MGX Extracts Lithium from Oil Wastewater – Begins Monumental Integration with Big Oil

Last Friday, Chris Berry reviewed the state of the lithium market and made the following statement in his article “Lithium in 2017: Quacking Ducks, Execution, and Continuation of the Secular Bull”:

“2017 will be the year when execution outranks exploration in lithium value creation. With dozens of lithium juniors claiming promising discoveries, finding lithium is no longer the optimal path to wealth creation. Instead, producing battery grade material at scale for a voracious downstream appetite is. This is the segment of the market that has the most to prove – those companies with de-risked projects and well-defined economics – with most long-term upside.”

A few days earlier, Stormcrow Capital president and lithium analyst John Hykawy cut right to the chase:

“The trick isn’t finding lithium, the trick is producing it inexpensively.”

As per today’s press-release, MGX Minerals Inc. has started to successfully execute its plans and has, for the first time, officially produced lithium carbonate.

The pilot plant is expected to be completed and optimized within the next weeks and, upon completion and successful results, the construction of a commercial facility will be warranted.

Considering that progress is happening quickly, MGX could become one of 2017’s top lithium success stories.
With a current market capitalization of $28 million CAD, MGX is the only known lithium focused company executing its disruptive vision to put Alberta on the lithium production map. The province is not only rich in oil and gas, but as well in lithium and other minerals occurring in wastewater, a by-product from producing oil and gas. MGX plans to quickly move from a pilot project in the first quarter of 2017 to a full-scale commercial project by the third quarter.

The company’s goal is to connect its patent-pending wastewater treatment technology with oil and gas producers in regions of Alberta where between 12,000 and 20,000 barrels per day (“bpd”) are being produced.

When the time is ripe, and energy companies in the region recognize the value of their wastewater, they may venture with MGX to process it. Right now, such oilfield water is treated like waste and causes high disposal costs for oil and gas operators.

An environmentally safe and cost reducing solution with economic viability is desperately needed in the global oil and gas industry.

MGX and its partner PurLucid Treatment Solutions are working to integrate their respective technologies and develop a pilot plant suitable for commercial use that will treat oilfield wastewater to provide oil and gas producers with additional environmentally friendly disposal options as well as recover valuable minerals such as lithium.

MGX President and CEO, Jared Lazerson, said in a recent interview with Financial-Post: “Big picture, this is an add-on to oil and gas”.

As soon as MGX has proven its technology to be capable of extracting lithium from oilfield brine economically, the company will be in a position to refile a resource estimate for its Sturgeon Lake Property in Alberta. Previous operators calculated a resource estimate containing approximately 2 million t of lithium carbonate, which however was deemed to be non-compliant with NI43-101 due to no method being established yet for the extraction of lithium from oilfield brines.

According to today’s initial results, MGX has successfully extracted lithium from such a brine and thus is on track to unlock Sturgeon Lake’s 2 million t lithium carbonate resource with a corresponding in-situ value of $24 billion USD (at $12,000 USD/t lithium carbonate).

MGX’s stock appreciated by 145% in 2016, up 250% alone in the last 2 months of the year. Apparently, the word is getting out that MGX is quickly executing its ambitious and game-changing vision of disruptively integrating the oil and gas industry into the New Energy Era, headed by the battery-critical element lithium. “Who better to have a big piece of the new energy sector than the energy sector?”, Jared Lazerson rhetorically asked the NationalPost last week.

In December, MGX laid the groundwork for future cooperation with the operator of the Sturgeon Lake Oilfield, Canadian Natural Resources Ltd. (NYSE: CNQ; Frankfurt: CRC, WKN: 865114; market capitalization: $35 billion USD). In a first agreement, CNQ allowed MGX to obtain water samples from its operations. These samples have recently been tested by MGX as part of the ongoing optimization for completion and deployment of a pilot plant, with initial results demonstrating success as per today’s news.

Joel Chury published an article today, i.a. differentiating MGX from Korean steel giant and lithium extraction technology developer, POSCO:

“Where POSCO will likely be making more partnerships with the major lithium producers in South America, such as SQM [NYSE: SQM] and Albemarle [NYSE: ALB], MGX will find likelier suitors in major oil producers such as Imperial Oil [NYSE: IMO], and Encana Corporation [NYSE: ECA], or giant oilfield service providers, such as Baker Hughes Incorporated [NYSE: BHI] or Halliburton [NYSE: HAL]."
The Next Energy Revolution: Petrolithium

By Joel Chury on January 3, 2017, on Oilprice.com

The wait is over, and the results are in. The petrolithium era has begun.

Marking an official intersection between the energy sector and the new energy sector (or green energy), the process of extracting lithium from heavy oil EBD wastewater has been finally successfully proven, with enough of an economic upside to potentially change the way the oil patch looks at its water byproducts.

MGX Minerals [CSE: XMG][OTC: MGXMF][FKT: 1MG] along with their water purification and engineering partners PurLucid announced that they'd successfully produced lithium from wastewater, with concentration levels high enough to warrant interest from the oil and gas sector.

