The Gold Report

How to Vet Graphite Investments: Stephen Riddle

Source: Brian Sylvester of *The Mining Report* (2/18/14)

Stephen Riddle, CEO of Asbury Graphite Mills Inc., has been in the business long enough to have seen companies come and go, sometimes more than once. He brings a realist's perspective to this *Mining Report* interview, and explains the questions he asks himself, as an investor, at each stage of mine development. He also comments on the supply-and-demand picture, and names the characteristics of his ideal graphite mine.

The Mining Report: Since 2005, prices for natural flake graphite spiked several times, but spikes have been less common since 2012. How long before we see another price spike or a sustained price run?

Stephen Riddle: That won't happen until we see a strong increase in demand, or until something major happens in China, our largest supply base. Demand has declined over the last year or two due to the downturn in the steel industry, which means less use of graphite in the refractory industry.

We also have to watch what happens with new supply outside of China. The world would love to have additional supply outside of China, but if the graphite industry adds capacity too fast and demand does not keep pace—well, we know what happens when supply is greater than demand.

TMR: Dozens of new graphite equities are trading on exchanges around the world, but not one has brought a new mine into production. What should the absence of new mines tell investors about the graphite space?

SR: First, I would emphasize that just because graphite mining has a low capital expense (capex) compared to other minerals, investors shouldn't assume that graphite mining is an easy industry in which to make a return on investment.

> *"I'd like to congratulate the management of* ***Focus Graphite Inc.*** *for obtaining an offtake agreement."*

Second, public reports issued by the industry rely on much higher average selling prices per metric ton than I would consider realistic market prices. New graphite mines will most likely have to sell at below-market prices to entice end-users to change suppliers. In addition, real world demand is not what most people report; it's typically less. Part of that is optimism, and another part is because most deals are kept private in this very small industry.

Third, junior mining companies assume it will be easy to sell out their full graphite output once it is mined and produced. Graphite is not like any other mineral. You have to sell all the qualities and all the particle sizes that you produce at the mine. This becomes extremely difficult.

For example, TIMCAL Stratmin Graphite in Canada closed last year because it couldn't sell portions of its output. Why keep producing more graphite if you can't sell all of your output? People think that graphite is easy to sell. It's not. It takes graphite miners years to develop a customer base. Thus, companies need cash flow to cover any losses during that period.

TMR: How does Asbury Mills obtain its graphite?

SR: We buy some on an annual basis and some on a spot basis. We negotiate privately with graphite-producing mines all over the world.

TMR: Why do you negotiate with mines all over the world rather than a few located nearby—for example, in Canada?

SR: In most cases, it's price. Like most industrial metals, graphite is a commodity and pricing talks.

TMR: So if you can get cheaper graphite of roughly the same quality from Brazil instead of Québec, that's where you buy?

SR: Correct.

TMR: Stephen, what is your ideal, early-stage junior graphite project, in terms of geology, grade, infrastructure, agreements and such?

SR: My ideal project is a graphite mine that would produce at a 94–96% purity level. It would have as much medium (plus-80 mesh) and large flake (plus-50 mesh) as possible. The lower percentage of fine flake (minus-80 mesh), the better, since it's the most abundant material in the market and thus has the lowest selling price. The mine would have capacity of about 15,000 tons, and its total costs would be below $400/ton.

TMR: What about infrastructure?

SR: Nearby infrastructure affects cost. You need to consider the freight-on-board cost and add on the freight costs to deliver globally. Only then can you compare your costs to the existing market price and determine how competitive you can be.

TMR: What accounts in the price difference, say between graphite from Brazil and Québec?

SR: Mining costs are the first factor. That goes to the type of ore being mined, the percentage of graphite in the ore and the percentage of overburden. All that factors into the average cost to mine a ton of graphite ore.

TMR: But there are high-grade mines in Québec.

SR: There are high-grade mines that have a high percentage of graphite; that's a good starting point. However, if the costs to move the overburden and get the ore to the flotation plant are higher than those of a company with a lower-percentage ore, that can cancel out the cost benefit of a high-grade resource.

