

# The next big thing?

If one has been around in the mining space as long as I have it is hard to say that one hears something new. In the case of I-Minerals Inc. (TSXV: IMA | OTCQB: IMAHF) though its focus is on a number of industrial minerals which one does not come across daily (at least not the names) but which one might require in daily existence.

The “I” in I-Minerals is quite clearly “Industrial” rather than the more the meaning of the all-things-to-all-men “I” in Apple products. In this case the sought-after products are K-spar, quartz, Metakaolin and Halloysite. Unlike the promoters that (mainly) inhabit the gold space (though also notorious in Rare Earths once upon a time and more recently in Lithium) that have no intention of developing their properties those in Industrial need to be serious because no-one is going to give them more than short-shrift if they shamelessly play the Vancouver promotion game. I-Minerals are moving forward on several projects so we thought it timely to review their activities.

## The Products

Kaolin is as old as humanity because it used to go by the name “china-clay” and was the basic ingredient in the better grades of porcelain and pottery goods.

Quartz is rather self-evident and not exactly a mineral in short supply with its uses ranging from the mundane to the super-sophisticated (even though the latter hardly gleans a high price excepting for those adding value to it).

K-Spar is used by producers of high-clarity glass, ceramics, sanitary ware, tableware, and paint are the primary users of K-feldspar. Deposits of high quality K-spar that can be economically extracted are rare. This rarity of quality deposits has resulted in K-spar selling at much higher prices

than sodium feldspar. At present there is no domestic U.S. production of K-spar with  $K_2O$  purities in excess of 10%. I-Minerals is developing a series of K-spar products in the 12.5% to 13%  $K_2O$  range.

Halloysite is intriguing because while it has historically been used in the manufacture of porcelain, bone china, and fine china, it is new quasi-non-technology applications that store the pulse. Amongst these are its use as a suspension agent in glaze preparations as well as in filters and inkjets.

Halloysite nanotubes (HNTs) can be coated with metallic and other substances to achieve a wide variety of electrical, chemical, and physical properties. The hollow tube of HNTs can be filled with a variety of active ingredients including those used for cosmetics, household and personal care products, pesticides, pest repellents, pharmaceuticals and other agents that could benefit from extended release. I-Minerals claims that its HalloPure products, with low initial levels of trace elements, provide a strong starting point for further purification to meet the stringent requirements of the pharmaceutical and cosmetic industries while the high aspect ratio adds strength in plastics and polymers applications.

## **The Properties**

The main project of the company is the Bovill Kaolin, the geology of which is characterized by the Thatuna Batholith, a granitic intrusive composed mainly of Na-feldspar, K-feldspar and quartz. The mineral deposit is the overprinting of the intrusive rock by a weathered saprolite horizon which directly overlies the bedrock from which it was derived. During the natural processes of weathering, the original plagioclase feldspars have preferentially broken down to produce the clays kaolinite and halloysite. The K-feldspars have resisted weathering to a degree and much of the original component remains as free grains. Similarly, the quartz component of the host rock remains as free grains in the weathered material.

The mineral resource products include kaolinite, halloysite, K-feldspar and quartz.

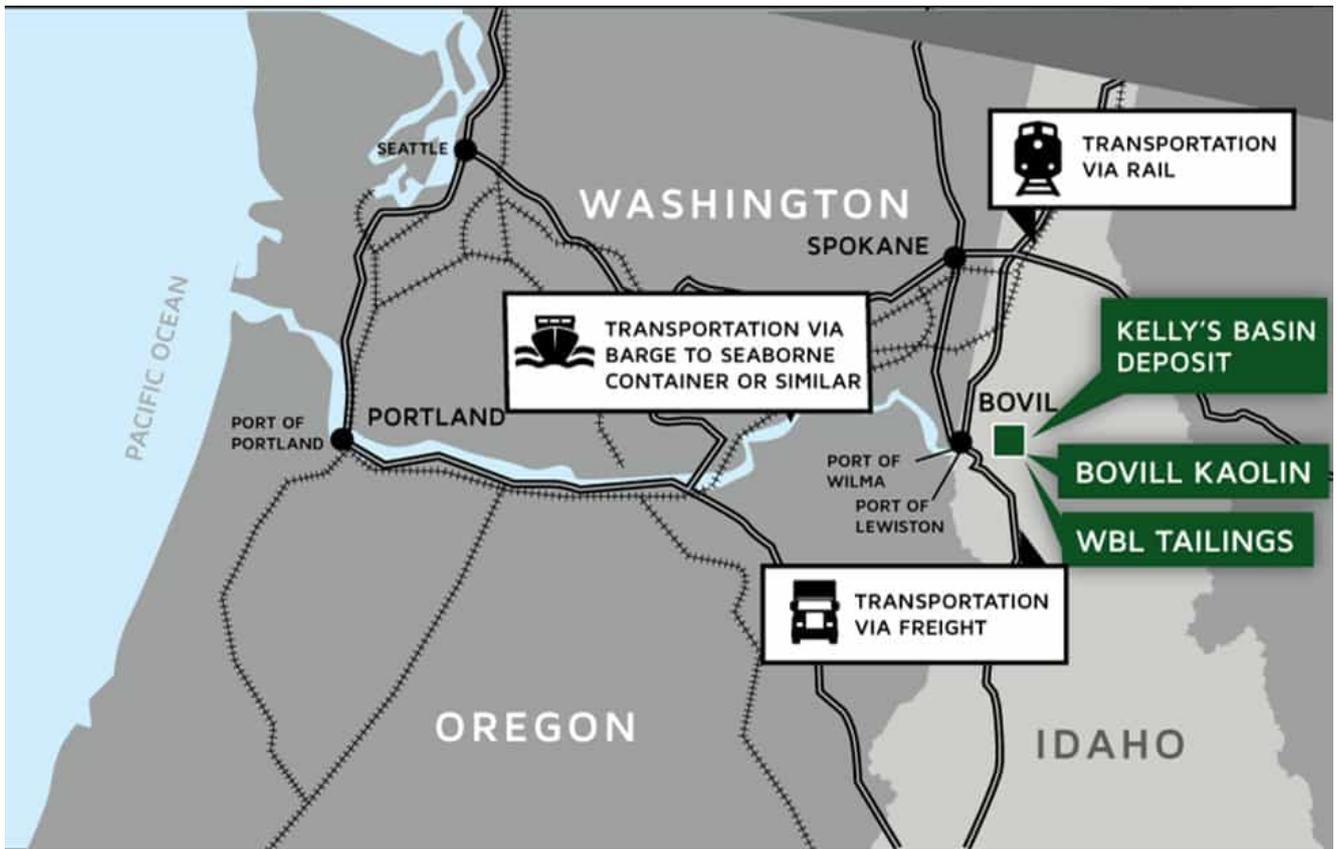
A PFS dating from June 2014, that was prepared by SRK, estimated the initial capital required to be US\$72.7mn with an additional US\$18.2mn in sustaining capital yielding total Life of Mine capital estimated at US\$90.8mn.

