Disruptive lithium processing technology company completes due diligence for acquisition

Boisterous developer of disruptive lithium processing technologies, Lithium Australia NL (ASX: LIT), has just completed its due diligence for the acquisition of advanced cathode material producer, the Very Small Particle Company (VSPC). VSPC owns proprietary processes for the production of lithium ion battery cathode material, a comprehensive pilot plant, and advanced laboratory and testing facilities which will enable Lithium Australia to engage with the direct production of battery cathode materials, opening up yet more marketspace for the company to occupy.

The VSPC technology is adaptable to the production of a wide range of cathode materials and provides a simple and cost-effective means of producing cathodes within an environment of outstanding quality control. The process can precipitate lithium carbonate, or lithium hydroxide, from hard-rock mineral solutions, potentially removing two process steps involved in their manufacture, resulting in a revolutionary process which capitalises on the value-add generated by progressing from lithium chemicals to cathode materials.

Lithium Australia is investigating the seamless production of cathode materials from hard-rock minerals using hydrometallurgical front-end processes including LIT’s 100% owned SiLeach® process and the LMax® process (owned by Lepidico Ltd) for which Lithium Australia has exclusive rights in Western Australia. The company is close to the completion of engineering studies on both LMax® and SiLeach® processing plants and anticipates a commitment to construct such plants, nominally sized at an output of 2500 tpa lithium carbonate equivalent early in the new year.

Lithium Australia look set to achieve producer status within the next year, and on a much grander scale than anticipated. The company's storm of acquisition and agreement over the last month puts them within spitting distance of their goal of producing commercial lithium chemicals at an operating cost in the lowest quartile, as well as gaining access to the cathode materials sector just in time for the projected spike in demand caused by the rise of electric vehicles and grid storage systems.

The company intend to acquire a minimum 75% stake in VSPC, but have also signed a MoU with Poseidon Nickel Ltd to evaluate joint exploration and lithium processing opportunities at Lake Johnston and Ravensthorpe in southern Western Australia. These recent additions to the company's disruptive technological edge position Lithium Australia to gain a considerably larger market share than if they were to rely only on their innovative processing technology alone.

Lithium Australia's 100% owned SiLeach technology allows them to extract metals from a range of silicate ores via a hydrometallurgical process. Conventionally, feedstock must undergo an extremely energy-intensive roasting process at temperatures of more than 1,000˚C; the SiLeach process, however, occurs rapidly at about 90˚C, providing a minimal plant footprint and driving down capital costs. The process has the potential to supersede the dominant method of extraction for a number of metals, reducing costs and mitigating environmental impact across the board.

With this collection of processes, lithium micas, heretofore forgotten, can now be considered an economical source of the battery-essential metal. Furthermore, the SiLeach process allows for the recovery of lithium and cobalt from discarded batteries, creating access to a raw materials already extracted and refined. Now that the VSPC deal is almost complete, Lithium Australia are set to achieve strategic 'fullcircle' capability in terms of lithium extraction,

processing and cathode production from unconventional source materials, and are taking position as a market-leading recycler of discarded, end-of-use lithium-ion batteries to boot. The sheer number of options available to this company creates a robust investment indeed, and their commitment to sustainability makes it all the more likely to succeed over the very long term; however, the time to buy is right now.

LIT's Lithium Splurge

As the race intensifies for Lithium positioning in the first phases of what looks like a renaissance in interest in Lithium, we can dust off our old horse race analogy. As anyone in the racing business knows there are hundred-percent owners of thoroughbreds and other horses in which "investors" own shares. Lithium Australia NL ("LIT", ASX:LIT) in its former guise as Cobre Montana got itself positioned during the down days when pretty much no-one gave a damn about Lithium. In the process it ended up with three "shared" ownerships:

- Cinovec (with EMH)
- Sonora (with Alix Resources)
- Lepidolite Hills (with Focus Minerals Ltd on an 80/20 basis)

Beyond these three "runners" in the Lithium Stakes, LIT also has a 100% owned prospect in the form of what it calls the Ravensthorpe project, but which is also sometimes called Cocanarup. Frankly we prefer the latter name as Ravensthorpe is also synonymous with nickel mining.

In any case the general area has the Mt Cattlin mine, thus making the area more than just prospective for lithium, but an actual production zone. Indeed, the Ravensthorpe region is

well-endowed with mineral deposits of many types and includes a broad range of mineral commodities. Indeed, like at Mt Cattlin, previous explorers mostly focussed upon the tantalum-potential of the pegmatites.

In this piece we shall review some recent results out of LIT's Ravensthorpe territory.

