating 14 sonic boreholes, following a similar effort in 2022. Boart Longyear utilized a wheel-mounted LS600 Sonic drill rig for this purpose with triple tube HQ tooling and bit with an inner diameter of 61.1 mm. The drilling process involved employing six-inch casing initially and transitioning to four-inch core inner diameter rods as they penetrated through alluvium and colluvium. Below these layers, the equipment was downsized to three-inch diameter tooling for the remainder of the borehole. • In 2021, BHLL completed 10 diamond core holes. The first two holes were undertaken by Godbe Drilling LLC using a Longyear LF-90, a track-mounted diamond core drill utilizing triple-tube PQ ("PQ3") tooling and bits with an 83 mm inside core diameter. Subsequently, American Drilling Corp handled the remaining holes with a track-mounted Atlas Copco CT-14 diamond core rig, also equipped with triple-tube PQ3 tooling. • Additionally, in 2018, BHLL executed 14 drilling operations employing a reverse circulation ("RC") drilling rig. Thirteen of these holes utilized a hammer bit. During the initial hole, various bits were tested, and dry drilling was initially employed. Wet drilling techniques were subsequently employed where necessary to expedite drilling through clay layers. • • All holes were drilled vertically due to the shallow dip of the sedimentary layer. Therefore, orientation was not needed.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.*	• In the diamond drilling (DD) program of 2024 for DH from BND24-15 to BND24-23: • Core recovery in sampled intervals was generally robust, with weighted averages per drillhole ranging from 77.50% to 100%.

Criteria	JORC Code explanation	Commentary
	• *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	• Poorer recoveries were noted in overburden and occasional minor intervals of unconsolidated clay. Instances of calculated recoveries exceeding 100% occurred in runs with significant clay content, likely due to material expansion upon release from overlying pressure or stretching of cohesive clay during extraction from the core barrel. • During the sonic drilling campaigns of 2022 and 2023: • - Core recovery rates consistently reached 100%, with over 99% of intervals achieving complete recovery in 2022 and over 98% in 2023. • - Occasionally, in materials such as weakly consolidated, heterogeneous sedimentary layers such as massive clay with silica nodules, some mechanical disturbance (e.g., 'biscuiting' or homogenization) was observed. • In the diamond drilling (DD) program of 2021: • - Core recovery in sampled intervals was generally robust, with weighted averages per drillhole ranging from 87.8% to 96.8%. • - Poorer recoveries were noted in overburden and occasional minor intervals of unconsolidated clay. Instances of calculated recoveries exceeding 100% occurred in runs with significant clay content, likely due to material expansion upon release from overlying pressure or stretching of cohesive clay during extraction from the core barrel. • During the reverse circulation (RC) drilling program of 2018: • - Sample recoveries were estimated based on observations by senior geologists and drillers, using approximate calculations involving dry sample weights and percentage splits. • - Dry-sampled Li-bearing clay showed average recovery rates exceeding 70% and 80% on average whereas wet-sampled recovery was slightly lower at around 60%, potentially due to losses in subterranean fractures. • - Precise control of water injection rates during wet drilling ensured minimal sample loss through overflow. • No biases in recovery related to material grade or particle size were identified, except for minor loss of fine material from the cyclone during the 2018 RC drilling operations.

Criteria	JORC Code explanation	Commentary
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• During drilling operations, a company geologist or geotechnician conducted geological logging of drill core and core chips onsite for the entire length of all drillholes. They also documented details concerning recovery, drilling rates, and groundwater conditions. Additionally, photographs were taken of all chip trays and drill core samples.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• In the 2022 and 2023 sonic drilling programs, half-core (longitudinally split) samples were submitted. Unique identification numbers were affixed to core boxes at the end of each sample interval prior to sample collection. A second identical sample tag was attached to the sampled core during collection. The procedures for these programs were otherwise consistent with those used in the 2021 diamond drilling (DD) program. • During the 2021 DD program, whole-core diamond samples were submitted. Each sample was manually placed into CGS Protexo cloth sample bags measuring 20 x 24 inches (0.51 x 0.61 m). These bags were pre-labelled with unique sequential identification numbers and recorded in a sample register, along with their corresponding downhole depths. • During the 2018 RC programme: • In the dry drilling process, sample chips were gathered directly from the cyclone into plastic buckets. These buckets were weighed using a hanging scale before being transferred to a Gilson splitter. Samples measuring 1.5 m (5 ft) in length and weighing up to 45 kg were split into 4–8 kg sub-samples through 3–4 splitting operations. Geological reference samples were collected from each sub-sample using a PVC "sample spear" and placed into the chip tray for logging. Samples intended for assay were divided into two portions, each labelled with the same number, with one portion retained as a precaution. • During wet drilling, samples were split beneath the cyclone using a rotating cylindrical wet splitter. Similarly to dry drilling, samples for assay were divided into two using a Y pipe. Geological reference samples were collected from the reject pipe using a sieve strainer. • From 2018 to 2022, all assay samples underwent preparation at the

