



# Mediaportal Report

01/01/2011

► **Market environment conducive to expanded activities as resources house settles into sector**

Gold and Minerals Gazette, 01/01/11, General News, Page 52  
By: None

Burgeoning lithium player Galaxy Resources Ltd has been busy advancing a number of areas of its business model in order to promote future growth at its niche Mt Cattlin lithium project in southern Western Australia. Located just 2 kilometres north of the town of Ravensthorpe, the operation continues to make the grade during its ramp up phase.

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► **Early throughput exceeds initial targets on the back of some crushing excellence**

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Galaxy Resources Ltd ramps up its flagship lithium mine, a Western Australian-based project engineering and management company is reflecting on a job well done.

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▶ **Miner takes its first international step**

Gold and Minerals Gazette, 01/01/11, General News, Page 57  
By: None

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▶ **BEC a key part of project's early success**

Gold and Minerals Gazette, 01/01/11, General News, Page 55  
By: Caroline Smith

The start up of Galaxy Resources Ltd's Mt Cattlin operation in Western Australia was undeniably impressive taking only 11 months from breaking ground to first production. One of the key players in the construction of the mine's plant was BEC Engineering, which is still providing support as the project continues to develop.

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**WA FOCUS GALAXY RESOURCES**

**Market environment conducive to expanded activities as resources house settles into sector**

Burgeoning lithium player Galaxy Resources Ltd has been busy advancing a number of areas of its business model in order to promote future growth at its niche Mt Cattlin lithium project in southern Western Australia.

Located just 2 kilometres north of the town of Ravensthorpe, the operation continues to make the grade during its ramp up phase.

Mt Cattlin officially started spodumene production early in October following the commissioning of the crushing circuit and heavy media plant.

Galaxy managing director Iggy Tan said the milestone was achieved on the back of an accelerated and highly successful construction program.

“Since ground was first broken at Mt Cattlin in November 2009, Galaxy

*The operation has been a welcome addition to the Ravensthorpe landscape.*

has achieved first production of lithium concentrate in less than 11 months and we are very proud of this achievement,” he explained.

**Opportunities sought**

At full capacity the mine will be the second largest producer of lithium mineral concentrate globally and – through the development of its value-adding 17,000 tonnes per annum lithium carbonate plant in China – the company will be one of the largest and lowest cost compound producers in the East Asian country.

In the bigger picture, lithium compounds such as lithium carbonate are forecast to be in short supply against high future demand due to technological advances in batteries and computers.

This is exactly why Galaxy has been working overtime to position itself to meet this growing consumption by not only mining the lithium, but also by value adding via the supply of lithium carbonate to the lucrative Asian market.

Recently, the location for the proposed lithium ion battery manufacturing site



*Mining activities have now been ongoing for over a year.*

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in China was selected with a non-binding letter of intent signed in late November.

The deal has been out in place with the Jiangsu Province Zhangjiagang Free Trade Zone Administrative Committee for a 10 hectare site that is located in the Jiangsu Eco-Friendly New Materials Industrial Park.

### **Sound fundamentals**

Tan said the location of the proposed factory was ideal, as it was located 7 km from the company's Jiangsu lithium carbonate project and within close reach to many of the utilities, consumables and processing materials required for battery production.

"The site will have access to key utilities – including electricity supply, water supply, post/telecommunication, drainage, road, steam and waste water sewerage to the land boundary and site levelling," he noted.

Based on feasibility results, the company believes the lithium ion battery project offers a resolute opportunity to downstream expansion and investment in that part of the manufacturing industry.

The feasibility models the production of high quality, lithium ion battery packs for E-Bikes at a rate of 350,000 pa during the first phase.

The proposed plant will be automated and designed with the potential to eventually double production capacity across three phases of operation to meet the growing demand for the batteries.

"The E-Bike market in China is experiencing rapid growth and the production of these battery packs represents an excellent entry point to the market," the Galaxy boss said.

In a sign that the resources house not only has its sights set on generating cash out of its south west lithium play, but also firmly on other areas of its business model, the company signed off on a \$91.5 million capital raising during November.

This consisted of up to \$61.5 million in unlisted convertible bonds (increased from \$30 million) and a \$30 million equity placement.

Galaxy decided to increase the amount issued to investors from its initial \$30 million target following strong market interest. It was also looking to meet its funding requirements for the ramp up of production at Mt Cattlin, the continuing construction of Jiangsu as well as cover associated overhead costs.

### **Further progress**

The cash injection comes at a crucial time for the company as it enters the final stages of development at its projects and moves closer to generating revenue through the first shipment of spodumene concentrate from Mt Cattlin planned for late this year.

