

ASX ANNOUNCEMENT

ASX: SYA

11 November 2019

REVISED AUTHIER DFS SHOWS BOOST TO PROFITABILITY

Highlights

- Revised Definitive Feasibility Study (UDFS) for Authier Lithium Project shows potential to become a sustainable and profitable new mine for benefit of all stakeholders
- Net present value (NPV) rises to C\$216 million (A\$238m) from previous study's C\$184.8m; pre-tax internal rate of return of 33.9% and estimated capital payback 2.7 years, based on annual average spodumene production of 114,116 tonnes (6% Li₂O).
- Potential to generate up to 176 new jobs for benefit of local community for mining operation spanning an estimated 14 years
- Pending regulatory approval, Authier project adds to Sayona's Québec lithium portfolio, with potential to supply North American Lithium concentrator (pending successful bid).

Emerging lithium miner **Sayona Mining Limited (ASX: SYA)** announced today a revised Definitive Feasibility Study (DFS) for its flagship Authier Lithium Project, showing the Québec project's potential to become a sustainable and profitable new lithium mine with higher returns than previously estimated.

The new mine could create up to 176 new jobs for the benefit of the local community in Abitibi, with Sayona putting priority on local employment and suppliers.

Significantly, the revised DFS shows an improved net present value (NPV) compared to the DFS released last year (refer ASX announcement 24 September 2018). Sayona sees the project as contributing to the Québec Government's lithium strategy of developing a complete lithium value chain in the Canadian province, from mining through to downstream processing.

Welcoming the new study, Sayona's Managing Director, Brett Lynch said it provided increased confidence to investors and project partners of the Authier project's potential to become a highly valuable operation for the benefit of all stakeholders, including First Nations, government and other members of the local community.

“This revised DFS highlights the value of Authier producing a spodumene concentrate for the fast-growing lithium-ion battery market,” Mr Lynch said.

“Québec aims to become a leader in this new energy sector and we are determined to make a substantial contribution through our Authier project to delivering on the government’s vision.”

Key findings of the DFS include:

- **NPV (real terms @ 8% discount rate) of C\$216m vs previous study’s C\$184.8m**
- **Pre-tax internal rate of return 33.9% vs 33.7%**
- **Annual average spodumene production – dry (6% Li₂O) of 114,116t vs 87,400t; 78% recovery rate**
- **Life of mine 13.8 years (based on a higher daily production rate of 2,600 tonnes per day compared to the previous DFS rate of 1,850t)**
- **Total EBITDA of C\$461m and total net revenue of C\$1,412m**
- **Initial capital costs C\$120m; life of mine capital costs C\$211m**
- **Project payback period of 2.7 years (after start of production)**

The project’s low capital and operating costs reflect its close proximity to established infrastructure including rail and road and access to a skilled local workforce, in addition to no requirement for on-site infrastructure such as accommodation camps and power plants. It also benefits from access to economical, environmentally friendly hydroelectric power and offers a simple deposit geology, mining and production processes.

The Authier project is currently undergoing a revised Environmental Impact Statement (EIS) in accordance with Article 31.1 of the *Environment Quality Act*, as per the BAPE (*bureau d’audiences publiques en environnement*) process stipulated by the Québec Government. The EIS is expected to be submitted to the relevant authority by year-end.

Importantly, the revised DFS demonstrates the Authier project will not “in any way and under any circumstances” impact the water quality of the St-Mathieu Berry esker, an important water resource for the region.

The revised DFS is based on a higher average daily production rate of 2,600 tonnes as permitted under the BAPE. This compares to the previous DFS, which planned a lower daily rate of 1,850t as per the daily production threshold under article 22 of the Act.

Pending the necessary stakeholder support and government approval, construction could commence as early as 2021, with the start of mining operations a year later.

Significantly for Québec’s lithium strategy, the project has the potential to supply the nearby North American Lithium mine’s concentrator, pending a successful bid for NAL by Sayona (refer ASX announcement 7 November 2019).

An earlier study also showed the technical and economic viability of unlocking further value from Authier by producing lithium carbonate or lithium hydroxide, utilising conventional processing technology (refer ASX announcement 30 August 2017).

The revised DFS was undertaken by Sayona Québec in collaboration with leading engineering group, BBA.

Sayona's Mr Lynch added: "Stakeholder support is essential and we will continue to engage closely with all local stakeholders concerning the establishment of a profitable and sustainable new lithium mine at Authier. Combining this project with NAL affords the opportunity for even greater value creation and we look forward to further progressing our bid for NAL, with the backing of our world-class support team."

Key Study Outcomes

Key outcomes of the DFS include an NPV of C\$216 million over an initial 13.8-year mine life, based on the current Proven and Probable Ore Reserve estimate of 12.10 Mt @ 1.00% Li₂O at a 0.55% Li₂O cut-off grade (refer table below).

The pre-tax Internal Rate of Return ("IRR") is estimated at 33.9% and payback on capital is 2.7 years. The LOM cash operating costs are estimated at C\$400 per tonne (mine gate basis) or C\$469 per tonne FOB Port of Montreal, based on a development capital expenditure of C\$120 million and a life-of-mine capital cost estimate of C\$211 million.