The project specifically targeted heavy oil EBD wastewater to start, due to its mid-level concentrations of lithium, and high environmental revenue (based on current disposal costs).

"Who better to have a big piece of the new energy sector than the energy sector?" MGX President and CEO, Jared Lazerson told the National Post this week.

"I think there are going to be incredible efficiencies from oil and gas and new ideas as word starts to get out."

Already, MGX has worked out a deal to work with samples from Canadian Natural Resources Limited [NYSE: CNQ], which is one of the largest producers in the region.

While it's still early in the trajectory for the petrolithium concept, it's not hard to project that once a successful pilot is staged, and a commercial plant is completed, other majors will come knocking on MGX's door.

Lithium Alchemy

The push for an alternative method to extract lithium isn't new. It's been talked about for many years now, as the demand for lithium as a commodity has risen along with its price.

In North America, MGX Minerals has a very legally binding patent on the process of extracting lithium from petroleum-produced brines. As it stands, any new entity wanting to develop something similar must go through MGX's team, to either receive their blessing, or to partner on the development.

Outside of North America, there are similar entities pushing for new methods to produce lithium from brine.

The reason the desire for an alternative is so high, is because the solar evaporation method is time-consuming, making it more susceptible to market fluctuations.

The common turnaround time from brine to lithium on a solar evaporation operation is 18 months. As well, given the requirement for exposure to the sun, the ponds are also exposed to the elements, and vulnerable to weather shocks, such as flooding and wind.

The need for new methods to produce lithium is not going unrecognized.

Korean steel giant, POSCO [NYSE: PKX] broke ground on their massive lithium production facility in Argentina back in February of 2016.

The claim is that POSCO's method can reduce the turnaround time from 18 months, down to 8 hours.

Compared to MGX's method, POSCO's is a much larger scale, and requires much higher concentrations to be economic. Whereas MGX's concentration requirements are not as high, as the method is more of an addition to the current oilfield solutions available in dealing with water disposal.

The economics are quite different, as MGX's system has the added benefit of making less economic aging wells more economically friendly again.

Where POSCO will likely be making more partnerships with the major lithium producers in South America, such as SQM [NYSE: SQM] and Albemarle [NYSE: ALB], MGX will find likelier suitors in major oil producers such as Imperial Oil [NYSE: IMO], and Encana Corporation [NYSE: ECA], or giant oilfield service providers, such as Baker Hughes Incorporated [NYSE: BHI] or Halliburton [NYSE: HAL].

Oceans of Lithium

Whilst engineering the process itself for lithium extraction, MGX Minerals spent much of 2016 quietly amassing what they believe is Canada's largest lithium
land position. In total, the company holds nearly 487,000 hectares of lithium brine bearing land.

Among that portfolio is the company’s crown jewel, the Sturgeon Lake Lithium Project, and in particular the Devonian Leduc Formation that sits under it, is a massive lithium resource waiting to be unlocked.

The brines contained within this formation have been studied since the 1990s, but a more recent study done in 2011 by the previous owner of the Sturgeon Lake property’s lithium rights showed concentrations greater than 75 mg/L, and up to 140 mg/L.

A resource estimate was compiled, and published on the Sturgeon Lake property, which was calculated to be approximately 2 million tonnes of lithium carbonate.

While impressive, the resource was deemed to be non-compliant with NI43-101 regulations on the caveat that the method of producing lithium from said brines was not established yet.

Upon assuming control of the property, MGX Minerals has a major reward being dangled in front of it, in the form of a 2 million tonne lithium resource, should they suitably satisfy those in charge of approving the resource’s standard of compliance.

That acquisition was in August, and since then MGX has made significant progress in proving that their hypothesis is correct.

In order to receive the stamp of approval, MGX must prove that it’s economically possible to recover lithium from these brines. If one couples the service fees collected by removing minerals from wastewater of major producers, along with the commercial sale of the minerals themselves, MGX definitely has a chance to reverse the decision on the resource estimate, and bring it back into compliance.

With the announcement that MGX and PurLucid having successfully produced lithium from the first pass sample, it’s one more hurdle out of the way to unlocking the resource, and awakening an investment community to the possibility of adding Alberta to the lithium producers map.

**The Initial Results Are Promising**

Prior to the extraction process laid out by MGX and PurLucid, the heavy oil EBD wastewater used had a concentration of 87 mg/L. After the initial process was completed, the final recovery of the Li was 34.8 mg/L, or 40%.

Considering the volume in play for MGX, based on their massive lithium mineral rights holdings, as well as compared to recovery rates from many solar evaporation production sites around the world, a 40% recovery is a great starting point.

Solar evaporation methods in comparison can recover from as little as 28.1% to as high as 74%, depending concentration levels, and time allotted to evaporating out water in volume. A loss of Li+ recovery of 55% is relatively normal.

From the data obtained from the first pass sample done between MGX and PurLucid, the 40% recovery was accounted for at each step. And while some lithium was lost in these steps, other saleable commodities were recovered for other uses, such as salts, and other minerals.