"In an excellent endorsement for Galaxy's business model and projects, it is very pleasing to see two high quality, strategic investors support the company on its growth plans," Tan said.

And the business deals haven't stopped there either.

It's well known that China and the Asian markets are a driving force behind the push for lithium, and this has seen Galaxy look to establish a gateway to capital growth from Asia via a listing on the Hong Kong bourse.

The aim of the listing is to provide

the platform for Galaxy to establish a vertically integrated, lithium resource, chemical and battery manufacturing company.

Tan explained that the move towards a vertically integrated business model and the downstream production of E-Bike lithium batteries offered the potential for higher margins and improved profits.

### **Exciting phase**

Strategically speaking, Galaxy's listing on the Hong Kong exchange – which was driven by the perceived strong appetite for lithium from the Chinese and international investment community – had come at an ideal time with the company approaching lithium carbonate production in 2011.

"The listing and associated capital raising represents the beginning of another exciting growth phase for the company with the potential to deliver value for existing Galaxy shareholders and new investors alike," Tan said.

"The dual listing will afford Galaxy greater access to capital sources, significantly improve liquidity and provide greater alignment between our investors and our customer base.

"With policies under implementation aimed at increasing the use of renewable energy and encouraging the mass production of new, clean energy vehicles, there is a greater understanding of the demand growth prospects for lithium products amongst Chinese and Hong Kong-based investors."

### **Sam Burns**

  
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*Iggy Tan (right) discusses policy on-site with other members of the company's board*



*Mt Cattlin ore being loaded into the crusher.*



*One of the mine's target markets is the lithium battery sector.*



# Early throughput exceeds initial targets on the back of some crushing excellence

As Galaxy Resources Ltd ramps up its flagship lithium mine, a Western Australian-based project engineering and management company is reflecting on a job well done.

After forming a joint venture with DRA Pacific and BEC Engineering to mount the successful bid for the engineering procurement and construction management contract for the operation last year, it was Mintrex's strong expertise in the area of crushing plants that helped expedite the process.

Mintrex's Tom Kendall said while the company had established a sound track record working with a range of metals in various regions, it was its ability to get crusher circuits up and running that provided the biggest competitive advantage when bidding for the project.

"We are the construction managers for Mount Weld (rare earths) and we've done work for Woodie Woodie (manganese) in the past, but to be honest with you I really think it was our expertise in crushing plants and project management that well and truly put us on Galaxy's radar," he explained.

"The crushing plant is exceeding throughput, so from that side of things it is going very well.

"There have been some challenges in the wet plant, but that's not unexpected in those types of mills.

"Moving from laboratory scale to plant scale with gravity separation and that sort of thing is quite difficult."

## Hurdles overcome

Kendall said while treating the ore was the biggest challenge facing the Mt Cattlin project, the process design work by DRA had allowed the deposit to pull grade during the ramp up phase.

"The ore itself is a challenge," he noted.

"The geology of the ore body includes minerals that can be reasonably challenging to separate, but it (the plant) is doing it and it's getting grade.

"The challenges of a project like Mt Cattlin are usually self-imposed and, in this case, they are no different ... the client (Galaxy) imposed a very challenging timeframe.

"We took possession of that site and 11 months later we had it commissioned, so it was a very quick process.

"There were a lot of changes in the design from the original feasibility as well, and that too imposed a few more challenges.

"The feasibility, I guess, has some open issues still to be addressed, while the plant really doesn't look very similar to the feasibility documents at all ... it is much more robust – not physically as much as from a process point of view."

With the ramp up now well and truly underway at Mt Cattlin, Kendall said he

and the Mintrex team (led by project manager Ian Kerr) were happy with the way the plant had run in its infancy and from here on it would be just a matter of Galaxy optimising the process.



Ian Kerr

"The crushing plant is designed to do about 320 tonnes an hour, but we've had it poking through at up to 450 tph at times, so if something went wrong and we didn't catch it within the first minute, we would have six tonnes lying on the ground," Kendall noted.

"However, having said that, the crushing plant is going gangbusters.

Kendall also emphasised the importance of locating problems in the plant quickly before they had the chance to escalate.

For the past four years Mintrex has been using 3D modelling to design its plants and, although still in its early days, Kerr believes it is definitely the way of the future.

"It allows you to visualise exactly what you're building, so from a construction perspective – from the day the guys turn up on site to build the plant – you can look at a picture on the wall and see what it looks like at the end," he explained.

"It certainly minimises a lot of the room for error and you should significantly reduce the amount of clashes, the things you don't see in 2D, such as beams going through pipes ... so that is the main advantage."