Authier Lithium Project DFS Highlights		
Description	Unit	Results
Average Annual Ore Feed to the Plant	tonnes	874,594
Annual Average Spodumene Production	tonnes	114,116
Life-of-Mine	years	13.8
Life-of-Mine Strip Ratio	waste to ore	6.9:1
Average Spodumene Price	US\$/tonne	693
Initial Development Capital Costs	C\$ million	120
Total Life of Mine Capital Costs	C\$ million	211
Total Net Revenue (real terms)	C\$ million	1,412
Total Project EBITDA (real terms)	C\$ million	461
Average Life of Mine Cash Costs (Mine-gate)	C\$/tonne	400
Average Life of Mine Cash Costs (Montreal Port FOB)	C\$/tonne	469
Net Present Value (real terms @ 8% discount rate)	C\$ million	216
Pre-Tax Internal Rate of Return	%	33.9
Project Payback Period (after start of production)	years	2.7
Exchange Rate	CAD:USD	0.76

UPDATED AUTHIER DFS – KEY HIGHLIGHTS

Location

Authier is located in the Abitibi-Témiscamingue Region of the Province of Québec and is centred in a well-developed mining region with associated resource industry support facilities and services. The towns of Rouyn-Noranda, Val-d’Or and Amos have populations of between 10,000 and 55,000 and are well known for their mining history.

An experienced mining workforce and other mining related support services will come from these nearby cities. Val-d’Or, Amos, and Rouyn-Noranda have well established hospitals, regional airports, schools, accommodation and telecommunications, which are readily accessed from the project site.

The site can be accessed by a 5km rural road, which connects to a sealed highway that links to Amos, Val-d’Or and Rouyn-Noranda as well as Montréal 590km to the south.

Québec is a major producer of electricity as well as one the largest hydropower generators in the world. Green and renewable, it is well distributed through a reliable power network. Power will be accessed about 5km to the south-east of the project site via an electricity grid supplied by low-cost, hydro-electric power.

CN Rail has an extensive rail network throughout Canada. One of the closest rail sidings connecting to an export shipping ports at Cadillac and Amos, both located roughly 20km from the Authier site. The rail network connects to Montréal and Québec City, and to the west through the Ontario Northland Railway and the whole of the North American rail system.

Geology and mineralisation

The Authier project hosts two separate mineralised spodumene-bearing pegmatite systems including, Authier and Authier North. Authier is 1,100m long, striking east-west, with an average thickness of 25m, ranging from 4m to 55m, dipping at 40° to 50° to the north. The deposit outcrops in the central-eastern sector and then extends under up to 10m of cover in the western and eastern sectors.

Authier North, located 400m north of the main Authier pegmatite, is approximately 500m in strike length, 7m average width, dipping 15° to 20° to the north. The Authier and Authier North pegmatite dykes remain open in all directions. A magnetic geophysical survey has demonstrated that the Authier mineralisation is hosted within a strong east-west trending magnetic low anomaly. Future exploration will focus on identifying extensions of know mineralisation within this structural feature.

The lithium mineralisation at Authier is related to multiple pulses of spodumene-bearing quartz-feldspar pegmatite. Higher lithium grades are related with high concentrations of fine and mid-to-coarse spodumene crystals (up to 4cm long axis) in a mid-to-coarse grained pegmatite facies.

Drilling

The Authier project has been subject to more than 31,000m of drilling. Between 2010 and 2012, Glen Eagle completed 8,990m of diamond drilling in 69 diamond drill holes (NQ diameter) of which 7,959m were drilled on the Authier deposit; 609m (5 DDH) were drilled on the Northwest and 422m on the south-southwest of the property.

Sayona Québec has completed three phases of drilling since the acquisition of Authier from Glen Eagle including 81 holes for 11,367.5m. From this database, 199 drill holes were used for the solid modelling and updated resource estimate. All holes completed by Sayona in the three programs have been Diamond Core Drill holes (DDH) using HQ or NQ core diameter size with a standard tube and bit. Core diameter for metallurgical drilling was done using PQ core for 680m and HQ core for 89.5m of HQ core. Condemnation drilling was done using NQ core diameter.

Mineral processing and metallurgical testing

Samples from the Authier deposit have been subjected to several metallurgical test work programs (1999, 2012, 2016, 2017, and 2018). In 1999, testing on a 40t bulk sample produced concentrate grading between 5.78% and 5.89% Li₂O with lithium recoveries between 68% and 70% from a sample with average head assay of 1.14% Li₂O.

In 2012, Glen Eagle tested a 270kg sample from drill core. The batch tests incorporated magnetic separation and spodumene flotation without mica pre-flotation. Tests produced concentrate grading 6.4% Li₂O with 85% recovery.

In 2016, Sayona completed metallurgical testing on a representative 430kg sample (including 5% mine ore dilution). Concentrate grades varied from 5.4% to 6.1% Li₂O at recoveries between 71% and 79%. Ore dilution had a negative impact on flotation performance.

In 2017, two representative samples were prepared, and flotation tests were undertaken to assess the impact of dilution and processing with site water. The program demonstrated the ability to produce concentrate grade of 6.0% Li₂O at recoveries greater than 80%.

A pilot plant testing program was undertaken in 2018 on a roughly 5t sample. Two composite pilot plant feed samples were prepared from drill core to represent Years 0 to 5 and Years 5+ of the operation. Batch and locked-cycle-testing was undertaken on each composite prior to pilot plant operation. Optimised batch flotation tests produced 6.0% Li₂O concentrate grade at 82% recovery. Locked-cycle test results showed Composite 1 achieved 5.9% Li₂O concentrate grade at 84% recovery; and Composite 2 achieved 5.9% Li₂O concentrate grade at 83% recovery.

The pilot plant flowsheet included grinding, de-sliming, magnetic separation, mica and spodumene flotation. The optimised flowsheet produced a 6% Li₂O concentrate at a 79% lithium recovery. There was some variability in the results over the total program. For the optimised pilot plant flowsheets, Composite 1 produced concentrate ranging from 5.9% to 6.0% Li₂O with recoveries ranging from 67% to 71%. For Composite 2, concentrate grade ranged from 5.8% to 6.2% Li₂O with lithium recovery from 73% to 79%.

