



# ASX ANNOUNCEMENT



31 JULY 2017

JUNE 2017 QUARTERLY REPORT

## Highlights

- New Authier JORC-compliant Mineral Resource estimate of 17.4Mt @ 1.02% Li<sub>2</sub>O (177,212 tonnes Li<sub>2</sub>O)
- Optimisation programs to enhance the Authier value commenced including metallurgical, hydrogeological and geotechnical programs
- Successful downstream processing of Authier concentrates and commencement of concept study for production of lithium carbonate
- Maiden reverse circulation drilling program completed at Mallina

**Sayona Mining Limited (ASX: SYA) ("Sayona" or the "Company")** is pleased to announce the activities report for the quarter, including:

- Authier, Canada – An upgrade of the JORC Mineral Resource, the successful demonstration of the conversion of Authier concentrates into beta spodumene, and the commencement of a number of value enhancement programs to improve the base case Pre-Feasibility Study valuation; and
- Mallina, Australia – identification of a new group of spodumene pegmatites in the east of the tenement and completion of a maiden drill programme with 18 RC holes for 1,343 metres.

## **Authier, Canada**

The Company's primary strategy is to focus on completing the studies required to commence the development of the project. Authier is a near-term development project and cash-flow generation opportunity. The Company believes it will create significant share value-uplift potential for shareholders as the project is advanced towards development.

### ***JORC Mineral Resource Upgrade***

Following the completion of the Phase 2 drilling program in May 2017, the Company announced an expanded, JORC 2012 compliant Mineral Resource estimate, tabulated below in Table 1. The contained lithium oxide Mineral Resource has increased by 21% from 146,700 tonnes to 177,212 tonnes compared to the November 2016 estimate. The Measured and Indicated Mineral Resource categories represent 88% of the total Mineral Resource estimate.

#### **SAYONA MINING LIMITED**

Phone: +61 7 3369 7058

Email: [info@sayona.mining.com.au](mailto:info@sayona.mining.com.au)

Address: Suite 68, 283 Given Tce, Paddington QLD 4064

Post: PO Box 1357, Milton, Qld 4064, Australia

[www.sayonamining.com.au](http://www.sayonamining.com.au)

ASX Code: **SYA**

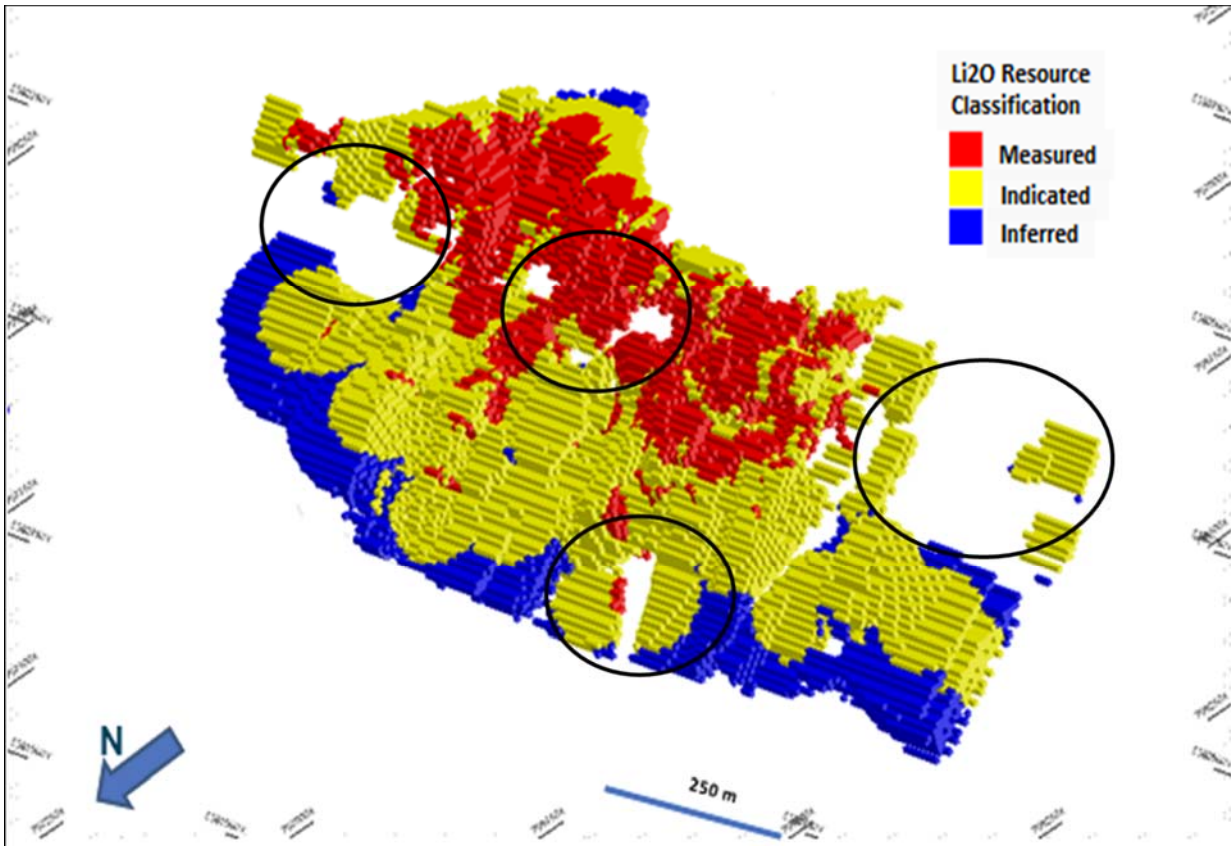
Table 1 – Authier JORC Mineral Resources Estimate (0.45% Li <sub>2</sub> O cut-off grade)			
Category	Tonnes (Mt)	Grades %Li <sub>2</sub> O	Contained Li <sub>2</sub> O
Measured	5.62	1.01%	56,762
Indicated	9.57	1.03%	98,571
Inferred	2.21	0.99%	21,879
<b>Total</b>	<b>17.40</b>	<b>1.02%</b>	<b>177,212</b>