The second factor is the footprint of the graphite ore after the flotation is done. In other words, what percentage of the graphite ore is in the plus-50 mesh, minus-50-by-80 mesh and minus-80 mesh sizes? What purity level can be obtained through normal flotation, without chemical treatments that add cost? That will help determine the average selling price.

Take Northern Graphite Corporation (NGC:TSX.V; NGPHF:OTCQX), for example. Because it has a very high percentage of coarse, large and medium flake, its average selling price will be higher than that of Focus Graphite Inc. (FMS:TSX.V) or Mason Graphite Inc. (LLG:TSX.V; MGPHF:OTCQX). Both companies have much lower percentages of large and medium flake and a much higher percentage of fine flake. Smaller flake simply has less value.

This is what distinguishes the graphite industry. If you mine nickel at 80% purity, you sell it at X price for 80% purity. If your purity is only 75%, it sells at X minus some small percentage. The graphite industry depends on both the size and purity level of the flakes.

"***Energizer Resources Inc.*** *is determining its expected footprint; when that is determined, the company can calculate realistic selling prices.*"

There is another scenario in the industry. Hypothetically, if I produce 40,000 ton/year (40 Ktpa) of 98-carbon graphite, I would need to assess what the demand is for 98-carbon graphite. I might determine that global demand is 20 Ktpa. In that case, I would have to get 100% of the market to sell 50% of my output. I would then have to sell the rest at 96-carbon prices, to sell the other 50% of my output. The net result is, it will lower my average selling price to sell all the volume because there is not a big enough market for 98-carbon graphite.

TMR: In five years, will there be enough room for Focus, Mason and others to share the graphite space?

SR: It will depend on how many lithium-ion batteries all of us will be using. That, and other energy storage applications, is where increased demand will come from.

TMR: Is it realistic for junior companies to cultivate a new set of end markets now?

SR: I don't think it's realistic, no. To justify its existence, a junior mining company has to look at the traditional markets. It takes too long to cultivate new markets and you can't justify the investment.

TMR: Graphene is one of the buzzwords in this space. Is producing graphene from natural graphite a theory or a legitimate business model?

SR: I wouldn't justify a graphite mine based on the graphene market. The graphene market will take an extremely long time to develop products for everyday use. What's more, a little graphite goes a long way in making graphene.

TMR: People argue that the graphene market may be small, but the prices are very high.

SR: There are two kinds of graphene. One is made from chemical vapor deposition, in which you make a graphene coating on top of another substrate, then remove the substrate, leaving only the graphene. Most of the graphene being used today is made that way. That is the graphene the electronic industry wants because it's ultra-high purity and can be easily controlled.

The lower-cost way to make graphene uses natural graphite as the precursor. That market will take longer to develop, but it will be a bigger market because that kind of graphene can be used in the more practical, higher-volume products that we use every day.

TMR: Do you have any particular concerns about the graphite market?

SR: My only concern is that most of the spherical graphite anode material used in lithium-ion batteries is made in China.

If I open a mine in Canada and I want to supply graphite to that market, most likely I will have to sell my graphite to the Chinese graphite anode producers. Today, China has a 20% export duty, thus current market prices include this 20% duty, so I would have to sell 20% below market prices just to compete on price, let alone any freight equalization.

Most companies making lithium-ion battery anode material are using the lowest cost graphite, that being the minus-80 mesh in a typical carbon of 94–96%.

TMR: What is the approximate global demand for graphite in lithium-ion batteries?

SR: Our market analysis shows that about 50% is synthetic graphite and 50% is natural graphite**.** Of the finished anode material after coating, we believe the market is around 80K metric tons.

TMR: What do you expect that to grow by annually?

SR: That's a good question. Analysts projected a fast growth rate based on expectations for the pure electric vehicle. That market hasn't grown much. What *has* grown is the hybrids, which use fewer batteries. I see the hybrid market growing; the electrical vehicle market less so.

TMR: Could graphite demand for lithium-ion batteries double in five years?

SR: It could. The question then becomes, which form of graphite—synthetic or natural—will be preferred?

