

Alset Minerals (ION.V): If Not Now, Never

Lithium, a rising star, would continue to be a hot commodity for many years to come. There is no turning back from here. The electrification trend would only accelerate in the near future and would change all our lives.

I remember that back in the day, when I was a kid, I had bulky 4.5 V batteries that were not only leaking but were good for only about half an hour when used in a regular flash light.

We could not even use them to power the bicycle's headlights. We had to use an antiquated dynamo that we pressed against the front tire's side rubber. It was noisy and unreliable.

Drones or electric automobiles able to compete with planes or gas automobiles? Sci fi.

A well known trend in the exploration business is represented by the overcrowding caused by the myriad of juniors jumping onto a hot commodity's wagon. Any commodity - graphite, uranium, REE, lithium. The flavor of the month. The flavor of the year. Any time. Anywhere. Tens, then hundreds of them would stake anything and market it as a potentially rewarding deposit.

I have extensively wrote about this Alset company mainly because it was to be used as a case study for a junior company looking to break into the lithium business. A company that starts by exploring one of the many salars around the world. A salar that was considered as potentially holding economic quantities of lithium-potassium brines.

Of course that part of the decision to follow this company was based on what I considered to be their misleading press releases. Deconstructing them would help investors apply the same type of due diligence process in other cases and avoid investing in companies that are suffering from the same malaise. Because Alset is not unique.

I have provided info and I have tried to provide you with the means to find out the important facts that you can use when doing due diligence on a lithium brine project. I even built tools that allow you to estimate different parameters when it comes to lithium-potassium brines processed through the solar evaporation ponds method. These calculators are unique. No one else has them. Not even the self-proclaimed lithium gurus. Check them out <http://www.miningandmoney.com/solar-ponds-production>

Back to Alset. It was also about what could and would go wrong in this lithium brines exploration business. And about signs. Omens.

In this context I wrote about the history of the Mexican salars, about Mexican Geological Survey results, about one of the most important scientific assessments written by a geologist and University professor who dismissed the salars and the promotion activity carried by its original owner.

I wrote about the Mexican salars' geology, their detailed mineralogy, about the way that lithium brines and hardrock mineralization form into salars, about the types of basins that hold economic lithium deposits, about hydrogeology processes that are involved in brine recovery, about lithium and potassium grades.

I also wrote about assay methods for both brine and hardrock lithium deposits, about Alset's misleading ways of interpreting them. Btw I think that Barry might need to go to one of the many Zacatecas churches to change the way he reports his progress. I say this because last night I watched 'Naked' on Netflix <http://www.imdb.com/title/tt6048930/>

The guy is about to get married but divine intervention forces him to relive the same nerve-wracking hours over and over again **until he gets things right in his life before he can get out of the time loop** and get married. Maybe Barry also deserves to get into a time loop i.e. until he gets to do something that would really add value to the very few shareholders (maybe unknowingly) left supporting \$ion.



Then I have also discussed sampling methods, then again the different paths that a company can take to confuse investors by using the assay results technical mambo jumbo. I have also delved into chemistry to decipher Alset's press releases and deconstruct the myth that there is a lot of potassium in clays or soils. I have also discussed the water leach vs the 'weak acid leach'.

Then we got the first press release disclosing drilling activities at their flagship salar and I have discussed the shallow depth of the salar and the low transmissivity rate of the aquifer which would prevent the exploiting of the brine.

There is not much to be said or expected from this company or their salaries. Sorry, expected ... yeah we waited for about 3 months to get La Salada assay results.

When Barry finally released them there was no wow moment. We already knew that there is **no** (to very little) **lithium** in their salaries.

As a result the last die hard Alset shareholders sold their position and moved out with their capital decimated.

But ... Alset got its name because its shrewd founders wanted to capitalize on the rising lithium wave - Alset is Tesla reverted/mirrored. They incessantly talked about how their salaries are going to provide lithium to Tesla. And now the world finds out that there is no economic lithium deposit to be hosted by

those Mexican salars.

But Barry true to his ways switched to 'there is lots of potassium in brines and good lithium and potassium values in clays/soils'.

I am tired of demonstrating/repeating the same technical points (proved right, btw) so I am going to give you **the strongest argument against those salars hosting economic potassium or lithium deposits.**

They are TOO SMALL for hosting either economic volumes of lithium-potash brines AND/OR economic quantities of lithium enriched soils/clays.

An economic lithium brine deposit would be hosted by a basin having a depth of let's say 1,200m or more - see Clayton Valley, South America Lithium Triangle etc. Alset's basins/salars have a depth of 40 m to 70 m. The shocking truth.

I have much to say about all these but I don't want to be too long. I did some calculations and Barry's average La Salada brine potassium grades of 12,700 ppm would translate in about \$2M in situ value. I made some calculations and a conversion to muriate of potash (KCl), which sells for a whopping ... \$208 per tonne. Compare that with \$20,000 per tonne lithium carbonate, lithium that you don't have Barry! So your \$2M in situ potassium in brine value is far from being enough to allow the development of a potassium deposit. No one has ever explored for and developed and built a mine with \$2 million.

I don't want to hurt your feelings and it might not be the first time that you hear that but size really matters, Barry.

An economic lithium/potassium enriched clay deposit (hectorite) would be hosted by a thick sedimentary sequence (layer) extending over many kilometers (strike length). See Bacanora's. Alset's salars are about 1-1.5 km in length. Forget about that stupid idea i.e. mining the clays hosted by Alset's salars. There is no such thing.

To put things into perspective you can imagine that each of these Mexican salars is the size of a cup of champagne (hosting liquid/brine or ice cream/hectorite) BUT in order to be economic it should be the size of an Olympic swimming pool. This is the comparison that you have to have in mind.