Following the completion of a Pre-feasibility Study in February 2017, the Company has adopted a 0.45% Li<sub>2</sub>O cut-off grade compared to the 0.5% Li<sub>2</sub>O cut-off used in historical resource estimates.

The Mineral Resource has been estimated and reported in accordance with the guidelines of the Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code 2012). A summary of the estimation methodology and competent person statement is included in this announcement.

The Company believes there is further potential to optimise the main resource area including:

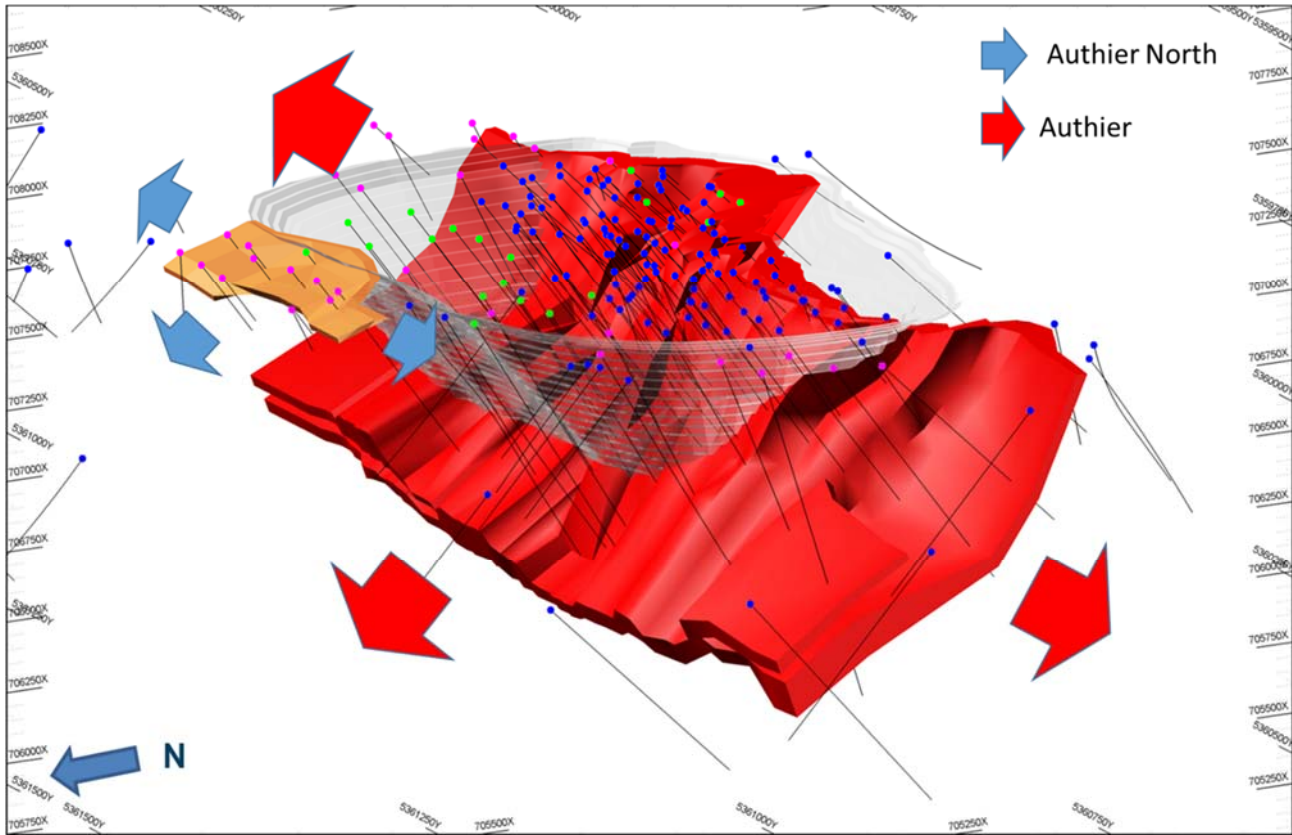
- Infill drilling within the main deposit where there is no resource due to lack of drilling density (shown as block circles on Figure 1), especially in the east and west, and to add the resource base; and
- Converting inferred resources into a higher resource classifications by further higher density drilling (shown as blue on the diagram).