Criteria	JORC Code explanation	Commentary
		ALS facility in Tucson, USA, following the standard ALS procedure PREP-31y. This process involved initial crushing to achieve 70% passing through a 2.0 mm mesh, followed by separation of a 250g sample using a rotary splitter, and subsequent pulverization to ensure more than 85% passing through a 75-aperture mesh. • In 2023 and 2024, assay samples were processed at SGS laboratory in Burnaby, British Columbia. The procedure involved drying samples at 105°C for 24 hours, crushing to 3/8 inch with 75% of the material passing through a 2 mm mesh. Samples were split using either a riffle or rotary splitter (the latter was adopted halfway through the program) into 250g splits, which were further pulverized using chrome steel rings to achieve more than 85% passing through a 75-micron mesh.
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* • *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	• 2018 RC Drilling: 605 regular samples, 81 QAQC samples (11.8% insertion rate), including 15 blanks, 47 CRMs, and 19 duplicates. Over 85% of CRMs were within two standard deviations of the mean. No significant issues identified by ABH Engineering. • 2021 Diamond Drilling: 820 regular samples, 117 QAQC samples (12.5% insertion rate), including 28 blanks, 53 CRMs, and 36 pulp duplicates. All CRMs within two standard deviations of the certified mean. High reproducibility and no contamination issues. Swinefordite identified as the primary lithium-bearing mineral. • 2022-2023 Sonic Drilling: 2,100 regular samples, 244 QAQC samples (10.3% insertion rate), including 63 blanks, 178 CRMs, and 3 field duplicates. Results showed good accuracy and precision. ABH Engineering recommended increasing field and lab duplicates in future programs. • 2024 Diamond Drilling: 773 regular samples, 90 QAQC samples (10.4% insertion rate), including 27 blanks, 57 CRMs, and 6 field duplicates. Most CRMs within two standard deviations of the mean. Slight bias noted, but overall good reproducibility and satisfactory performance. • Despite the QAQC sample insertion rates being slightly below the industry standard of 15%, no significant issues were identified. The results demonstrated good accuracy and precision. ABH Engineering considers the assay data suitable for use in a Mineral Resource Estimate (MRE).

Criteria	JORC Code explanation	Commentary
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• ABH conducted a site visit on April 23 and 24, 2024, during the 2024 diamond drill program. They evaluated the Client's sampling techniques and geological understanding, deeming them to be of high quality. However, diamond core samples from 2021 were not available for review due to whole-core sampling practices. • During the evaluation: -Three drillholes from the 2021 diamond drilling and one from the 2022 sonic drilling were drilled as twins to four 2018 RC drillholes, which terminated in the lapilli tuff or the uppermost section of the lower lithium clay. Comparisons of down-hole lithium grade profiles between the twins showed visually extremely similar patterns, and statistical analysis via QQ plots indicated no evidence of bias between the two datasets. - Geological logging was recorded on paper logs, which were also photographed for documentation purposes. Data were subsequently entered and stored electronically in an Excel spreadsheet database. - Measurements of sample start and end points were converted from feet to meters before being uploaded by ABH into modelling software. - No significant issues were identified regarding the recording of data. • Overall, ABH concludes that the drilling and sampling data were robust and suitable for further geological modelling and analysis.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• The collar locations were recorded using a handheld Garmin GPSmap® 62st GPS device, which provides accuracy to within 3 m (10 ft). Collar elevations were determined by referencing the X-Y coordinates against a 1-meter resolution topographic surface derived from the USA's National Agricultural Imagery Program (NAIP) digital aerial photogrammetry point data. This topographic surface was adjusted for vegetation effects. • No down-hole surveys were conducted, with the assumption that all drill holes were vertical in orientation. • All coordinates are reported in UTM (Universal Transverse Mercator) NAD83 Zone 12 projection system.
Data spacing	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral*	• The collar locations were determined based on available site access routes, resulting in a reasonably even distribution across the deposit, albeit with wider spacing northwest of Burro Creek. In the central

