

# 5E Advanced Materials – FEAM & ASX:5EA

August 25, 2022

**Today we have a Q&A with Henri Tausch, President and CEO of 5E Advanced Materials, Inc., a leading domestic supplier of Boron+ advanced materials based in CA formerly operating under the name American Pacific Borates Limited.**



Henri's background includes broad global business experience at the Board of Director, CEO and COO levels. From 2011-2021 he was a Senior Vice President and COO at TSX listed Shawcor Ltd., a global infrastructure and energy technology services company.

Henri previously held senior global leadership roles at Honeywell International and held senior executive positions globally across the United States, Europe, and Australia. Henri holds a Master of Science in Electrical Engineering from the Eindhoven University of Technology.

## **5E Advanced Materials, Inc. Nasdaq: FEAM & ASX:5EA**

5E Advanced Materials, Inc. (Nasdaq: FEAM) (ASX:5EA) is positioned to become a vertically integrated global leader in BORON+ advanced materials with a focus on enabling decarbonization. BORON+ products target critical, high value applications within electric transportation, clean energy, food, and domestic security.

5E's advanced materials business is underpinned by its low cost, light environmental touch resource in Southern California, which is designated Critical Infrastructure by the U.S. government and serves as the largest known new conventional boron deposit globally.

5E's resource quality, domestic supply source, and downstream processing capabilities provide a competitive advantage given customer product specifications, scarcity of resource, and reliance on unstable, international supply.

## **5E Advanced Materials Question Time....**

### **1. Can you give us further information on the prior position you had with the TSX listed company Shawcor Ltd?**

In my previous position at Shawcor Ltd, as Chief Operating Officer, I had bottom line responsibility for the day-to-day profit and loss for all businesses divisions. Business operations included the largest pipeline coating business in the world, two pipeline services businesses, a pipeline engineering business, a pipeline product business, a composite pipeline business, an equipment asset management business, a composite fuel tank business, a specialty wire and cable business, and an automotive and industrial connectors and wiring business. Shawcor Ltd has operations in approximately 20 countries and employs 5000 employees globally.

### **2. You joined American Pacific Borates back in August of 2021, what was the main driver for you to get involved with this project at the time?**

When I was approached to lead 5E Advanced Materials, Inc., I was intrigued by the market opportunity that comes with boron. I specifically joined 5E because they are strategically positioned to become a global leader of this critical material given they own the largest known new conventional source of boron in the world, which is advantageously located in Southern California.

Boron is a key element to enable decarbonization of the planet. It is a required element in EV's, wind turbines, solar panels, and major insulation applications. It is also a key element in many other emerging applications, such as semiconductors, cell phones and space applications. Growth of these future facing applications is forecasted to accelerate the growth curve in boron with demand expected to double by 2030. On the supply side, the market is extremely constrained. Upstream, there are currently just two companies that supply 85% of the global supply of boron. This is the result of geophysical constraints.

To find a meaningful deposit of boron, you need a volcano, an evaporated waterbody, and a fault line. Downstream, is not much better and like lithium and rare earth minerals, most of the downstream processing occurs in China. Boron carbide, whose use case includes military applications such as Kevlar vests and ballistic shields, is a good example as 80% of global boron carbide supply is produced in China.

In summary, boron supply and demand fundamentals are extremely compelling and aligned with key mega growth trends around critical materials, establishing US based supply chains and decarbonization of the planet.

### **3. American Pacific Borates ABR:ASX became 5E Advanced Materials - FEAM in October soon after you joined, can you give us more of an understanding why that change was made at the time?**

Like many junior mining companies, the company was founded in Australia and went public on the ASX under the ticker ABR. The first years were used for exploration, upgrading the resource, obtaining permits, and conducting engineering studies. As the company matured and grew closer to the production phase of operations, it made sense to transition the primary listing and management team to the US.

Having a US based company with a US based management team, made the most sense not only because of the availability of large capital investments but also logistically. We became a dual listed company in both Australia and the US with FEAM as our primary listing on the Nasdaq and 5EA as our CDI secondary listing on the ASX.