**Figure 1:** Black circles represent areas where further density of drilling is required to increase the resource. Additionally, some of the blue Inferred Resource areas have the potential to be converted to higher resource categories with further drilling

The mineralisation remains open in all directions (see Figure 2). Currently, the Company is not looking to expand the current Mineral Resource estimate given the current resource provides more than 20 years mine life. However, future target areas to expand the resource could include:

- Testing for further mineralisation in the east and west strike extensions;
- Defining further mineralisation at depth; and
- Assessing the resource potential of Authier North.



**Figure 2:** Lithium solid showing the location of all the historical drill holes and the potential areas for expansion of the resource in future drilling programs

### ***Hydrogeological Survey***

A hydrogeology study commenced during the quarter which involves drilling a number of shallow water wells to assess hydrogeological conditions prevailing in the project area. The information will be used to assess the current quality of the groundwater and to make the assessment of the projects impact on the ground water quality in the area.

In addition, the data will be used to plan the pumping activities for the mine, and to provide information for the geotechnical engineering and geo-mechanics of the project. The program will improve the understanding of the project groundwater environment and is expected to mitigate the environmental risks attributable to the operation.

### ***Metallurgical Optimisation and Final Process Flow Sheet Design***

Further metallurgical test work commenced aimed at improving processing recoveries and concentrate grades, and targeting lower operating costs. The program is being managed by DRA/Metchem in Montreal and the test work completed at SGS Lakefield.

The program is initially addressing the impact of waste dilution on the concentrate grade. Previous metallurgical testing incorporated the anticipated 5% waste dilution in the ore. QEMSCAN analysis on the flotation concentrate indicates that mined waste material (amphibole) is reporting to the final flotation concentrate and some simple flow sheet modifications should be able to remove the amphibole. A concept stage testing program was undertaken on three concentrate samples using high intensity magnetic separation, and achieved a concentrate grade of 5.98% Li<sub>2</sub>O. A larger sample set is now being tested.

### ***Environmental Survey Update***

A detailed environmental study was completed for Authier in 2013 by Dessau. The study reviewed available information across a number of disciplines, including geology and soils, hydrogeology, hydrology, air quality and noise, flora and fauna, socio-economic setting and archaeology. Following recent discussions with the environmental authorities, it was recommended that the biological environment species inventory and baseline surface water quality programs be updated given the lengthy period of time since the last survey.