Criteria	JORC Code explanation	Commentary
and distribution	*Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.*	Basin East license area, drillhole spacing averages around 150 m (490 ft), while it extends up to 700 m (2300 ft) on the periphery. Southeast of Burro Creek, drill spacing averages 170 m (560 ft) to the east of the N-S fault and 120 m (390 ft) to the west of the fault. Northwest of Burro Creek, drillhole spacing averages approximately 480 m (1600 ft) • The spacing of drillholes is deemed sufficient to establish confidence in the geological continuity of the units across the deposit. This allows for the application of an Inferred classification throughout the drill-defined area. The more densely drilled sections, particularly in the central and eastern regions, provide data at close enough spacing to support a Measured and Indicated classification. • During sampling, intervals were composited upwards to approximately 1.5 m (5 ft) lengths within lithological units, ensuring consistency in sample representation across the deposit.
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	• The deposit's stratigraphy is characterized as sub-horizontal, with dips generally less than 15°. Vertical drill holes were employed, intersecting the lithium-bearing clay-rich tuff nearly perpendicular to the orientation of the geological unit. • In the assessment, no biases were identified concerning the orientation of the drillholes relative to the geological unit. This approach helps ensure that the drilling effectively samples the deposit without introducing orientation-related distortions in the data.
Sample security	• *The measures taken to ensure sample security.*	• In 2018, sampled materials were placed into woven polypropylene sacks (rice sacks) by WIM geological staff at the end of each shift and sealed using cable ties. These sealed sacks were then transported daily to a secure, locked trailer facility in Wikieup, Arizona, by WIM personnel. The samples remained under the continuous custody of WIM staff until they were handed over to ALS staff at ALS Tucson. • From 2021 to 2022, strict security measures were also maintained. Samples were constantly supervised by project geologists and stored in locked, enclosed cargo trailers at the core logging facility in Wickenburg. Transportation to the ALS prep lab in Tucson was conducted by project personnel, ensuring that a chain-of-custody form and sample submittal form were exchanged and signed upon each delivery. Samples were transported either after each hole was

Criteria	JORC Code explanation	Commentary
		sampled or after completion of two holes, depending on sample volume. • In 2023, a similar secure protocol was followed. Samples were halved at the core logging facility in Morristown, Arizona, and securely stored in a locked trailer until they were shipped directly to the SGS facility in Burnaby, Canada. • In 2024, a similar security protocol to the 2021 and 2022 sonic drill program was maintained. Drill core was supervised by company personnel including geologists responsible for logging the core and keeping a secure chain of custody. The sample bags were stored in a locked trailer near the drill. Core was then transported to the logging and cutting facilities on private secure land in Wickenburg. Samples were then transported to SGS labs in Burnaby, Canada. • Overall, sample security has been rigorously maintained throughout the Project's operations, with procedures in place to ensure the integrity and custody of samples from collection through to analysis.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• ABH personnel were present during sampling of the core while conducting their site visit and are not concerned with the sampling techniques used.

Section 2 Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	• BHL holds one Arizona State Mineral Lease covering 1.46 km^2 (0.56 mi^2), and two Arizona State Mineral Exploration Permits covering 2.33 km^2 (0.90 mi^2) • BHL also holds 271 contiguous and overlapping lode and placer claims from the Bureau of Land Management (BLM) which cover an area larger than 11.2 km^2 (4.3 mi^2) that lie approximately 2 km west of Basin East and is named Basin West. • BHL holds 55 more contiguous and overlapping placer and lode claims which cover a total area of 2.27 km^2 (1.1 mi^2) that are

Criteria	JORC Code explanation	Commentary
		immediately north of the Basin East Licenses named Basin North.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• GSA Resources Inc. conducted exploration, drilling, sampling, and acquisition on behalf of R.T. Vanderbilt Inc from April 1983 to September 1983 based on the results from the outcrop samples, a vacuum drilling program was carried out. This was part of the Southwest Magnesium Smectite Exploration Project. A total of 32 rotary/core/vacuum drill holes were sampled at the East Burro Creek clay deposit. Ten of these holes were drilled on the Current Basin East Lease Area. The other holes were drilled on what is now BYK Chemie GmbH's (BYK) specialty clay property. This mine produces small annual tonnages of cosmetic grade saponite clay from a high purity, high-brightness beige and white clay. None of these drill holes have been reviewed in detail and have not been verified by either BHL or the QP. • Unilever and Proctor and Gamble (USA) expressed interest in the high-purity white Ca-bearing montmorillonite for use in laundry detergents. Several samples were shipped to Unilever including a 544 kg (1199 lbs) from the upper part of historical drill hole BC-8-15-83. This hole was collared just to the west of the Basin East License area near the BYK mine
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The deposit consists of lithium-bearing, hydrothermally altered, clay-rich tuffaceous sediments, which have been influenced by Pliocene faulting. These sediments are a component of a Tertiary sedimentary sequence deposited over Proterozoic basement rocks.
Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:* ○ *easting and northing of the drill hole collar* ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* ○ *dip and azimuth of the hole* ○ *down hole length and interception depth* ○ *hole length.* • *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly*	• Since the report contains a Mineral Resource, the reporting of Exploration Results is not required, therefore, the QP has decided that this section is not needed. • The Mineral Resource Estimate is based on the assays from 7,946.71 m of drilling consisting of 14 RC holes, 19 diamond drill holes, and 28 sonic drill holes.