Mineral Resource estimate

An independent JORC Mineral Resource (2012) estimate for the Authier deposit is reported as per the table below:

Authier JORC Mineral Resource Estimate (0.55% Li ₂ O cut-off grade)			
Category	Tonnes (Mt)	Grades (%Li ₂ O)	Contained Li ₂ O
Measured Resource	6.58	1.02	67,100
Indicated Resource	10.60	1.01	107,100
Total Measured & Indicated	17.18	1.01	174,200
Inferred Resource	3.76	0.98	36,800
Total Resource	20.94	1.01	211,000

The Mineral Resource estimates for the Authier deposit includes the Authier Main and Authier North pegmatites and is based on 1.5m composite analytical data, no top-cut, and a 0.55% Li₂O cut-off grade. The estimation was based on an Inverse Distance Cubed (ID3) interpolation.

A block size of 3m (N-S) by 3m (E-W) by 3m (vertical) was selected for the resource block model of the project based on drill hole spacing, width and general geometry of mineralisation but primarily by the selected SMU from the advanced feasibility study. Three dimensional mineralised wireframes were used to domain the Li₂O data using a 0.4% Li₂O cut-off over a minimum drill hole interval length of 2m as guideline to define the width of mineralised interpretations on sections, i.e., polygons. Sample data was composited to 1.5m down hole lengths. Variable search ellipse orientations were used to interpolate the blocks.

For the Measured Resource category, the search ellipsoid was 50m (strike) by 50m (dip) by 25m with a minimum of seven composites in at least three different drill holes, with a maximum of two composites per hole.

An ellipse fill factor of 60% was applied to the measured category, i.e. only 50% of the blocks were tagged as measured within the search ellipse.

For the Indicated category, the search ellipsoid was twice the size of the measured category ellipsoid using the same composites selection criteria. An ellipse fill factor of 85% was applied to the Indicated category. All remaining blocks were in the Inferred category.

Mining

Mining will be undertaken using drill and blast, and conventional bulk mining methods utilising hydraulic excavators and dump trucks delivering ore to the primary jaw crusher or to the ROM stockpile.

The project's life-of-mine (LOM) plan and subsequent ore reserves are based on an average lithium concentrate selling price of 693 \$USD/t at 6.0% Li₂O purity and based on an exchange rate of 0.76 USD to 1 CAD.

Development of the LOM plan included pit optimisation, pit design, mine scheduling and the application of modifying factors to the Measured and Indicated portion of the in-situ mineral resource. Tonnages and grades are reported as run-of-mine (ROM) feed at the crusher and are inclusive of mining dilution, geological losses and operational mining loss factors.

Multiple mining phases were developed for the UDFS. The LOM was developed based on a range of constraints and results in a mine life of 14 years.

The table below presents the ore reserves for the Authier project which are based on the results of the 2018 DFS (no updates were made to the reserves for the feasibility study update). Ore reserves are based on measured and indicated mineral resources contained within the final pit design following the application of modifying factors. Reserves are reported as ROM feed tonnes at the crusher above a cut-off grade of 0.55% Li₂O.

Authier JORC Ore Reserve Estimate (0.55% Li ₂ O cut-off grade)			
Category	Tonnes (Mt)	Grades (%Li ₂ O)	Contained Li ₂ O
Proven Reserve	6.10	0.99	60,390
Probable Reserve	6.00	1.02	61,200
Total Reserves	12.10	1.00	121,590
Note: The Ore Reserve estimate is inclusive of ore dilution and ore loss			

Recovery methods

BBA designed a concentrator to process roughly 883,000 tpa of ore using conventional flotation technology suitable for a pegmatite orebody that will be located near the open-pit.

Run-of-mine ore (ROM) will be transported from the mine to the crushing plant. The ore will be crushed to a P80 of 9 mm in three stages of crushing. The crushed ore will be stored under a protected dome and conveyed to the ball mill. Crushed ore will be ground using a single-stage ball mill to a P80 of 180 µm. The ground ore will be passed through a magnetic separation circuit to remove iron-bearing silicate minerals and then de-slimed prior to mica flotation. Following mica flotation, the slurry will flow to an attrition scrubber and hydrocyclones for de-sliming prior to spodumene flotation. The plant will produce 6.0% Li₂O concentrate with 78% lithium recovery.

Magnetic and mica concentrates, slimes, and spodumene flotation tailings will be thickened and filtered prior to co-disposal with mine waste (dry stacking). Truck and loading units will be used to dispatch tailings to the waste rock facility. The spodumene concentrate will be filtered to roughly 6% moisture. The dried spodumene concentrate will be stored in a covered storage area prior to bulk shipment to a port and/or other Canadian offtaker.

The plant will produce a LOM average of roughly 112,700 t of 6.0% Li₂O concentrate suitable for sale to lithium conversion plants that supply feed-stock to lithium battery manufacturers.