An update of the environmental study commenced in June aimed at gathering the relevant information about the fauna and the flora with the aim of mitigating the environment risks attributable to the operation which could be considered low. The program, coordinated by SNC-Lavalin, will continue over the next two quarters and will focus on the following items:

- Vegetation inventory, including wetlands and species with special status;
- Inventory of fish and fish habitat;
- Inventories of wildlife species with special status; and
- Assessment of surface water quality.

### ***Stakeholder Engagement***

At the social level, a stakeholder survey has been completed and a communication strategy to present the project to the local community and First Nations has been developed.

A community relations program has commenced. The program will address governmental consultation obligations and make sure environmental, social and economic issues to be raised by stakeholders are integrated into the project development. A list of potential constraints to the mining development, both from an objective perspective and based on the consultant's experience in the area will be prepared. Finally, a working sequence will also be developed in order to start building relationships with relevant stakeholders and rights holders (municipalities, municipality, Abitibiwinni First Nation, neighbours, and land users).

### ***Mining Lease Application Process***

In addition, the outline of the mining lease was approved by the Ministère de l'Énergie et des Ressources Naturelles ("MERN"). On-going work programs required to approve the mining lease include, completion of Definitive Feasibility Study, a formal location survey and environmental certification which are both in progress.

### ***Authier Downstream Processing Studies***

During the quarter, the Company completed an initial hydrometallurgical testing program on Authier lithium concentrates.

The program, performed by SGS Lakefield in Canada, demonstrated that the conversion of Authier lithium concentrate into traditionally extractable beta spodumene (a form of spodumene amenable to further processing) was achievable, at high conversion rates.

Three flotation concentrate samples were transformed from alpha to beta spodumene in a decrepitating kiln. The lithium was the extracted from lithium sulphate through sulphuric

acid roasting and then leached with water to be transformed into aqueous lithium sulphate - further purification is required to produce a lithium carbonate end product. Up to 96.8% of the lithium was recovered in the process (Table 1) from a 5.98% Li<sub>2</sub>O concentrate.

<b>Lithium Concentrate Grade (% Li<sub>2</sub>O)</b>	<b>Lithium Extraction (%)</b>	<b>Benchmarked Lithium Concentrate* (%)</b>
<b>5.62</b>	96.4	95.6
<b>5.81</b>	96.7	96.2
<b>5.98</b>	96.8	96.6
* Theoretical recovery based on concentrate grade from a sample set of other spodumene projects in Canada		

The results compare favourably with benchmark data generated from other hard-rock spodumene projects in Canada with similar testing conditions (i.e. decrepitation temperature and time). The testing was performed on concentrates that have been upgraded as part of the Company's on-going metallurgical optimisation program (see ASX release, Authier Update, 28 June 2017).

The results increase the confidence that battery grade lithium carbonate can be produced from Authier lithium concentrates. The Company has now commissioned an evaluation of the technical and economic viability of building a lithium carbonate and/or hydroxide production conversion facility in Quebec to enhance the Authier project value, and improve the long-term competitive position of the project.

The study is being prepared by Wave International (Wave), a highly experienced resource industry development consulting group with over a decade of experience in the lithium industry. Wave are one of only a handful of consultants globally who have successfully studied, designed and delivered spodumene concentration plants, as well as having successfully delivered studies and detailed design for downstream lithium conversion plants. The experience of Wave and its key personnel includes projects such as James Bay (Canada), Greenbushes, Mt Cattlin and Bald Hill.

The study will assess the alternative processing options, process flow sheet selection, operating and capital cost estimates, financial analysis, and recommendations for the next phase of development.

The Company believes that Quebec is uniquely positioned with a number of significant commercial and market advantages for value-adding concentrates, including:

- High quality infrastructure, including roads, rail, and port access;
- Globally competitive, low-cost gas and electricity prices. Electricity is sourced from renewable energy;
- Skilled, competitive cost labour force;
- Sulphuric acid availability from a copper smelter at Rouyn Noranda, 80 kilometres west of the Authier project site;

- Road and rail transport networks connecting to export ports;
- Supportive government that invests directly into mineral development projects (e.g. Nemaska and North American Lithium); and
- Located in close proximity to the US markets including, the Tesla Giga factory in Nevada, and other planned battery factories in the United States.