Operating costs are estimated on preliminary mine and process design criteria, engineering, as well as budgetary quotes. Over the LoM, operating costs will be about US\$70.72/t of product.

The financial analysis metrics were:

- an NPV (at 6% discount) of US\$212.7 million
- an post-tax IRR of 30.5%
- Payback will be in three years from the start of production
- A mine life of 25 years
- Product yields include, 3.8% halloysite, 6.9% kaolin, 7.3% metakaolin, 16.6% K-Spar, and 37.9% quartz, over the LoM
- An average operating cost of US\$70.68/t-product;
- Capital costs of US\$90.8 million, consisting of initial capital costs of US\$72.7 million and sustaining capital over the LoM of US\$18.2 million
- Mine closure cost, included in the above estimates is US\$5.1 million

At this point, permitting work with the State of Idaho is well underway.



As is well known we are very partial to reactivating old sites with “plug-and-play” qualities. Tailings facilities can often qualify in this regard. I-Minerals has been working on the revival of the WBL Tailings project with initial production achieved in October 2012.. These dumps were created by the mining of primary clays from 1960 to 1974. The operator at that time was focused on the kaolin component from the primary clays and wasted the potassium feldspar (K-spar) and quartz fraction to the tails.

Recognizing the tailings represented an excellent source of K-spar and quartz, in May 2010 I-Minerals commissioned SRK to provide an estimate of the potential of the WBL Tailings resulting in an indicated resource of 509,000 short tons of recoverable feldspathic sand containing about 92,000 tons of K-spar (18% feldspar) and 214,000 tons of quartz (42% quartz) over an average thickness of about 17 feet.

I-Minerals was granted a reclamation permit by the Idaho Department of Lands to mine up to 50,000 ton per annum of the

feldspathic sand for a period of 10 years. Mining is limited to the June through October period.

A bulk sample of the WBL Tailings was processed to yield a high quality K-spar product that had very low iron and other trace elements. With little further processing, the feldspathic sand can be readily used as filler in ceramic body applications given it fires white. Servicing this market simply requires excavation of unconsolidated K-spar- and quartz-bearing feldspathic sand and screening to remove undesirable constituents prior to being loaded.

## **Conclusion**

We have to say that the Trump “make America great again” campaign has been long on rhetoric and short on action. And yet despite this there are stirrings of action (from entrepreneurial miners rather than bureaucrats) on the front of enabling mining in the US (again) of minerals where the US had lost all presence despite being the largest or amongst the largest users of said minerals. Something is afoot...

We are seeing this over and over again in base metals and specialty (and industrial) minerals where once the curtains seemed to have fallen definitively upon domestic production. The squandering of scarce resources by the Chinese has some little part to play but so does the interest of end-users in “securing their upstream”, one of our key mantras. One cannot have all one’s mineral needs sourced in China and then tell investors with a straight face that one is sure of one’s supply. This then combines with another of our themes being “the end of cheap” in which costs in China rise and normalization of environmental rules squeeze out the once cheap and dirty producers with which China established its dominance.

I-Minerals is a good example of a company that has seized a key niche in minerals that are widely needed but not widely

sourced and definitely not sourced domestically (with ease) in North America. This meshes well with the theme we highlighted as one of the Next Big Things at InvestorIntel's CTMS Conference held in Toronto back in May and it's a trend we shall be seeing more of in the coming years.