According to Dr. Preston McEachern of PurLucid, the breakdown of the lithium losses were as follows:

- -- 18% of the Li was lost during the removal of hydrocarbons, silica and other solids
- -- 1% of the Li was lost in the process that recovers NaCl (salt) for commercial sale
- -- 16% of the Li was lost when removing sulfur contaminants, and recovering MgO
- -- 4% of the Li was lost in the step that recovers CaCl2

Overall, the process was a success, in that it successfully produced crystallized lithium carbonate, as well as other commercially valuable minerals such as boron and vanadium. As well, the water itself was improved upon, by removing 99.9% of the silica, and 99.7% of the hydrocarbons, making the remaining water suitable for reuse in steam generation.

**What’s next?**

MGX has so far met its timeline projections, having officially produced lithium prior to the end of 2016. Next on deck, the pilot plant’s completion is expected in the coming months. A successful run with the pilot will warrant the construction of a much larger facility, likely within the Sturgeon Lake property’s borders.

Given the friendly relationship with CNRL, and the access MGX is afforded to their infrastructure, it’s feasible to project that a collection facility for produced water would align with CNRL’s lines.

As well, MGX and PurLucid have extended the option for MGX to fully acquire their partner its water treatment processes.

MGX will certainly hone its focus more on the petrolithium aspect of its portfolio going forward, especially with the potential in pace when looking to unlock Sturgeon Lake’s 2 million tonne lithium resource, and bring it into compliance.

Lithium prices hovered between $12,000-$14,000 per tonne for most of 2016. At $12,000 per tonne, that would put the gross value of Sturgeon Lake’s 2 million tonne lithium resource, and bring it into compliance.

The petrolithium era has begun, and it starts in 2017.

**Above Article: By Joel Chury for Oilprice.com**

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MGX claims to be the “largest lithium brine land holder in Canada.”

CALGARY – A tiny Vancouver-based mining company is betting Alberta’s energy sector could benefit from the rise of electric vehicles by harvesting its oilfield wastewater for lithium carbonate.

MGX Minerals Inc. has been buying up metal and minerals permits in Alberta’s oil and gas producing regions but has no intention of mining the areas for lithium carbonate, which is used to make batteries for electric vehicles.

Instead, Jared Lazerson, MGX’s president and CEO, said the company is working to sign agreements with oil and gas producers to process their wastewater, a byproduct of oil and gas production, so the company can extract the lithium carbonate from that water, which would otherwise simply be treated like waste.

MGX claims to be the “largest lithium brine land holder in Canada” with permits covering over one million barrels per day of brine production by various oil field operators throughout Alberta.

While MGX has yet to deploy a pilot project in the oilfield (a pilot is scheduled to begin in the first quarter of 2017), in December the company signed an agreement with oilsands giant Canadian Natural Resources Ltd. to work on the Sturgeon Lake region, near Grande Prairie, Alta.

“Canadian Natural has allowed a third party to obtain water samples from our operations for their work in lithium carbonate,” CNRL spokesperson Julie Woo said in an email. “Beyond that, no decisions, plans or commitments have been made on the application of this technology in Canadian Natural’s operations.”

Lazerson said he hopes that MGX’s technology, for which it has filed patents, will allow oil and gas producers to help supply new energy markets, including the market for electric vehicles.

“Who better to have a big piece of the new energy sector than the energy sector?” he said. “I think there are going to be incredible efficiencies from oil and gas and new ideas as word starts to get out.”

Wood Mackenzie analysts expect lithium demand will double by 2024 as more and more consumers, especially in Europe, purchase electric vehicles.

Lithium prices have spiked in recent years because, as Wood Mackenzie noted in a November report, that lithium ion “has become the technology of choice” for electric vehicles.

The commodity is not traded on any exchange, however, and analysts say that current prices – which have reached US$10,000 per tonne – are likely to fall as new supplies become available.

“The trick isn’t finding lithium, the trick is producing it inexpensively,” Stormcrow Capital president and lithium analyst John Hykawy said in an email.

Hykawy said there are several companies attempting to produce lithium using water treatment technologies like reverse osmosis and nano-filtration but cautioned these are early-stage technologies being developed in a time of high prices.

Most of the lithium carbonate produced in the world is produced in South America’s “lithium triangle,” — the salt flats in Bolivia, Chile and Argentina — where new projects are also set to begin production.

“Prices will fall again, it might take a year or two,” Hykawy said. “But almost none of the smaller companies in the space, with the exception of Orocobre Ltd., are in a position to produce and have their profits benefit from these high prices. By the time most will be able to sell something, prices will be back to lower levels.”

MGX’s Lazerson hopes to move from a pilot project in the first quarter of next year to a full-scale commercial project by the third quarter. MGX, which trades on the alternative Canadian Securities Exchange, has seen its share price rise 110 per cent this year.

The company’s goal, Lazerson said, is to connect its water-treatment units with oil and gas operators in regions where they produce between 12,000 barrels per day to 20,000 bpd.

“Big picture, this is an add-on to oil and gas,” Lazerson said, adding that he thinks energy companies will see the value in the minerals in their waste and venture with MGX to process their water.
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