Criteria	JORC Code explanation	Commentary
	explain why this is the case.	
Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.* • *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	• Since the report contains a Mineral Resource, the reporting of Exploration Results is not required, therefore, the QP has decided that this section is not needed.
Relationship between mineralisation on widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	• The lithium clay deposit and the surrounding stratigraphy is sub-horizontal with an average dip of 15°. All drillholes were drilled vertically to intersect the mineralized strata close to perpendicular. For this reason, downhole surveys were not needed and ABH is satisfied with this decision.
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	• Since the report contains a Mineral Resource, the reporting of Exploration Results is not required, therefore, the QP has decided that this section is not needed.
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	• Since the report contains a Mineral Resource, the reporting of Exploration Results is not required, therefore, the QP has decided that this section is not needed.
Other substantive exploration data	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	• Surface Geochemical Sampling: • Surface geochemical sampling of rocks and soils was conducted by Zenolith through WIM from 2016-2024. WIM sampled both the Basin East state lease area and Basin West. In total, 191 samples were taken and analysed by ALS Minerals in Vancouver, Canada. The analysis method used was multi-element ICP-MS with four-acid digestion. • Samples were first taken to ALS for preparation including crushing, pulverizing and homogenization at their facility in Tucson, Arizona • Surface Geological Mapping:

Criteria	JORC Code explanation	Commentary
		• The geological mapping of the Basin East state lease area commenced alongside surface geochemical sampling in 2016. It underwent a revision in 2018, integrating data from 14 RC drillholes and observations from drill roads, pads, and sump construction. Field observations were recorded in notebooks, and positions were marked using handheld GPS devices. • Passive Seismic Survey: • While geological mapping and geochemical sampling were taking place in 2016, WIM conducted a passive seismic survey of the Basin East and Basin West project areas based on a recommendation from Zenolith. The survey was conducted using Tromino® instrumentation in the field. • Two lines were completed: Line BC-01, an east-west oriented line, stretched 4.8 km (3 miles) and included 33 recording stations covering Basin East, Basin West, and the intervening land. Line BC-02, a north-south oriented line, was 1.6km (1 mile) long with nine recording stations, spanning the Basin East state lease area. • The results of the survey were initially interpreted by SGS following the last MRE update suggests that the Tertiary volcanic and sedimentary strata defined at Basin East continues under Burro Creek and further into the Basin West project area. • Ground Penetrating Radar Survey (GPR): • Bradda Head Lithium engaged Terravision Exploration Ltd. (TVX) to conduct a ground penetrating radar (GPR) study on the Basin East, Basin West and Basin North claims. The GPR survey was split up into 3 different areas to gain an understanding of the subsurface geology. • The survey was conducted using an enhanced Ground Penetrating Radar (GPRplus) system • Survey lines conducted over known drill holes in the central Basin East demonstrate a connection between a characteristic smooth, high-amplitude geophysical response and areas of deep, thick, upper TClay (the uppermost Li-bearing unit) found in drill holes. • TVX interpreted the presence of a deep high-amplitude response to indicate a thicker geological layer, with the wave travelling further to the base of the layer where it reverses polarity. This change is shown by the transition from a positive response, to a negative response at the lower boundary of the Upper Clay. The high-amplitude signal

Criteria	JORC Code explanation	Commentary
		suggests homogenous material, as opposed to more interbedded and mixed (heterogenous) material, where the wave encounters multiple transitions and loses energy. A high-amplitude response indicates a uniform unit with minimal interference from sub-layers within it. • Because the geological units that make up the Basin area are consistent and predictable, and the same stratigraphic layering throughout the Basin license areas, ABH Engineering agrees with the company that the GPRplus results can be used to infer prospectivity for the upper clay layers beyond Basin East. This will be a good starting point, along with surficial mapping and sampling of lithium-bearing clays. • Gravity Survey: • A gravity survey was completed in late 2023, and after the processing was finished a significant low was found and located within the Basin North project area. This has been interpreted as a deep, depositional centre for a sedimentary basin with a deep basement rock at depth. • These results encouraged the company to stake 2.8 km2 of new lode and placer claims to the north on open BLM land, which should have a significant impact on the projects clay potential. • The results also led to the reconnaissance on ground 1.6 km to the north but contiguous to the existing Basin licences where new clay and key marker beds consisting of silica nodules were found, indicating that the entire clay sequence sits in a shallow setting below post-mineral tuffs and basalt layers. • The survey was conducted by Tom Carpenter, a consultant with 35 years of experience in gravity data collection across North America. The data was gathered using a LaCoste and Romberg Model-G gravity meter, number G-230, which has a sensitivity of +/- 0.005 mGal and demonstrated excellent repeatability at 8 stations. A total of 130 gravity station locations were recorded using a Leica GPS Model GS15, with accuracy ranging from +/- 0.001 to 0.032 meters, providing excellent elevation control data. Mr. Carpenter processed and reduced all the data using his expertise and Geosoft Oasis Montaj software. He corrected for terrain (elevation changes) and removed regional effects to create complete bouguer and residual gravity maps at various densities, accurately reflecting the property's variable lithologic host rocks.