In addition, currently all the world's hard-rock lithium concentrates are imported and processed into value-added products in China. China's policy incentives for investment into battery manufacturing for electric vehicles and storage systems, and export tax regime for lithium products, is restricting supply of battery raw materials to western battery manufacturers like Korea, Japan and Europe. The Company believes it can be an alternative, stable source of lithium new supply to China.

The study is expected to take between 3 and 4 weeks and compliments the current metallurgical optimisation program currently underway.

## **Western Australian Lithium Projects**

### **Mallina Project**

During the quarter, the Company identified a new group of spodumene pegmatites some 4km to the east of the initial Discovery area (see figure 3 and 4 below). The most extensive of the four new pegmatites, the Eastern No2 pegmatite, extends for a 1.3km strike extent and is up to 20m wide at surface. Rock sample results to 3.47% Li<sub>2</sub>O confirmed visual identification of spodumene.

These results provided encouragement to commence a maiden drill programme and a total of 18 reverse circulation drill holes for a total 1,343 metres were completed, testing five of the spodumene pegmatites.

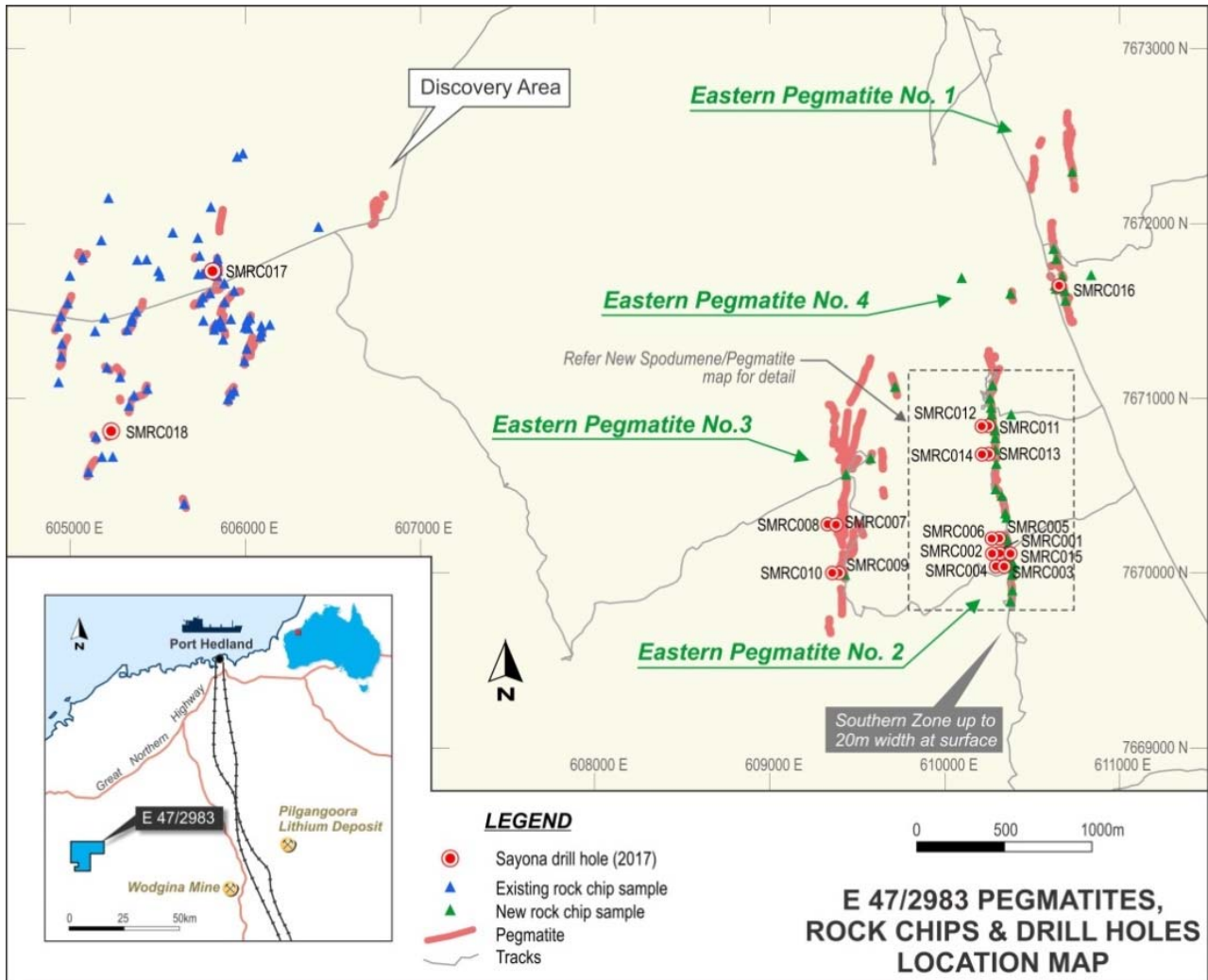
At each target drilling has intersected pegmatite. The eastern group of pegmatites (see figures 3 and 4 below) returned the broadest zones of pegmatite, with up to 19 metres downhole width (recorded in SMRC001). The pegmatites have been variably altered by silicification, which results in zones of green, fine grained silica rich replacement pegmatite.