**4. Back in May 5E Advanced Materials, Inc. joined the MSCI World Small Cap Index which seemed very positive for the stock and give it a price lift, how did that effect things at 5E Advanced Materials, Inc. at the time?**



Very positive. We had momentum in the share price and any extra publicity you can get with index inclusion is a positive catalyst. Further, many passive and active funds track the MSCI and other indexes and as such, were forced to buy 5E Advanced Materials, Inc. shares upon inclusion, which resulted in positive buy demand. We were also recently included in the US based [Russell 2000®](#), Russell 3000®, and Russell

MICROCAP® indexes this past June. We anticipate achieving further index inclusions in both the US and Australia as our company continues to progress in its development.

**5. The June announcement of being included in the Russell 3000 index was huge but many companies, 5E Advanced Materials, Inc. included took a price hammering, we are aware the broader market was hurt by overall sentiment, but did you see any direct impact based on that index inclusion?**

We were included in the Russell 2000®, Russell 3000®, and Russell MICROCAP® indexes, which resulted in incremental buying by the various index funds. From our perspective, it was positive. At the same time, the entire market declined due to a combination of economic factors including fear of recession, the Ukraine-Russia conflict, China Covid lockdowns, and general issues in the global supply chain, which resulted in net selling by investors in the funds that tracked such indexes.

As a result, nearly all pre-revenue companies saw a substantial decline in share price for which 5E Advanced Materials, Inc. was neither immune nor indiscriminately punished. The market ebbs and flows in an erratic and irrational manner which is out of our control. While we must respect the market, we maintain a strong focus on developing a world class US based critical materials business. We hope investors view the recent market pullback as an opportunity to enter in and join our amazing story.

**6. The LOI with Corning back in July was a big deal from a news perspective, can you talk to the significance of that to the company?**

You are correct, we view this LOI as a massive milestone for 5E Advanced Materials, Inc. Corning, a fortune 300 company is one of the largest specialty glass producers in the world manufacturing key products such as the smart phone gorilla glass used in nearly all smart phone devices. Corning is also a substantial user of lithium and boron and understands the supply risk in these critical materials.

Such knowledge comes from experience as Corning previously witnessed the sourcing issues and price hikes around lithium, where the market was undersupplied and predominantly designated to battery makers. They are now seeing similar pricing and supply pressures with boron and understand what can happen in the supply chain over the next few years. They have seen boron market prices increase more than 50% in one year and as such wish to secure a new stable, domestic source of boron supply. The LOI ensures a domestic source of both lithium and boron. They will also work with us to develop cutting edge boron+ advanced material products. Corning spends a significant portion of their revenue on R&D and intends to establish themselves as a market leader in the specialty glass space.

So, having the LOI with Corning is a validation of boron use cases, the risk of incrementally tightening supply, and our ability to meet the critical needs of large customers. The Corning LOI has also triggered new discussions with other boron users for both offtake agreements and innovation discussions as they now recognize the potential sourcing issue.

**7. On the mine site the intention is to build out a fully integrated boron advanced materials business, can you explain that to us in layman terms?**



Our strategy is to build a vertically integrated boron facility with lithium as a co-product. The first derivative is boric acid, which could be sold in the open market. Currently, some of the globally produced boric acid is further produced into higher value-in-use advanced materials. Some of these materials sell at 100 to 10,000 times the price of boric acid. Our plan is to produce these types of high value-in-use materials all at the same location.

This provides us with both cost and sustainability benefits, including energy savings, advantageous processing synergies just to name a few. From a valuation perspective, selling higher value materials at higher prices, would mean higher revenue and higher EBITDA in comparison with only producing boric acid. Also, producing boron advanced materials will change the DNA of the company from a more commodity-based mining and processing company into an integrated downstream advanced materials business.

This could potentially lead to higher valuation multiples of the company per vertically integrated publicly traded comparable peers. You can see similarities with Albemarle, who built out their lithium and bromine businesses with advanced materials, which are sold in high value-in-use applications.

**8. Where is Boron being mined and produced today and who are the industry peers you look to as guidance?**

As I mentioned, to find a significant deposit of boron, you need a volcano, evaporated water body and a fault line. 60-65% of the global supply comes from Turkey and is mined by a state-owned company. Another 20-25% is mined in California by Rio Tinto. Rio Tinto announced a few years ago that they are nearing their end of mine-life. There are some other smaller deposits in Russia, Mongolia, and South America but nothing consequential.