Criteria	JORC Code explanation	Commentary
Further work	• *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• It is recommended to continue exploration of the Basin Lithium Project through drill target development and to plan for additional drilling to expand the resources. The areas of Basin West and Basin West Extension are both prospective for further target development; resources in Basin East are open to the west for step-out drilling. Secondarily, the resource will also need to be upgraded in stages to Indicated and Measured Classification. Permitting for the upcoming drill phases will be necessary All estimated costs for recommended future work is in USD. • Metallurgical Testing: $175,000 • 3-D seismic Survey: to aid in drill target definition, covering both Basin West and Basin West Extension (detailed gravity survey also would be acceptable): 4 square miles at 75,000 USD: $ 300,000 • Geological Mapping and Surface Rock Sampling: $ 75,000 • Basin West Drilling: A 24-hole program, once the EA has been approved by the BLM, is recommended Total RC: $1,057,000 Or: Total Core/Sonic: $2,337,000 • Basin North Drilling: A 7-hole program at Basin North is recommended, pending Notice of Intent amendment approval by the BLM. Total RC: $552,000 Or Total Core/Sonic: $1,032,000 • Basin East Drilling:

Criteria	JORC Code explanation	Commentary
		Recommendation of a 3-to-4-hole program to define a horst feature, likely using RC as a form of drilling. Total RC: $67,700

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	• *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.* • *Data validation procedures used.*	• Photographs were taken of the paper logging sheets to create a digital backup of the original hard copies and to enable error-checking of the digital database. • ABH reviewed the Excel database and imported the data into 3D

Criteria	JORC Code explanation	Commentary
		visualization software for validation against georeferenced geological maps, sections, and the topographic model. • A statistical comparison was conducted between RC (2018 program), diamond (2021 program), and sonic (2022 program) drilling, confirming that there is no bias in Li assay grades between the different drilling types. The four twinned drillhole pairs (three RC-DD, one sonic-RC) also performed exceptionally well, with the down-hole Li grade profiles of the twins showing strong similarities and no statistical bias, as demonstrated by a QQ plot and histograms. • ABH is confident that the database is accurate, of high quality, and suitable for use in constructing an MRE.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• The ABH QP/CP performed a site visit on April 23rd and 24th, 2024, during which observations were made of core drilling, core handling, core logging and sampling and bulk density determinations; geologic units were identified both in outcrops over a wide area of the project and in the core library. The CP finds the Client's sampling techniques and geological understanding to be of good quality.
Geological interpretation	• *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* • *Nature of the data used and of any assumptions made.* • *The effect, if any, of alternative interpretations on Mineral Resource estimation.* • *The use of geology in guiding and controlling Mineral Resource estimation.* • *The factors affecting continuity both of grade and geology.*	• Li mineralization is confined to one stratigraphic unit (TClay), which is subdivided into an Upper and Lower horizon. The interpretation of the geology, i.e., the altered, tuffaceous sedimentary layers, is a fundamental basis of the MRE. • No alternative interpretations are proposed at this stage. • ABH is confident the geological interpretation of this deposit is supported by the drilling data and adequate for the reporting of Indicated and Inferred Mineral Resources ─ the geology is relatively simple, with sub-horizontal to gently dipping stratigraphy, a consistent stratigraphic sequence, and estimated offsets of ≤ 80 m (260 ft) across faults with linear surface traces. Geological and grade continuity is very good within individual fault blocks. • The main factor that may affect the continuity of mineralization outside of the Inferred part of the deposit is the presence of unidentified faults which could act as a backstop to the known volcaniclastic-sediment-filled basins hosting mineralization, or lateral facies changes within the lithium host rock. However, grade and geological continuity have been demonstrated through drilling across