Spodumene, observed during logging, has good correlation with assay results (see ASX release, Mallina Drilling Program Completed, 17 July 2017). Intercepts include up to 5m @ 1.00% Li<sub>2</sub>O from 46 metres in hole SMRC012 and a peak assay result of 1.62% Li<sub>2</sub>O from 27 metres to 28 metres in hole SMRC005. The drilling results are disappointing as they do not correspond with the surface rock sampling results, which returned mineralisation across the full width of surface pegmatite.

The timing of the silicification event, which appears to have led to the replacement of spodumene with silica is unclear. Similar late stage magmatic silicification events however are described in other pegmatite systems worldwide. Drilling has tested fresh bedrock and surface weathering does not appear to have caused the effects.

Petrology and other studies are being carried out to understand the drill results further. A zonation may be identified and areas with potential for preserved spodumene, or targets

where the remobilised lithium has migrated to may be identified. Also, additional prospective pegmatite systems which remain untested may be highlighted. On completion of this work targets can be considered for further drill testing.



**Figure 3:** Location of drilling holes from the June 2017 drilling program

Orientation soil geochemistry, carried out over the Discovery and Eastern group of pegmatites has been successful in highlighting the known spodumene pegmatites as well as defining additional anomalies that require follow up mapping and sampling.

Sayona has identified seven new spodumene pegmatites so far this year at Mallina. It is anticipated further work, including soil geochemistry, will be effective in discovering additional mineralisation and new pegmatite systems.