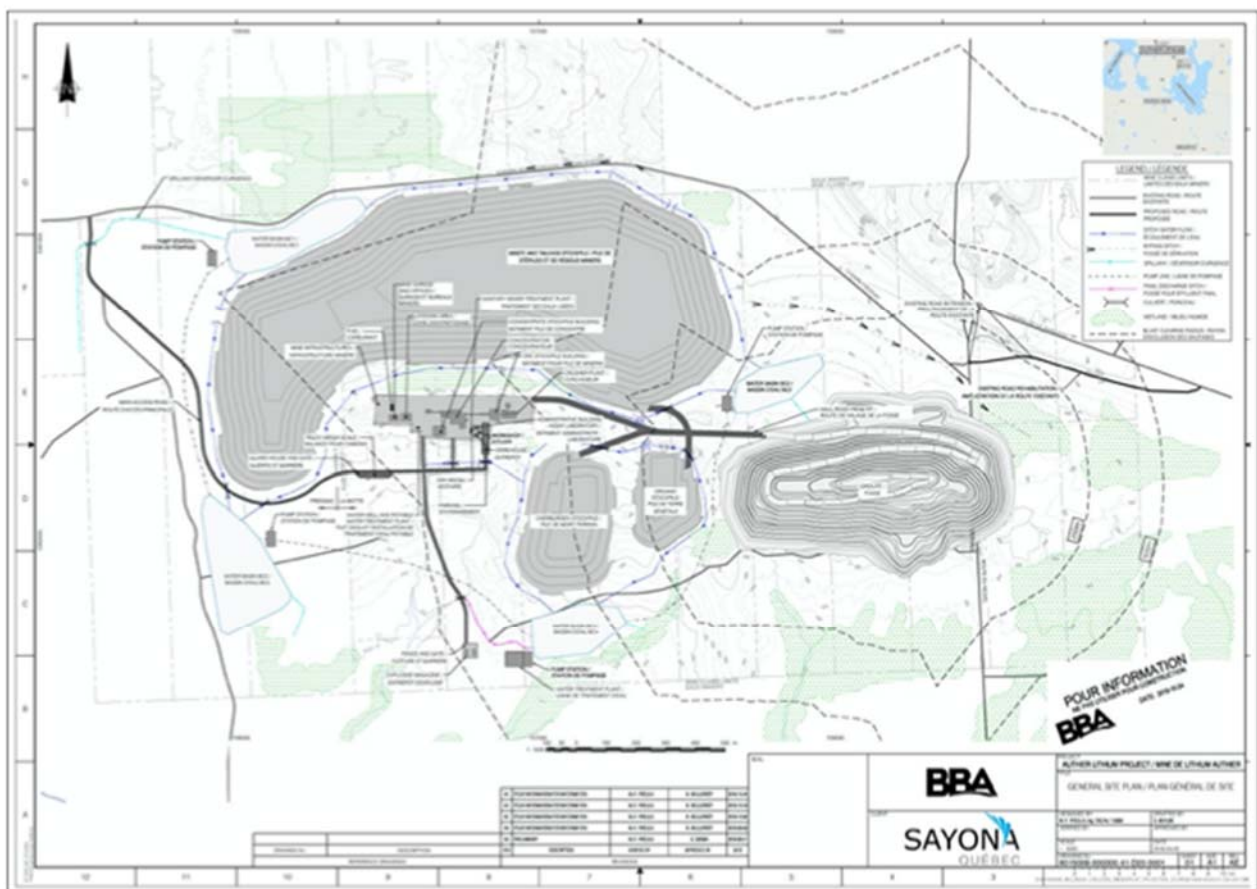
Waste dumps and tailings

During the lifespan of the open pit mine, a total of 35.9 Mm³ of waste rocks and 4.38 Mm³ of tailings will be generated for a total of 40.28 Mm³. Sayona Québec has opted for a co-disposal method to store tailings produced at the concentrator and waste rocks from the mine.

The co-disposal strategy consists of using waste rocks to construct peripheral berms and peripheral roads and confining filtered tailings into waste rock cells. This method has the advantage of increasing the stockpile's global stability and the water drainage efficiency while ensuring long-term physical and geochemical stability. Furthermore, the co-disposal method reduces the site's footprint.

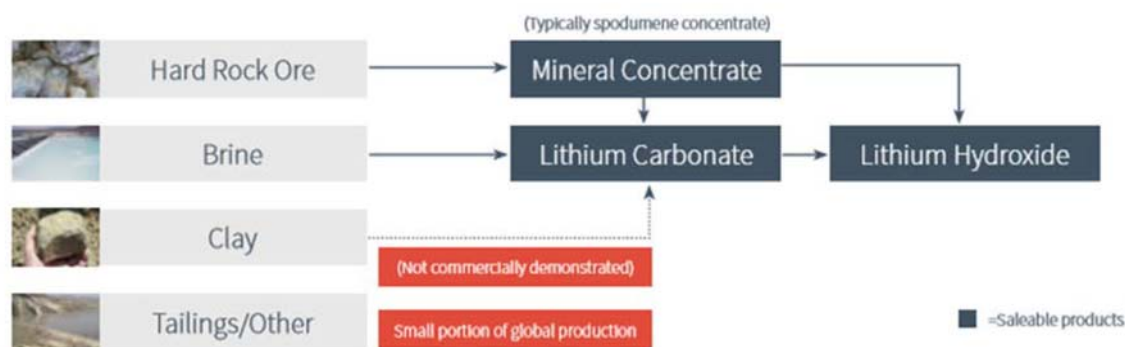
Project infrastructure

The project infrastructure includes a process plant, overburden stockpile, ROM pad, waste and dry tailings co-disposal pile, service and haul roads, offices complex, mechanical shop, water treatment plant, warehouse, electrical distribution facilities, water storage and management ponds, fuel and explosive storage and communication systems (see Figure 1-1).



Market analysis and offtake agreements

As part of the lithium extraction and processing value chain there are essentially three main saleable products from various sources; a mineral concentrate (typically a spodumene concentrate), lithium carbonate and lithium hydroxide. Lithium carbonate and hydroxide are typically produced in two grades, technical and battery grade.