In a Good Neighbourhood

It was only recently that we highlighted the reactivation of the Mt Cattlin lithium mine by General Mining (ASX:GMM) in a Joint Venture with Galaxy Resources (ASX:GXY). The Mt Cattlin is about 2km north of the Ravensthorpe townsite, as can be seen marked on the map below:.

Lithium Australia's Ravensthorpe project, some 20 km southwest of the historic mining centre of Ravensthorpe, is comprised of granted Exploration Licence E74/543, is in close proximity to both services and infrastructure and contains a large number of pegmatites, broadly referred to as the Cocanarup pegmatites, some of which contain lithium minerals.

The Cocanarup pegmatites were reported in 1900, during the same phase of prospecting activity that led to the discovery of the Mt Cattlin pegmatites nearby.

The Cocanarup pegmatite field is comprised of three discrete pegmatite occurrences that intrude the greenstones of the Yilgarn Craton. These occurrences are the Quarry Pegmatite, Horseshoe Pegmatite and Eastern Pegmatite.

Quarry Pegmatite

The Quarry Pegmatite is the best known of the Cocanarup lithium pegmatites and a small pit (hence the "quarry" in its name) was excavated into its northern end, apparently to mine tantalite.

This deposit consists of two bodies that together outcrop for more than 1400 m along a north-south axis. Mapping by previous operators shows that the unit is between 15 and 40 m wide with a shallow, 20-degree dip to the west. Exposures in the quarry contain purplish lepidolite and coarse-grained rosettes of zinnwaldite (a type of Li mica, which ironically in named for LIT's Cinovec deposit in the Czech Republic, which is known as Zinnwald in German), along with quartz and feldspar.

The tantalite has been proven to be columbite containing a high proportion of tantalum. The columbite occurs as discreet masses associated with zinnwaldite.

Horseshoe Pegmatite

With dimensions of 700 m by 500 m and a thickness of between 40 and 100 m, this is a U-shaped body in outcrop. Previous mapping observations reveal that the unit contains abundant masses of lepidolite, while recent field inspections have confirmed the presence of lepidolite masses at surface, where they weather to a pinkish colour.

Eastern Pegmatite

Exposed discontinuously for more than 2000 m along the eastern edge of the tenement, the Eastern Pegmatite has mapped thicknesses between 10 and 70 m. As with the Horseshoe Pegmatite, there are no fresh exposures; however, field observations indicate that the body contains rich segregations of zinnwaldite.

Irregular outcrop of the Horseshoe Pegmatite marked by changes in vegetationLooking west across the outcropping Eastern Pegmatite.

Samples of zinnwaldite and lepidolite, taken by LIT from historic excavations in the Quarry Pegmatite, as well as other areas in the region have been sent for leach testing and carbonate production.

Recent Exploration Results

It should be noted that the main work here thus far has been surface sampling. This naturally has a tendency towards cherry-picking the most propitious looking samples from outcrops or loose material. That said the outcropping is not just isolated but rather on a massive scale. This can be noted from the photo of part of the Horseshoe Pegmatite.

Initial results from across the property have confirmed the presence of at least seven lithium pegmatites. Assay results from 19 samples of lithium mineralisation from the lithium core-zones of all pegmatites range from 1.26% Li2O to 4.23% Li2O, with a mean of a very rich 2.96% Li2O.

These have lead the company to interpret these as early indications that the grade and scale of lithium mineralisation is of economic significance and warrants follow-up investigation. We would presume this means trenching and drilling.

When All Said and Done

In this business one sees a lot of news releases and they can become all somewhat of a blur of maps and tables. However, the latest release of LIT has a photograph that pokes you in the eye on mineralisation at the Quarry Pegmatite.

Combining this image with the grades that were yielded by the latest sampling makes the Cocanarup pegmatites start to look like a potentially very rich source of not only Lithium, but Tantalum as well.

Conclusion

To dust off one of our other analogies LIT is charging around

the Monopoly board snapping up properties in all the best streets. Verily as we wrote this note it added another one in Western Australia cheek by jowl with Pilbara Resources Pilgangoora Lithium project, which has driven that stock to stratospheric heights. Not all these properties will move forward or not even move forward at the same speed but LIT is making sure it is positioned on prime real estate.

The latest exploration results show that LIT is a good "talent-spotter" and that the potential of Western Australia to become one of the two global hotspots for Lithium (the other being the Argentine *salares*) is far from exhausted. Now it's time for LIT to repeat the trajectory of Galaxy and Neometals, drill Cocanarup into a resource status that will provide a fast path to production. The question then is what sort of economies of scale might be achieved by collaboration with its relative near-neighbour, Mt Cattlin.

We await more news on the work program on Cocanarup with high expectations.