The real, much bigger long-term question in the automotive market—the biggest consumer of graphite anode—is what does the future hold for anode material? Batteries take too long to recharge and only allow you to drive a certain distance before they need to be recharged. The battery industry has to come up with a better battery that can last longer and recharge in 10 minutes or so. Will those batteries be made with a graphite anode or some other form of anode material?

TMR: Recently, end-users have been adding graphene to polymers used in 3-D printing. Credit Suisse forecasts revenues from the global 3-D printing market will reach $12 billion ($12B) by 2020, up from a mere $2B in 2012. Can investors hang their hat on that?

SR: That is a potential market, but I wouldn't open a new graphite mine based on it. Like the graphene market, it will take a long time to develop.

TMR: Focus Graphite recently signed an offtake agreement with a Chinese company for up to 40 Ktpa of graphite concentrate. Why haven't more companies reached similar deals?

SR: First I'd like to congratulate the management of Focus for obtaining an offtake agreement. It's the first in the industry to do so.

Most junior mining companies are not signing offtake agreements because major buyers want to purchase at market prices or, in most cases, slightly below market prices. The risk for graphite producers is whether the buyer is willing to guarantee a minimum price if the market price constantly changes.

In other words, nobody thinks really long term. No company wants to pay a premium for graphite if it thinks prices will drop in the long term.

TMR: Is that because end-users have seen more downs than ups in graphite, and rely on the spot market?

SR: Those of us in the industry have an idea of what we believe are the fair-market costs of the suppliers and what would be a minimum fair market price.

TMR: What do you think of the offtake deal Focus Graphite signed?

SR: My questions—and these are questions investors should ask—are: Is there a minimum price in the agreement? Is it a take-or-pay agreement? How, or can, the buyer get out of the agreement? Does the agreement cover all grades, not just those the buyer prefers?

TMR: Is 40K tons a lot?

SR: For the next two years, the market outside of China doesn't need additional capacity in excess of 40K tons. If this is the only mine that gets underway, that amount should fit in well.

TMR: Asbury Mills has a long history in the carbon and graphite business. Have you ever seen hedging in the graphite space?

SR: Not too much. Asbury's probably one of the few to hedge, because we're not afraid to invest in inventory. If the price were really low, we could buy excess inventory.

TMR: How many tons a year does Asbury buy?

SR: Our usage varies depending on how much we want to participate in the commodity market.

We are involved in two markets for natural flake. One is the graphite trader market, where we drop-ship graphite directly from the mine to end-users around the world.

In the drop-ship business, in which our buys can change from year to year depending on the margins we're willing to live with, we might buy 25–45 Ktpa.

In the other part of the market, we buy the natural flake grades and process the material before selling it to the end-user.

TMR: Are you familiar with other companies operating in Québec?

SR: Yes. Let me start by saying that we, and the graphite industry in general, want to thank the junior mining industry. Thanks to their work in funding, finding and quantifying graphite reserves around the world, they've found enough graphite to satisfy current and future demand for the next 200 years. That's not just in Québec; there are more than 350 different graphite deposits throughout the world, and that does not include undeveloped deposits in China.

> "***Saint Jean Carbon Inc.*** *has some veins in which the percentage of graphite is quite high.*"

That doesn't mean that all of them are economical, at least at today's prices. But it tells you that the surviving graphite operations will have to be low-cost deposits that offer high-quality product and give the investor a fair return.

TMR: Another Québec player, Saint Jean Carbon Inc. (SJL:TSX.V), recently acquired Minmet Carbons. Is vertical integration the most effective way to build a profitable graphite company?

SR: The best way to build a graphite company is like raising a child. You start out teaching the child how to crawl. You've got to start out small and develop your customer base, keeping your capex and operating margins as low as possible, so you can have a margin.

TMR: But buying a company that already has a retail base would seem to be a reasonable approach.

SR: It depends on what the expertise of the retail base is. The expertise of Minmet's retail base is selling carbon material, not natural flake graphite, to the steel industry. Could that help Saint Jean Carbon sell graphite to the markets that consume graphite, (i.e., refractory markets or other lubricant markets)? Yes, but that is not the expertise of the company Saint Jean bought.

TMR: How does Saint Jean compare with other players?