Lithium Saleable Products (Source: Hatch)

The Authier Lithium Project being developed by Sayona Québec is initially targeting production of a spodumene concentrate eligible for offtake agreements to supply downstream refiners for conversion to a lithium carbonate or hydroxide chemical product to be used as an input into product application manufacturing.

In line with the anticipated surge in demand for rechargeable batteries as electric vehicles penetration rises and displaces internal combustion vehicles as the preferred means of mass transportation, Hatch estimates that lithium hydroxide and carbonate will experience a rapid increase in demand through to 2030.

The table below assembles the available information from a number of analysts and producers who have forecasted long term prices of spodumene. Most analysts do not clearly describe the point of pricing but it can be assumed this refers to FOB Australia prices given that bulk of spodumene produced globally is exported from Australia.

There is a wide variation in outlook of spodumene price forecasts among the analysts. The rapid decline in prices from \$900/t in early 2018 to \$580/t in August 2019 could explain why the forecasts may still be lagging the market conditions; however, there is some agreement among analysts that the high prices of spodumene witnessed by the market between 2016 and H1 2018 is an aberration and that future demand supply balance outlook will not be able to support such high prices.

In the long term, cost pressures on electrical vehicle manufacturing and battery manufacturing, alongside removal of government subsidies, could cascade up the supply chain to put pressure on spodumene prices.

Methodology

The methodology described below takes a departure from making informed and valid conclusions from offtake contract prices and analyst forecasts. The offtake prices and analyst prices are used to guide the final forecast numbers, and to validate if they are comparable or widely divergent. The following steps were undertaken in developing the spodumene price forecasts in this report.

- Begin with forecast lithium carbonate (battery grade) prices in China;
- Deduct typical converter margins;
- Calculate lithium carbonate production costs;
- Deduct typical converter conversion costs;
- Calculate spodumene costs;
- Divide spodumene costs by 7.751 to give guidance to spodumene prices in CIF China USD/t;
- Adjust guidance prices with lithium demand supply balance factor;
- Deduct freight rates to calculate FOB Canada prices.

The study reviewed lithium industry pricing forecasts from leading investment groups and were compiled by Hatch Consultants (Market Study Division – London and New York). The pricing forecast is presented in Table 1-4 and the base case pricing was retained for the updated Definitive Feasibility Study (UDFS).

Table 1-4: Spodumene Concentrate Price Forecast 2019-2026 (USD)

	2019	2020	2021	2022	2023	2024	2025	2026
Base Case	609	545	564	558	644	713	712	730
High Case	670	599	620	641	740	820	818	839
Low Case	579	518	535	530	579	642	640	657

The prices shown in the table show the prices computed from the methodology described above. Based on the demand supply balance of the lithium we expect prices to respond to excess supply between 2020 and 2022 before it starts increasing. As the market moves into an expected deficit from 2024, prices will improve to \$713/t in 2024, further improving to \$736/t by 2027. After 2027 the improved pricing will incentivise more supply into the market which will then soften the prices to a longer-term average of \$675/t.

Environmental studies

Environmental baseline studies were conducted in 2012 by Dessau. Surface water was sampled (2017, 2018 and 2019) as part of the fish habitat study in the streams that are likely to be impacted by the project. The results were compared to the provincial criteria for the protection of aquatic life for chronic toxicity established by the Ministère l'Environnement et de la Lutte contre les changements climatiques

(MELCC) and the Canadian aquatic life protection guidelines for long-term exposure of the Canadian Council of Ministers of the Environment (CCME).

Laboratory analysis revealed that the water sampled is acidic, with low to medium alkalinity, relatively limpid, and slightly mineralised. During the sampling campaigns between December 2016 and September 2019, 14 to 21 piezometers were sampled for underground water quality analyses.

Samples collected were analysed for a variety of parameters including metals, nutrients, major anions and cations, volatile compounds, polycyclic aromatic hydrocarbons and C10-C50 petroleum hydrocarbons.

Characterisation of wetlands began in 2017 and was completed in June 2018 and July 2019. A field inventory of snakes, salamanders and anuran was conducted by SNC-Lavalin during the summer 2017 and spring 2018. In 2012, visual characterisations were made for five ponds and one stream in the Preissac Lake watershed. An ichthyological fauna inventory was completed during the characterisation of bodies of water and streams during the summer 2017 and 2018.

The southern part of the St-Mathieu-Berry esker is located within the area of influence of the mine. However, it is located 50m lower than the esker and isolated from it by a bedrock. As such, the Authier project will not threaten, in any way and under any circumstances, the water quality of this esker.

Also, the effects of mine dewatering on residential wells are negligible since those wells are located at more than twice the radius of influence of the open pit. Groundwater quality should not be affected as the open pit will act like a drain, intercepting all possibly contaminated groundwater.

The project will create temporary and permanent modifications to the site. During the environmental assessment process, the impacts and mitigation measures were established for the physical, biological, and human environments.

During operations, a monitoring program will be implemented.

This environmental monitoring program aims to ensure compliance with the environmental laws and regulations and the conditions of the certificates of authorisation that will be issued by the MELCC or conditions of the mining lease issued by the MERN.

Permitting

The global certificate of authorisation frames the environmental component of the project, in respect to the regulation respecting the environmental assessment and review of certain projects (CQLR, cQ2, r23.1). The project is subject to an environmental impact assessment and review procedure under the *Environment Quality Act* (article 31.1), and also a public hearing process (BAPE).