In terms of new supply, we are only aware of a handful of new projects. Given project statuses, geopolitical challenges and permitting issues, we believe that 5E Advanced Materials, Inc. is most likely to be the first, and potentially only new project to come into full production in the next decade. Even if all of these projects come online, their production would still not be enough to close the supply gap that is forecasted to widen significantly over the next few years.

As an interesting data point, there are several hundred new lithium and rare earth projects around the world but only six new boron projects. This is due to previously mentioned geological constraints and serves as a key hurdle in sourcing new supply.

#### **9. How important was the US military announcement on strategic and critical minerals for 5E Advanced Materials, Inc. being a US mining operation?**

In short, this was very important. Our project location in California has been designated as critical infrastructure by the US government. This validates the criticality for boron as a source material, the potential issues in the boron supply chain, and the significance and confidence in 5E Advanced Materials, Inc.'s resource. At this time, most of the boron materials used for military applications come from Turkey or China.

As an example, boron carbide is used for ballistic shielding because it is hard and lightweight. As previously mentioned, 60-65% of the downstream materials come from Turkey and 80% of the further processed boron carbide comes from China. There is a lot of value in having a fully integrated supply chain for this critical material in the US in the eyes of both our customers and the US government.

#### **10. Boron and its uses are not widely known by the public, so can you delve a little into that area for the readers to better understand its importance?**

In a nutshell, boron is in the same group as lithium and rare earths. All these materials are needed for the new future-facing industries, but boron is a lot scarcer and has many more use-cases.

Boron is a unique material and has special properties that make it useful for many applications. It is hard (2<sup>nd</sup> hardest behind diamond), lightweight (5<sup>th</sup> lightest behind beryllium), and heat and cold resistant (12<sup>th</sup> highest melting point). It also serves as a strong conductor of electrons and an effective micronutrient.

So, a world without boron would be remarkably similar to a world without electricity. Boron was first used as a cleaning material, pesticide, and as a micronutrient which I define as the traditional industries. The newer emerging industries use boron materials for the unique properties mentioned above. Boron is used in mobile phones (the glass does not scratch, is strong, light and does not expand with heat or cold because

of the boron content). Boron is used in permanent magnets that are needed for the drive trains for EV's, wind turbines, etc.

The strongest permanent magnet has one atom of boron and two atoms of rare earths and without the boron, the permanent magnet does not function. We are currently engaged in a research partnership with Georgetown University that aims to create novel intellectual property and commercialization pathways for the manufacturing of boron enhanced permanent magnets.

Boron is also used in nuclear applications and semiconductors. Boron also has many use cases in space applications given the requirements for strong, lightweight, and temperature resistant materials. In summary, boron is used in many applications and substituting it with another material is difficult because of its powerful combination of properties and the criticality of the applications for which it serves.

### **11. We understand the small-scale production will be mechanical completed in the 2nd half of 2022, any timelines around that completion and being fired up?**

Yes, we are currently in construction of our small-scale boron facility (SSBF), which is on schedule for mechanical completion in fourth quarter 2022 and in operation in early 2023. Nearly all equipment and materials are ordered and either onsite or in transit.

The knowledge gained from operating the SSBF will be used to optimize engineering, design, and cost (CAPEX and OPEX) for the large-scale commercial complex. The SSBF will also provide us with samples that we can use to finalize customer offtake agreements, innovate, and develop further downstream boron advanced materials products. We believe the SSBF will be a key milestone for investors, as it instills additional confidence in our resource, extraction and processing, and execution capabilities.

## **How can people connect with 5E Advanced Materials to follow for more updates?**

*You can follow us on*

**Website:** <https://5eadvancedmaterials.com/>

**LinkedIn:** <https://www.linkedin.com/company/5e-advanced-materials-inc/>

**Twitter:** <https://twitter.com/5EAMaterials>

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*\*\*Disclaimer – Spencer Campbell the Author of this blog post has personally invested In 5E Advanced Materials, Inc. and reached out to Henri Tausch after the investment to find out more about the company and did not know Henri Tausch or any staff at 5E Advanced Materials, Inc. prior to the investment.*

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