Criteria	JORC Code explanation	Commentary
		three fault blocks for up to 2.7 km so far. • Step-out drilling in Basin North and infill drilling in the northwest parts of Basin East is recommended to confirm the lateral extents of the Li-bearing clay-rich tuff and potentially upgrade unclassified resources to Inferred resources. • Consistent intervals of higher grades and patterns in down-hole grade variability with depth are identified in the Upper TClay in all fault blocks, such that a high-grade clay-rich sub-domain can be modeled. The delineation of this subdomain was a result of infill drilling recommended during the 2018 MRE; i.e., 2021 drilling helped to confirm and give good confidence in the geological interpretation of the deposit. Subsequent sonic drilling in 2022 and 2023 corroborated this interpretation, and the diamond drilling in 2024 demonstrated down-dip continuity of this layer northwest of Burro Creek
Dimensions	• *The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	• The Mineral Resource comprises a sub-horizontal to gently dipping Li-bearing clay unit, divided into an upper and lower layer by an internal barren lapilli tuff. In certain areas, the upper layer is exposed at the surface. The mineralization is thinnest and shallowest in the southeast, where it has been partially eroded, and thickens down-dip to the northwest, reaching a maximum thickness of approximately 135 meters (including the internal lapilli tuff) on the southeast bank of Burro Creek. The mineralization dips gently to the northwest and maintains a thickness of approximately 110 meters northwest of Burro Creek. The maximum depth to the top of mineralization is 132 meters, occurring at the northwest limits of the drill-defined area, where a series of unmineralized Tertiary basalts and bedded tuffs overlie the lithium clays. • East of the main north-south fault, the clay unit has a lateral extent of approximately 650 meters east-west by 1,000 meters north-south (2,100 by 3,300 feet) in plan and remains open to the north. The upper layer ranges from 5 to 27 meters (16 to 89 feet) in thickness, while the lower layer ranges from 15 to 40 meters (50 to 130 feet) in thickness. West of the north-south fault, the clay unit has a lateral extent of approximately 3,400 by 1,900 meters (11,154 by 6,200 feet) in plan and is open to the northwest. The upper layer reaches a thickness of up to 96 meters (315 feet), and the lower layer varies from 10 to 39 meters (33 to 128 feet) in thickness.

Criteria	JORC Code explanation	Commentary
Estimation and modelling techniques	• *The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.* • *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.* • *The assumptions made regarding recovery of by-products.* • *Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).* • *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.* • *Any assumptions behind modelling of selective mining units.* • *Any assumptions about correlation between variables.* • *Description of how the geological interpretation was used to control the resource estimates.* • *Discussion of basis for using or not using grade cutting or capping.* • *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*	• Li block grades were estimated using Ordinary Kriging (OK), interpolated from 1.5 m (5 ft) composite samples within individual mineralization domains confined to the wireframe of the Li-bearing clay unit, using hard boundaries. Nugget variance was clearly modeled for all domains, and a reasonable variogram model was obtained for the domain with the closest drillhole spacing, parallel to the dip of the domain. The ranges from this variogram model were applied to the other domains. Grade caps were assessed and applied as required on a per-domain basis. The estimation was conducted using Leapfrog Edge software. A four-pass search strategy was employed, with sample restrictions ensuring that samples from at least three drillholes informed all blocks. The search ellipses were set to 0.25 of the variogram ranges in X-Y for the first pass, 0.5 for the second pass, the full variogram range for the third pass, and one variogram range in X-Y for the fourth pass, but with only two drillholes. A variable search ellipse orientation based on upper, lower, or internal domain contacts was used to control the search ellipsoid orientation for all domains. • The maiden MRE was carried out by SRK in 2018, followed by a Q1 2022 update, which reported a 76% increase in tonnage (due to infill and expansion drilling) but a 7% decrease in average grade (due to the inclusion of additional lower-grade Lower Clay material). A second update by SRK during Q4 2022, based on 2022 sonic drilling, included infill in the central part of the deposit as well as step-out drilling to the southwest and east. The Q4 2022 Mineral Resource reported a 26% increase in tonnage (resulting from step-out and deeper drilling to intersect previously missed parts of the lower clay layer) and a 3% reduction in average Li grade (mainly due to the inclusion of additional lower clay). SRK also conducted the 2023 MRE update reported herein, which is based on step-out drilling to the northwest and reports an almost threefold increase in tonnage, as well as a 30% increase in average Li grade for Inferred Mineral Resources. The increase in tonnage and grade is partly due to the addition of significant Upper Clay tonnage (as this unit is generally higher grade than the Lower Clay) and updated pit optimization parameters, resulting in a smaller proportional amount of lower-grade Lower Clay within the Resource pit shell. • ABH Engineering carried out the 2024 MRE update reported herein,