In addition, in accordance with Québec's *Mining Act* and *Environment Quality Act*, permits are also required in order to build and operate the mine. A mining lease is required from the Ministry of Energy and Natural Resources (MERN). From a federal point of view, no environmental impact assessment is

required. Other permits or leases will have to be obtained depending on planned development activities at the site. Other permits may also be required at the regional/municipal level.

Reclamation and closure

In accordance with the *Mining Act* of Québec, closure and restoration requirements have been developed to return the Authier project site to an acceptable condition, ensuring that the site is safe, and the surrounding environment is protected.

The cost of restoring the Authier site is estimated to be \$10.9m. As required by the Ministère des Ressources Naturelles (“MERN”), this cost estimate includes the cost of site restoration, the post-closure monitoring as well as engineering costs (30%) and a contingency of 15%. In accordance with the regulations, Sayona intends to post a bond as a guarantee against the site restoration cost.

Transport and logistics

Sayona will hire a third-party contactor to provide a turnkey transport service to transport the concentrate from the mine to the port of Montreal using a fleet of 40t b-train tractor-trailers.

A well-managed dedicated truck fleet would allow Sayona to have complete control on the tonnage to be shipped according to production. Approximately nine 40t loads will leave the mine daily.

Capital and operating cost estimates

The following tables summarise the capital, sustaining capital and operating costs resulting from the UDFS work. The present costs estimate meets AACE Class 3 – estimate type criteria, which is usually prepared to establish the preliminary costs forecast and assess the profitability potential of a project.

The accuracy range for the costs estimate developed in this study is -10% on the low side and +15% on the high side. Please note numbers in the following tables might not add up due to rounding.

Table 1-6: Initial Capital Cost Estimate Summary

Year		-1	1*	Total
Mine Preproduction	M\$	3.2	0.0	3.2
Mine Equipment- Financed	M\$	0.9	0.0	0.9
Mine Equipment- Purchased	M\$	1.3	0.0	1.3
Process Plant and Infrastructure	M\$	69.0	46.0	115.0
Total Initial Capital Costs	M\$	74.5	46.0	120.5

* Capital costs in year 1 for all items except for Process Plant and Infrastructure are captured under sustaining capital costs. The Process Plant and Infrastructure costs are assumed to be spent over years -1 and 1 in a split of 60% and 40% respectively.

Table 1-7: Process Plant and Infrastructure Capital Cost Summary

Area	Value	Cost
Direct Costs		
Mine Infrastructure (Road)	M\$	0.5
Process Plant	M\$	65.8
Tailings Storage Facility	M\$	9.2
Common Services	M\$	3.3
On Site Infrastructure	M\$	4.1
Off Site Infrastructure	M\$	2.8
Total Directs	M\$	85.6
Indirect Costs		
Owner's Costs	M\$	3.7
Indirects (EPCM, Overhead, General)	M\$	13.6
Contingency	M\$	12.1
Total Indirects	M\$	29.4
Total Process Plant and Infrastructure Costs	M\$	115.0

Indirect costs for EPCM, Owner's team consultants and contingency were estimated using cost allowances. EPCM costs assume 11.15% of total direct costs within acceptable industry range at the feasibility level. Owner's team consultants' costs were calculated using 2% of total direct costs as benchmarked on other projects. A contingency value of 12% of total project costs has been assumed, which is in line with industry standard values.

Table 1-9: Operating Cost Estimate Summary

Cost Area	LOM (M\$)	\$/t Milled	CAD/t Conc Prod (Dry)	USD/t Conc Prod (Dry)
Open Pit Mining	302.3	25.0	191.5	145.5
Mineral Processing (Includes mobile eqpt)	226.7	18.7	143.7	109.2
Analytical Laboratory	12.7	1.1	8.1	6.1
Water Treatment	16.1	1.3	10.2	7.7
Tailings Management	6.0	0.5	3.8	2.9
General and Administration	67.1	5.5	42.5	32.3
Total Onsite Costs	630.9	52.2	399.7	303.8
Royalties	20.4	1.7	12.9	9.8
Total Onsite Costs + Royalties	651.3	53.8	412.7	313.6
Concentrate Transport and Logistics Costs	108.5	9.0	68.8	52.3
Total Operating and Shipping Costs	759.8	62.8	481.4	365.9

The low capital and operating costs associated with the project are attributed to:

- Close proximity to established infrastructure – power lines (5km), sealed national highways (5km), rail (20km), local water supplies, and a skilled local workforce;
- No requirement for on-site infrastructure such as accommodation camps and power plants;
- Low electricity costs in Québec; and
- Simple deposit geology, mining and production processes.

Economic analysis

An economic, life-of-mine cash flow model of the project was constructed using the production mining and processing production schedules developed for the UDFS. The key outcomes of the economic evaluation for 100% of the project, before financing costs, are presented in Table 1-10.

Table 1-10: Economic Analysis Summary

Authier Lithium Project Highlights		
Description	Unit	Value
Average Annual Ore Feed to the Plant	t	874 594
Average Annual Grade to the Plant	% Li ₂ O	1.0
Annual Average Spodumene Production - Dry (6% Li ₂ O)	t	114 116
Li ₂ O Recovery	%	78
Life of Mine (LOM)	year	13.8
LOM Strip Ratio	waste to ore	6.90
Average Spodumene Price	USD/t	693
LOM Operating Costs (mine gate) – Excluding Royalties	CAD million	631
LOM Transport and Logistics Costs (mine to port)	CAD million	109
Royalties purchase	CAD million	3.0
Initial Capital Costs	CAD million	120
LOM Capital Costs	CAD million	211
Royalties	CAD million	20.4
Total Net Revenue	CAD million	1 412
Total Project EBITDA	CAD million	461
Average Life of Mine Cash Costs (mine gate) – Excluding Royalties	CAD/t	400
Average Life of Mine Cash Costs (FOB Port of Montreal) – Excluding Royalties	CAD/t	469
Average Life of Mine Cash Costs (FOB Port of Montreal) – Excluding Royalties	USD/t	356
Net Present Value (real terms @ 8% discount rate)	CAD million	216
Pre-tax Internal Rate of Return	%	33.9
Project Payback Period (After Start of Production)	year	2.7
Exchange Rate	CAD:USD	0.76