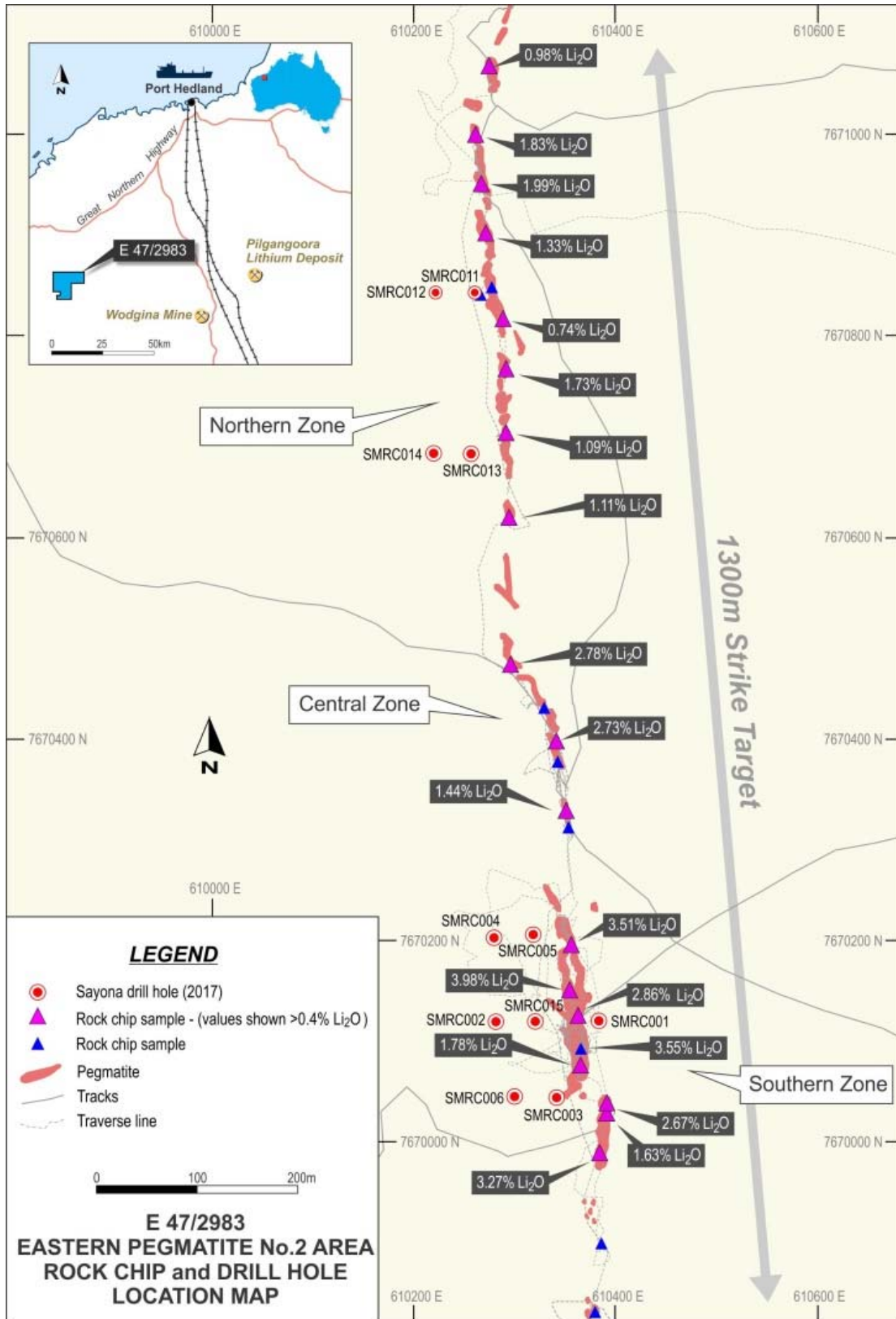


Figure 4: Drill hole location and significant rock chips from Eastern pegmatites

## **Pilbara Lithium Projects**

Outside of the Mallina tenement no fieldwork carried out over other Pilbara lithium projects during the quarter. A review of geochemical results to date identified several targets and areas for follow up reconnaissance.

## **Mt Edon Lithium Project**

There were no exploration activities at the Mt Edon project during the quarter whilst the Company focused on the Mallina drilling program.

## **Corkwood Graphite Project**

There was no exploration activities at the Corkwood project during the quarter.

## **Corporate – Share Purchase Plan**

During the quarter, the Company announced an offer to eligible shareholders to apply for new, fully paid ordinary shares (New Shares) in Sayona under a Share Purchase Plan (the SPP).

The SPP was underwritten to \$1,500,000 by Patersons Securities Limited (Patersons) who are acting as Lead Manager and Underwriter to the offer.

Funds raised under the SPP will be used to accelerate the development of the Authier project in Canada. Work programs will be focused on enhancing the value of the project, including:

- Geotechnical and hydrogeological programs to improve the pit wall slopes and reduce the life-of-mine waste movement;
- Further metallurgical testing to optimise recoveries and concentrate grades;
- Updating the February 2017 Pre-Feasibility Study and Ore Reserve;
- Studying the potential for producing value-added lithium carbonate and/or hydroxide; and
- Continuation of the environmental and mining lease work programs.

The issue price of the New Shares under the SPP based on a 20% discount to the volume weighted average price of Sayona shares traded on the ASX during the 5 days immediately prior to the issue date of the New Shares, equating to 1.4 cents.

### **For more information, please contact:**

Corey Nolan  
Chief Executive Officer  
Phone: +61 (7) 3369 7058  
Email: [info@sayonamining.com.au](mailto:info@sayonamining.com.au)

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. Please visit us as at [www.sayonamining.com.au](http://www.sayonamining.com.au)

### Previous Disclosure - 2012 JORC Code

Certain Information relating to Mineral Resources, Exploration Targets and Exploration Data associated with the Company's projects in this March 2017 Quarterly Report has been extracted from the following ASX Announcements:

- Authier Lithium Project JORC Significantly Expanded, 23 November, 2016
- Authier Project Pre-Feasibility Study, 16 February 2017
- Authier Maiden JORC Ore Reserve, 16 February 2017
- Mallina Drilling Program Completed, 17 July 2017
- Authier JORC Mineral Resource Significantly Expanded, 16 June 2017

Copies of these reports are available to view on the Sayona Mining Limited website [www.sayonamining.com.au](http://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. 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 announcement.