Criteria	JORC Code explanation	Commentary
		based on step-out drilling to the northwest. This update reports an almost twofold increase in tonnage and around a 10% decrease in average Li grade for Inferred Mineral Resources. The decrease in grade is partly due to the addition of significant Lower Clay tonnage as a result of the 2024 drilling. • Deleterious elements were not estimated; however, the presence of Mg and acid-consuming magnesite noted during metallurgical tests would affect metal recoveries. Future modeling and metallurgical test-work should take this into account. • A parent block size of 25 mE x 25 mN x 5 mRL was chosen to reflect the scale of patterns in grade variability while considering the relatively wide (150–400 m) drill spacing. Sub-blocking (down to 6.25 x 6.25 x 1.25 m) was allowed to improve the representation of thin horizons. • Selective mining units were not considered; however, the model block heights are comparable with the potential height of open-pit benches. • No significant correlation relationships were identified. • Li mineralization is confined to one stratigraphic unit, separated into an upper and lower layer by an internal barren lapilli tuff. The interpretation of the geology, i.e., the extents of the mineralized layer and the internal waste horizon, is fundamental to the MRE, and lithological unit boundaries are used as domain boundaries. The internal lapilli tuff waste horizon was also estimated to aid future mining dilution studies. • Following sample compositing to 1.5 m (5 ft) lengths, no capping was needed. • Global statistical checks (comparison of block means and mean composite grades) and local visual comparisons of block versus drillhole composite grades were conducted in section and in 3D to validate the model. Swath plots were also examined. ABH Engineering deems that the block model estimate represents local patterns in grade with an adequate degree of smoothing.
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	• To address these challenges, we implemented a comprehensive approach involving the following steps: • Samples of approximately 15 cm were first prepared by ensuring they were representative of the mineralized lithologies.

Criteria	JORC Code explanation	Commentary
		• Each sample was carefully coated with a layer of wax to seal in moisture and prevent further expansion or shrinkage. • The density of the samples was measured both before and after immersion in water. This step helped determine the true volume of the sample without the influence of water absorption. • A moisture correction factor was applied to each sample. This correction accounted for any remaining moisture content within the sample, minimizing the false weight that could be attributed to water.
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• ABH Engineering estimated an economic cut-off grade of 550 ppm Li, based on a cut-off grade analysis and preliminary open pit optimisation study with a range of scenarios.
Mining factors or assumptions	• *Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	• ABH carried out a cut-off grade analysis and preliminary open pit optimisation analysis and found that the pit size is affected by mining and processing costs such that much of the lower grade Lower Clay does not fall within optimised pit shells; however, all Upper Clay (including high grade sub-domain) is potentially mineable, except where limited by the license boundary and slope angle of the pit (45°). • The input values for many parameters are based on SRK's prior experience with similar projects but are at a preliminary stage. • Processing costs were updated to reflect those consistent with public domain reporting of peer group projects which are at a more advanced stage of technical understanding. Processing costs are estimated at 35 USD per tonne of ore, and a long-term metal price of 17,200 USD/tLCE was used. Assumed: 0% dilution, 100% mining recovery, and 72% processing recovery.
Metallurgical factors or assumptions	• *The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	• The metallurgical evaluation of Basin East is still in its preliminary phase. Strong acid leaching will be necessary to extract lithium from smectite clays, and comminution tests are needed to assess whether reagent-consuming gangue can be separated from these clays. Initial test results suggest that lithium recoveries of up to 85% could be possible at atmospheric pressure and elevated temperatures. Additional research is required to better understand the negative impact of magnesium clays and magnesite gangue.

Criteria	JORC Code explanation	Commentary
Environmental factors or assumptions	• *Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	• ABH has identified no environmental or social risks material to the reporting of Mineral Resources at this stage. However, several environmental and social factors will likely require strict management in the future: • To gain permission to commence operations, a detailed environmental and social impact assessment (ESIA) will be required to obtain environmental approval from the Environmental Protection Agency (EPA). • Access to water for the potential mining project will likely be the largest environmental and social challenge due to the scarcity of water in the region. • The project is located adjacent to areas protected under federal law (ACECs). • The region contains several animal and plant species of concern that are vulnerable to changes in land use. The company will need to consult with the Fish and Wildlife Service (FWS) to ensure alignment with Section 7 of the Endangered Species Act (ESA). • There is an active anti-mining NGO network in this area of Arizona that may present a challenge to permitting and operation.
Bulk density	• *Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.* • *The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.* • *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	• In swelling clay-rich lithologies, density determinations can be biased by several factors: o Incomplete accounting for moisture content when determining dry weight. o Inappropriate treatment of unrecovered material. o Volume determinations affected by: - Compaction of soft clays during drilling. - Expansion of swelling clays immediately after being released from the core barrel. - Shrinkage caused by partial drying of swelling clays. • To address these challenges, a comprehensive approach involving the following steps was implemented: • Pre-Waxing Preparation: Samples of approximately 15 cm were first prepared by ensuring they were representative of the mineralized lithologies. • Samples were sealed in plastic wrap. • Samples were weighed moist.