Summary of the main assumptions:

1. **Exchange rates** - An exchange rate of \$0.76 USD per CAD was used to convert the USD market price projections into Canadian currency. The sensitivity of the base case financial results to variations in the exchange rate was examined. Those cost components, which include U.S. content originally converted to Canadian currency using the base case exchange rate, were adjusted accordingly;

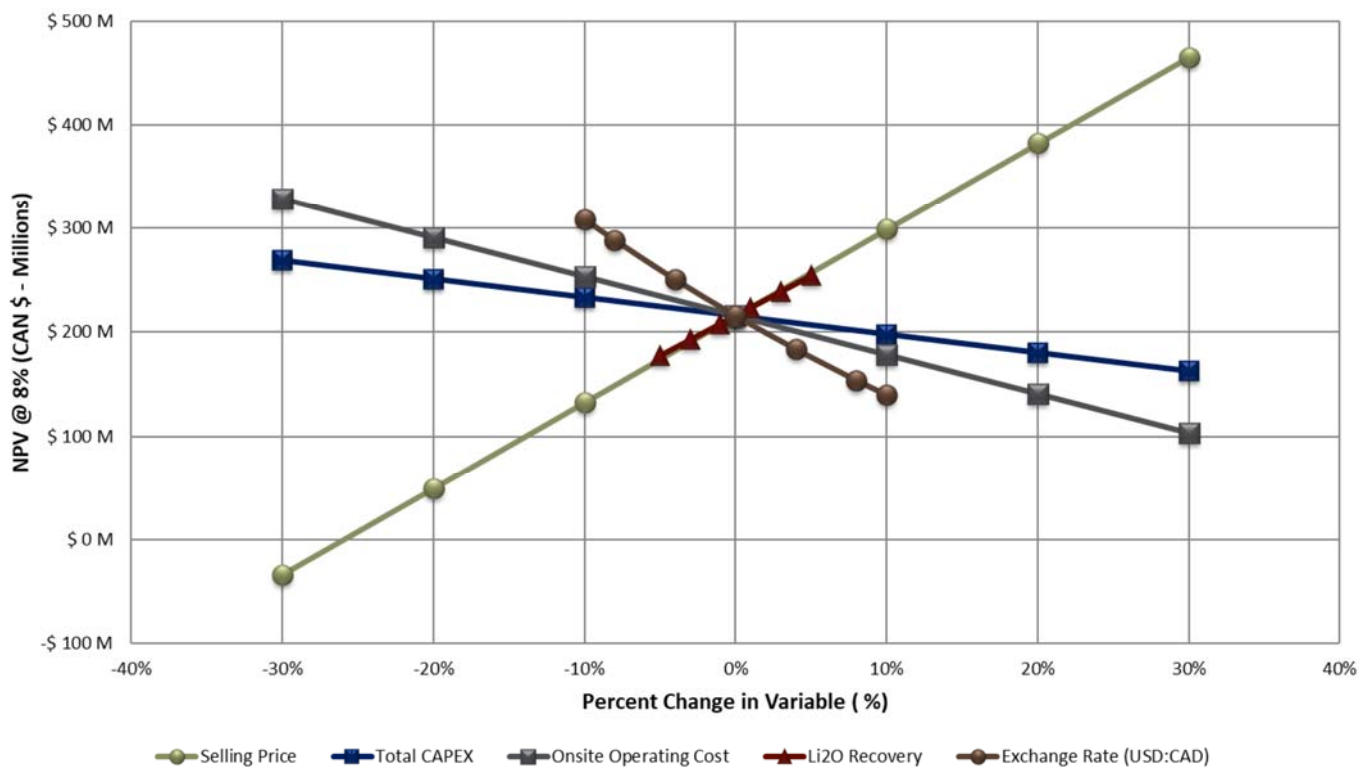
2. **Discount rate** – a discount rate of 8% has been applied for the NPV calculation;
3. **Inflation** – All the forecasts within the financial analysis are on a real basis, i.e. with no inflation adjustments; and
4. **Royalties** – The Quebec government does not impose any royalties on mineral production. However, Authier is subject to a number of vendor royalty payments and a 1.40% Gross revenue royalty is applicable after the planned purchase of some existing royalties for a total of C\$3.0 M.