### Tenement Schedule

**Table 2: Tenement Schedule**

Tenement	Name	Status	Interest at Beginning of Quarter	Interest at end of Quarter
E59/2092	Mt Edon	Granted	80%, with rights to 100% of pegmatite minerals*	80%, with rights to 100% of pegmatite minerals*
E59/2055	Mt Edon West	Granted	100% (pegmatite minerals)	100% (pegmatite minerals)
E45/2364	Tabba Tabba	Granted	Rights to 100% of pegmatite minerals*	Rights to 100% of pegmatite minerals*
ELA45/4703	Tabba Tabba East	Application	100%	100%
E45/4716	Red Rock	Application	100%	100%
ELA45/4726	West Wodgina	Application	100%	100%
ELA47/3475	Friendly Creek	Application	100%	100%
ELA45/4738	Cooglegong	Application	100%	100%
ELA45/4775	Carlindie	Application	100%	100%
E80/4511	Western Iron	Granted	100%	100%
ELA80/4949	Corkwood	Application	100%	100%
ELA80/4959	Killarney	Application	100%	100%
ELA80/4968	Keller	Application	100%	100%
ELA45/4813	Moolyella	Application	100%	100%

**Table 2: Tenement Schedule**

Tenement	Name	Status	Interest at Beginning of Quarter	Interest at end of Quarter
<b>Great Sandy Pty Ltd Option</b>				
E47/2983	Mallina	Granted	0%	Option Rights to 80%
E46/1103	Dorringtons	Granted	0%	Option Rights to 80%
E45/4687	White Springs	Application	0%	Option Rights to 80%
E45/4721	Mt Edgar	Application	0%	Option Rights to 80%
E45/4727	Mt Edgar	Application	0%	Option Rights to 80%
E45/4787	Mt Edgar	Application	0%	Option Rights to 80%
E45/4788	Mt Edgar	Application	0%	Option Rights to 80%
E45/4700	Mt Edgar	Application	0%	Option Rights to 80%
E45/4723	Mt Edgar	Application	0%	Option Rights to 80%

<b>Authier Canada</b>				
Claim Number	Registered holder	Registration Date	Expiration Date	Area (hect)
2116146	Sayona Mining Limited	8/08/2007	7/08/2017	43.24
2116154	Sayona Mining Limited	8/08/2007	7/08/2017	42.88
2116155	Sayona Mining Limited	8/08/2007	7/08/2017	42.87
2116156	Sayona Mining Limited	8/08/2007	7/08/2017	42.86
2183454	Sayona Mining Limited	2/06/2009	1/06/2017	42.85
2183455	Sayona Mining Limited	2/06/2009	1/06/2017	42.84
2187651	Sayona Mining Limited	2/09/2009	1/09/2017	21.39
2192470	Sayona Mining Limited	22/10/2009	21/10/2017	21.08
2192471	Sayona Mining Limited	22/10/2009	21/10/2017	21.39
2194819	Sayona Mining Limited	19/11/2009	18/11/2017	42.82
2195725	Sayona Mining Limited	27/11/2009	26/11/2017	29.03
2219206	Sayona Mining Limited	22/04/2010	21/04/2018	5.51
2219207	Sayona Mining Limited	22/04/2010	21/04/2018	17.06
2219208	Sayona Mining Limited	22/04/2010	21/04/2018	55.96

<b>Authier Canada</b>				
Claim Number	Registered holder	Registration Date	Expiration Date	Area (hect)
2219209	Sayona Mining Limited	22/04/2010	21/04/2018	42.71
2240226	Sayona Mining Limited	9/07/2010	8/07/2018	42.71
2240227	Sayona Mining Limited	9/07/2010	8/07/2018	42.71
2247100	Sayona Mining Limited	23/08/2010	22/08/2018	42.75
2247101	Sayona Mining Limited	23/08/2010	22/08/2018	53.77