## Community spirit

In addition, Kerr was full of praise for the nearby town of Ravensthorpe, which was decimated by the withdrawal of BHP Billiton Ltd from its infamous nickel laterite project in 2009.

"Ravensthorpe is a great place – it is really good to work there and the town is full of good people," he said.

"They (the residents) were a little bit hesitant about getting too involved when we first got down there – they were thinking: Is this really going to happen?

"But they all got on board and serviced the project very well, so we are looking forward to the next one."

Sam Burns



The circuit at work.



# Miner takes its first international step



Galaxy Resources Ltd continued to forge ahead in early December after confirming it had signed a memorandum of understanding with Lithium One Incorporated of Canada to acquire up to 70% of the James Bay lithium pegmatite project in Quebec.

Under the farm in arrangement, Galaxy will hold an initial 20% equity interest in James Bay for C\$3 million and have the potential to increase this stake to 70% through the completion of a definitive feasibility study within 24 months.

The Canadian project involves an extensive high grade spodumene pegmatite deposit that occurs at surface.

It is situated adjacent to key infrastructure – including high tension power, roads and readily accessible water. Furthermore, the project is well located to potentially provide a stable supply of lithium to the emerging lithium battery sector in the north east US and eastern Canada.

Managing director Iggy Tan said the company intended to grow its lithium resource footprint and James Bay's location, geology and low cost of entry



*There is a new niche player on the Canadian minerals scene.*

were the key attractive aspects of the proposed transaction.

“James Bay is a bulk tonnage outcropping deposit and is located close to excellent infrastructure in Quebec – one of the most mining-friendly jurisdictions in the world,” he explained.

“The project contains a NI 43-1011 compliant resource of 22 million tonnes at 1.28% Li<sub>2</sub>O.

Galaxy expects to be able to fast track the development of James Bay by using

similar capacity and design as the plants constructed at Mt Cattlin in Western Australia and

*Iggy Tan*

Jiangsu in China. Tan also pointed out that some favourable comparisons could be made between the ore types at James Bay and the company's producing Mt Cattlin operation.

“Preliminary testwork shows that the James Bay spodumene ore coarseness is similar to Mt Cattlin,” he said.

“This lends itself to similar processing and upgrading methods adopted at Mt Cattlin, where simple crushing and heavy media separation is used to produce a 6% lithium oxide spodumene product.”

As part of the pending DFS, the lithium mining house will evaluate the most suitable location for a battery grade lithium carbonate plant, which will be located in either Quebec or Jiangsu.

The company was confident of completing the DFS relatively quickly due to the fact the proposed design of both the concentrating and chemical processing plants were similar to its existing deposits.



# BEC a key part of project's early success

The start up of Galaxy Resources Ltd's Mt Cattlin operation in Western Australia was undeniably impressive – taking only 11 months from breaking ground to first production.

One of the key players in the construction of the mine's plant was BEC Engineering, which is still providing support as the project continues to develop.

It was just over a year ago – in November 2009 – that Mt Cattlin was opened by WA Premier Colin Barnett with great fanfare.

So far the project has lived up to expectations, reporting its first production of lithium concentrate (spodumene) during October in what is to be a 1 million tonne per annum operation.

Engineering group BEC worked alongside Mintrex (the consulting division of Holfreters Engineers) and DRA Pacific Company as part of a joint venture to build a minerals processing plant at the project, including a crusher and concentrate plant to process the lithium ore.

The JV called on BEC to work on the electrical and instrumentation aspects of the plant in conjunction with the other

construction partners, according to engineer Pendar Dalili.

"On the electrical side of it, we were responsible for designing the control systems all the way up to controlling the LV equipment and a little bit of interfacing with the power station which wasn't supplied by us," he explained.

"Mintrex designed the crushing circuit, and DRA designed the wet plant."

Dalili said with the increasing breadth of construction projects, well planned JVs were often the best option for mining companies.

"We have worked on JVs like this before – there was one with the exact same combination of partner companies at Woodie Woodie back in 2003," he told *Gold&Minerals Gazette*.

"But this project was quite unique – it was the first spodumene or lithium mine that I have worked on ... and I don't think that BEC has had much to do with lithium previously."

Because BEC's contribution centred on designing the electrical and instrumentation aspects of the plant, there was still optimisation work to do once production and processing got under way.

Dalili said the practice of staying on to



*Part of the efficient operation*

check if the plant was reaching its potential was a normal part of the process for the engineering firm.

"We've probably been the most active company out of the JV post commissioning because we do a lot of instrumentation and control, so it's a normal thing for us to be involved once production starts," he explained.

"The electrical challenges weren't that great – the control-system side instrumentation side of things was more complex as the extraction of lithium proved to be a little more challenging than initially expected."

**Caroline Smith**