A glass of beer cannot hold the content of a keg. That's it.

Forget about the grades advertised by Barry. They are not relevant anyway and I am not going to discuss them anymore because size takes precedence. You need to have enough of the commodity (in the ground) to be able to cover all the exploration, development, permitting and mining costs. To build solar evaporation ponds, to buy land to be able to do that, and I am not even considering the cost of building a processing plant.

If you do solar evaporation ponds for lithium then at least you can ship out the concentrate to a processing facility as you might not be able to build one (it costs >\$100M). But this applies to lithium brines and Barry has none. It has 9 ppm or mg/L lithium, while others are mining hundreds of ppm. And he has almost no brine in his salars. Just a trickle.

It makes no sense to be discussing how expensive it is to extract lithium from clay/soils (very expensive) in comparison with extracting them from brines. Types, grades and size matter. Size, Barry.

If Barry ever starts again with the talk on exploring these tiny salars and their 'good grades' do yourself a favor - turn around and mute the sound. Or tell him that he better start looking for the ring from the Lord of the Ring at the bottom of his shallow salars. Or the entrance to the Middle Earth so he can start selling tickets.

And hopefully he won't start with the sulphates or the SOP (sulphate of potash) Mining companies involved in mining of these types of brines are pumping from HUGE reservoirs. They are mining the Great Salt Lake, the Atacama or some huge Chinese reservoirs. Size Barry, size. Tiny = It doesn't matter.

Investors, to avoid future traps, as I am tired of writing about this topic, please check out these links:

<https://goo.gl/fYCCbi>

<https://goo.gl/BjiLAJ>

Now, I am going to lighten up the mood. I will try to prevent unscrupulous characters on thinking of sluicing more wallets on TSX. I'll do that by proposing them some viable business models to be applied in connection with these tiny salars. In other words there are ways of making some honest pesos, Barry.

So back to business. The first business model would be:



Yep, sell lithia water. Filter out the gooey material from your 'brine' and sell it. It lightens up the mood. And your brine is 6-9 ppm or mg/L which is exactly what lithia water is about. A lithia por favor.

The next one might be stinky but it is still viable business, Barry: <http://i.imgur.com/j8aXy03.gifv>

These small salars represent small depressions located in agricultural regions - they are surrounded by elevated agricultural lands that have been cultivated for hundreds of years. Heck, there is even a village (La Salada) above the salar. Check out this GE image.



What happens is that any kind of fertilizer applied to the elevated agricultural land surrounding the La Salada would be leached and then transported by the underground water into the lower adjacent bowl represented by La Salada. Even the content of campesinos pit toilets would be eventually leached in the adjacent La Salada depression. The scientific term is nutrient leaching, Barry.

Now, what did the poor campesinos use for hundreds of years to better their crops? Manure, Barry! Manure.

Over the last few hundreds of years all those goodies contained by manure have been leached into the La Salada, which is nowadays drilled and assayed by Barry. And the results published on TSX.

Now, what is the manure containing?

Table 1. (Typical)

	Nitrogen	Phosphorus	Potassium	Calcium	Magnesium	Organic matter	Moisture content
	(N)	(P ₂ O ₅)	(K ₂ O)	(Ca)	(Mg)		
FRESH MANURE	%	%	%	%	%	%	%
Cattle	0.5	0.3	0.5	0.3	0.1	16.7	81.3
Sheep	0.9	0.5	0.8	0.2	0.3	30.7	84.8
Poultry	0.9	0.5	0.8	0.4	0.2	30.7	84.8
Horse	0.5	0.3	0.6	0.3	0.12	7.0	68.8
Swine	0.6	0.5	0.4	0.2	0.03	15.5	77.6
TREATED DRIED MANURE	%	%	%	%	%	%	%
Cattle	2.0	1.5	2.2	2.9	0.7	69.9	7.9
Sheep	1.9	1.4	2.9	3.3	0.8	53.9	11.4
Poultry	4.5	2.7	1.4	2.9	0.6	58.6	9.2

Yes Barry, you got it! POTASSIUM. Same as your samples coming from the La Salada i.e. both brine and soil samples.

So how much of the La Salada potassium comes from manure seeping into your salar, Barry?

A LOT, Barry. That's why when doing a geochemical sediment sampling we wouldn't sample near roads, bridges but upstream from the confluence with them. They call it contamination Barry but in your case it might be a blessing in disguise.

According to the above table the manure contains 5,000 ppm to 8,000 ppm potassium (oxide), Barry. That's in its natural state, Barry.

Dry it out and you can get **29,000 ppm (2.9%)** potassium oxide Barry. From **sheep manure**, Barry. You can confirm that they mostly keep sheep in the region. Now, that **would top the maximum potassium value that you have recently reported as coming from your La Salada brine**, Barry! Wow!

The business plan is very simple. You still have \$200k in the bank so you can buy quite a few donkey drawn carts and you can start collecting the manure from campesinos.



Now, I hear that you want to start some hot water leaching process of soil samples in order to get potassium.

Better change the plan and start the **hot water leaching of the sheep manure**. No more drilling, no more assay results delays. You can be up and running in less than a month. You can start generating cash flow, Barry. And your dream of helping the farmers by providing them local potassium/fertilizers could become reality. They might even raise you a statue.

That, or in the light of the latest (disastrous) assay results you might want to **consider buying into an old silver mine and start doing something mining related**. Your choice, Barry.

Jokes aside investors be careful out there.

There is always a new star rising. Commodity or junior.

And they are never as good as advertised.

Cheers.

Dan