Sensitivity Analysis

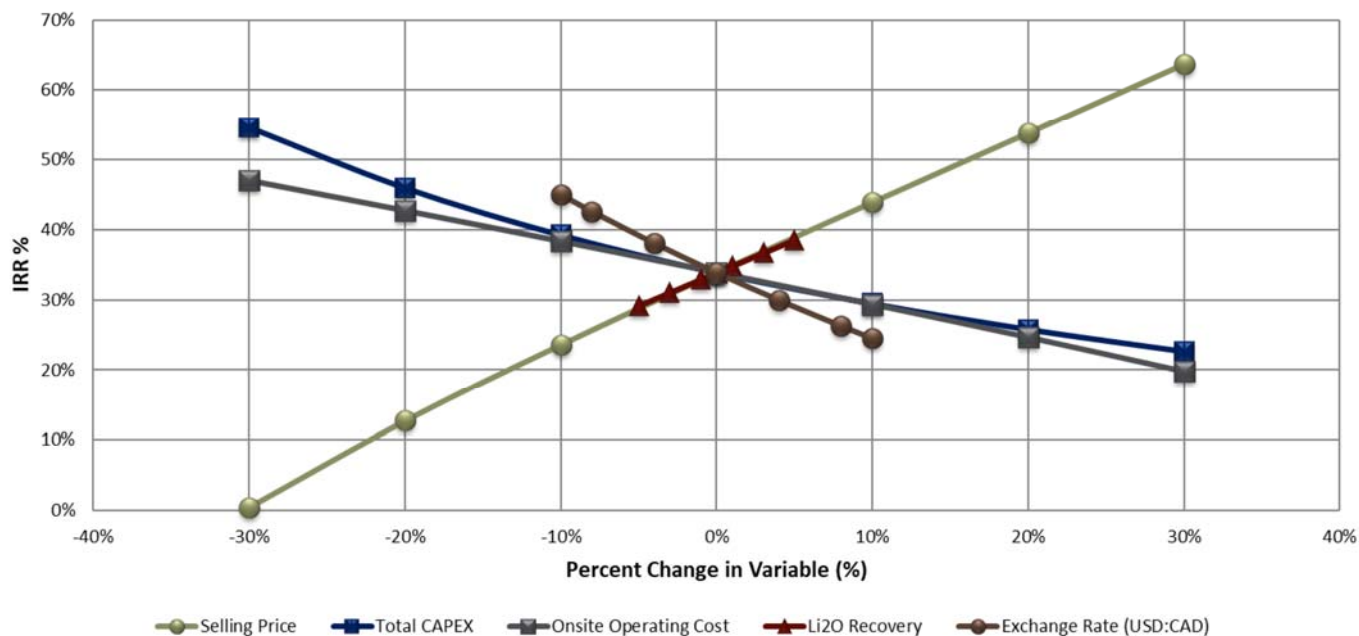
A pre-tax sensitivity analysis was conducted on the economic model to test changes in key economic assumptions, namely commodity price, Li_2O recovery, operating cost, capital cost, and exchange rate.

The project's pre-tax Net Present Value (NPV) was most sensitive to the commodity price and least sensitive to the Li_2O recovery and CAPEX.

NPV Sensitivity Chart



IRR Sensitivity Chart



Project implementation and execution

The project execution schedule is developed to a feasibility level and therefore preliminary in nature. Detailed execution planning will be undertaken at the beginning of the project execution phase.

The preliminary project execution schedule, developed during the DFS and described herein, covers the period from the end of the DFS to the achievement of commercial operation in Q3 2022. Table 1-11 summarises key milestones of the execution strategy.

Table 1-11: Preliminary Schedule

Activity	Start Date	Completion Date
Definitive Feasibility Study, incl. revised mine plan	-	Completed
Decision from Government on permitting	-	Q4 2020
Construction permit issuance (approximate date)	-	Q1 2021
Operation permits issuance (approximate date)	-	Q3 2021
Early work phase (engineering and procurement only)	Q4 2020	Q1 2021
Execution phase to be started	Q1 2021	-
Detailed engineering and procurement	Q4 2020	Q1 2022
Construction (when permits are issued)	Q2-Q3 2021	Q3 2022
Commissioning	Q3 2022	Q3 2022
Hand-over to Operation	-	Q3 2022
Start of mining operations	Q3-Q4 2022	-

Risk and opportunity

Significant risks are associated with the development, commissioning and operation of a mine. The 2018 (DFS) risk assessment was updated during the UDFS to identify the critical project risks and develop mitigation strategies.

A significant amount of drilling has been undertaken to establish the resource and metallurgical testing has led to the development of a proven processing route to produce a saleable spodumene concentrate.

The Authier project is in an advanced stage of development and a major focus is risk mitigation which will allow the project to progress successfully. Sayona is now expanding its in-house technical and project delivery capabilities to manage the outcomes.

Conclusion and recommendations

The UDFS incorporates the 2018 JORC resource, results from many technical optimisation programs, and realignment of pricing to reflect more recent industry forecasts. The UDFS confirms the technical and financial viability of constructing a simple, open-cut mining operation and processing facility producing spodumene concentrate.

The positive UDFS demonstrates the opportunity to create substantial long-term sustainable shareholder value at a low capital cost. Given the technical feasibility and positive economic results of the UDFS, it is recommended to continue the work necessary to develop the project.

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About Sayona Mining

Sayona Mining Limited is an Australian, ASX-listed (SYA) company focused on sourcing and developing the raw materials required to construct lithium-ion batteries for use in the rapidly growing new and green technology sectors. The Company has lithium projects in Québec, Canada and in Western Australia.

Please visit us as at www.sayonamining.com.au.

Reference to Previous ASX Releases

Certain information relating to Mineral Resources, Exploration Targets and Exploration Data associated with the Company's projects in this Report has been extracted from the following ASX Announcements. This report also refers to the following previous ASX releases:

- Boost for Authier Project as JORC Ore Reserves expand 24 September 2018
- Positive Authier Definitive Feasibility Study, 24 September 2018
- Step Up of Engagement Following Québec Regulatory Decision, 6 Mar 2019
- Engineering Firm Appointed for Updated Authier DFS 28 May 2019
- New EIS Launched for Authier Lithium Project 24 June 2019

Copies of these reports are available to view on the Sayona Mining Limited website www.sayonamining.com.au.

These reports were issued in accordance with the 2012 Edition of the JORC Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and all material assumptions and technical parameters continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcements.

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