Criteria	JORC Code explanation	Commentary
		• Samples were dried for at least 12 hours in a desiccation oven. • Wax Immersion Technique: Each sample was carefully coated with a layer of wax for a complete sealing of the material. • The density of the samples was measured by weighing dry, before immersion in water, then when fully immersed in water. The true density of the sample was determined, without the influence of water absorption.
Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories.* • *Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).* • *Whether the result appropriately reflects the Competent Person's view of the deposit.*	• Measured Upper Clay and Lower Clay mineralization have been classified as Measured based on first search pass SVOL 1, as detailed in Table 14-7. This corresponds to one-fourth of the variogram range for each domain, with the following ranges: West Block: Maximum range = 350 m (1148 ft), Intermediate range = 200 m (656 ft), Minimum range = 10 m (33 ft) East and Central Blocks: Maximum range = 125 m (410 ft), Intermediate range = 100 m (328 ft), Minimum range = 10 m (33 ft) In these areas, drilling density is sufficient to provide high confidence in local block grade estimates. Indicated Upper Clay and Lower Clay mineralization have been classified as Indicated based on second search pass SVOL 2, as detailed in Table 14-7. This corresponds to half of the variogram range for each domain, with the following ranges: West Block: Maximum range = 700 m (2296 ft), Intermediate range = 400 m (1312 ft), Minimum range = 15 m (49 ft) East and Central Blocks: Maximum range = 250 m (820 ft), Intermediate range = 200 m (656 ft), Minimum range = 20 m (66 ft) In these areas, drilling density is sufficient to model moderate quality variograms, providing moderate confidence in local block grade estimates. Inferred Upper Clay and Lower Clay mineralization have been classified as Inferred based on third search pass SVOL 3 and SVOL 4 (<5% blocks), as detailed in Table 14-7. This corresponds to the full variogram range for each domain, with the following ranges:

Criteria	JORC Code explanation	Commentary
		West Block: Maximum range = 1400 m (4593 ft), Intermediate range = 800 m (2624 ft), Minimum range = 25 m (82 ft) East and Central Blocks: Maximum range = 500 m (1640 ft), Intermediate range = 400 m (1312 ft), Minimum range = 20 m (66 ft) There is excellent confidence in the geological continuity of mineralized units within fault blocks in the northwest (or down-dip) direction. However, blocks estimated in the Burro Creek area are classified as Inferred due to uncertainty about the thickness of the alluvium and potential faulting. Additionally, the area drilled in 2028, specifically around borehole BRCR1805 and its surroundings, is classified as Inferred due to required remediation. • Peripheral mineralization or any additional modelled mineralization extending well beyond the exploration drilling, where mineralization is open and geological continuity is not yet confirmed, has not been included in the Mineral Resource. These areas provide drill planning information.
Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates.*	• ABH is not aware of any external audits or reviews. • The Q3 2024 Mineral Resource shows nearly double the Inferred tonnage compared to the Q4 2022 Mineral Resource. This increase is attributed to the significant expansion of wide-spaced drilling coverage to the northwest of Burro Creek in the Basin East Extension license area. This drilling indicated, with low confidence, that mineralization, including the high-grade subdomain, is continuous and only shallowly buried in this area (Figure 14-16). • The Indicated contained lithium carbonate equivalent (LCE) has increased by approximately 15%. This increase is consistent with the revised dry density determination, leading to improved tonnage estimation. Additionally, the increase is due to the new classification in the western part of Burro Creek, where there is good drilling density within half the calculated variogram range for that area. • Measured blocks were also reported due to the high amount of drilling and the quality of the information presented in the eastern part of the western block, which meets the distance requirements of one-fourth the defined variogram range. • The average lithium grade for Inferred Resources has decreased by up to 10%, from 900 ppm to 810 ppm. This reduction is partly due to the addition of significant Lower Clay tonnage as a result of the 2024

Criteria	JORC Code explanation	Commentary
		drilling, as this unit generally has a lower grade than the Upper Clay. • ABH is confident that the estimate accurately reflects the drilling data and is based on a better understanding of the geology and the factors influencing grade distribution.
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.* • *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* • *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	• The MRE was primarily based on an interpolation using the Ordinary Kriging (OK) method. This algorithm is superior to simpler interpolation methods like Inverse Distance Weighting (IDW) because it considers parameters such as nugget variance, weights samples based on both relative distances and their positions in 3D space, and accounts for the change of support when dealing with blocks rather than drillhole composites. ABH believes this is an appropriate estimation method given the sample density and geostatistics, and that the estimation is reliable enough for local reporting of resource tonnage. • ABH recommends that, following additional infill drilling and sampling, further geostatistical studies (variography) be conducted to refine the variogram models and confirm relationships in the domains currently supported by wide-spaced drilling.