SR: It's too early to tell. According to some of the company's press releases, it has some veins in which the percentage of graphite is quite high. Finding a way to separate the ash from the graphite at a reasonable cost would speed Saint Jean's way to market. The next question is: How big are the veins that contain the large percentage of graphite and is there enough volume available to justify an investment?

TMR: Would Minmet Carbons be a competitor of yours?

SR: Yes and no. Because we're fully involved in all forms of carbon, Minmet is a competitor in some materials. At other times, it has been a supplier to us. We are more in the business of processing carbon, while Minmet trades and brokers carbon.

TMR: What do you know about Saint Jean's early-stage project in Sri Lanka?

SR: Two or three companies are trying to reopen old mines in Sri Lanka. The country's graphite production peaked in the '40s and early '50s. After that, demand dropped and the mines closed. The questions today are, can the mines be reactivated cost effectively, and can they compete with flake graphite market prices?

The Sri Lankan veins are very small but incredibly pure, between 85–99%. The graphite doesn't need any further processing once it's been separated from the rock walls. If the Sri Lankan graphite can be competitive with flake graphites out of China, it's a justifiable business.

Currently, Sri Lankan graphite gets a premium, but only in very small niche businesses that have not been growing. I don't see that changing any time soon.

TMR: In your last *Mining Report* interview in 2012, you mentioned Energizer Resources Inc. (EGZ:TSX.V; ENZR:OTCQX) and Northern Graphite. What's happened with those companies since then?

SR: Northern Graphite has been reducing both its capex, which is around $100M, and its average selling price. One way to reduce your average selling price is to increase capacity, but then you have to sell the additional product.

Energizer is determining its expected footprint. By footprint, I mean the typical particle size breakdown of the coarse, medium and fine flake, and the purity level for each. When that is determined, the company can calculate realistic selling prices based on expected volumes.

TMR: Sherritt International Corp. (S:TSX), a nickel company, just went into commercial production at the Ambatovy Nickel mine in Madagascar. Does that enhance the chance of Energizer's Molo deposit being developed?

SR: Yes. Sherritt's experience is indicative of how difficult it is to operate in Madagascar. It cost Sherritt a lot more to get that nickel mine up and operating than was budgeted for.

The good news is that the government of Madagascar has become more mining-friendly, in a bid to develop its minerals, job market and value-added products. Still, it's not an easy place to operate in, nor as low cost as people think.

TMR: Energizer just raised $7.5M, much of it for a feasibility study. What will investors want to see from that study?

SR: I'd want to see what the company thinks its footprint will be and based on that, its realistic cost and volume forecasts. Finally, what would be a realistic selling price to move that volume? I want to see whether the net difference between cost and selling prices would justify the kind of investment needed.

TMR: Are there three juniors that you consider solid investments in the graphite space?

SR: The better way to look at it is that Asbury, if we wanted to, could fund at least two mines. We haven't found the right ones yet, but we're looking.

TMR: You would become an offtake partner with the right company?

SR: Yes. We've probably looked at 15 or more. We could also be an investor, if the economics work.

TMR: What are your criteria for becoming an offtake partner?

SR: I want a company that can sustain the ups and downs of market prices for the long haul.

TMR: What do you think when you see an asset that has changed hands two or three times? When a new company promotes an old deposit that didn't work

SR: That's the nature of the junior mining industry, especially public junior mining companies. First, the funding dries up. The company goes dormant. Then, somebody else is able to raise funding, reactivates the project and changes the name.

I look at companies that can survive long term. That means they have the right footprint, at the right cost structure, under the right amount of volume and the right management to make it happen.

TMR: Has enough changed for these companies to make money?

SR: In most cases, not enough has changed.

The change has to happen in China, where most of our supply comes from. Costs there are slowly increasing. The Chinese now have to spend more money and worry more about the environment. But costs haven't gone up to the point where it really opens the door for a significant number of juniors to enter the market quickly.

TMR: Do you have any parting thoughts?

SR: I'm concerned that as an industry, we don't add too much capacity outside of China too fast. We don't want to kill each other off. We want to work

together and make the graphite industry survive long term. We need to diversify supply, but we need to do it economically.

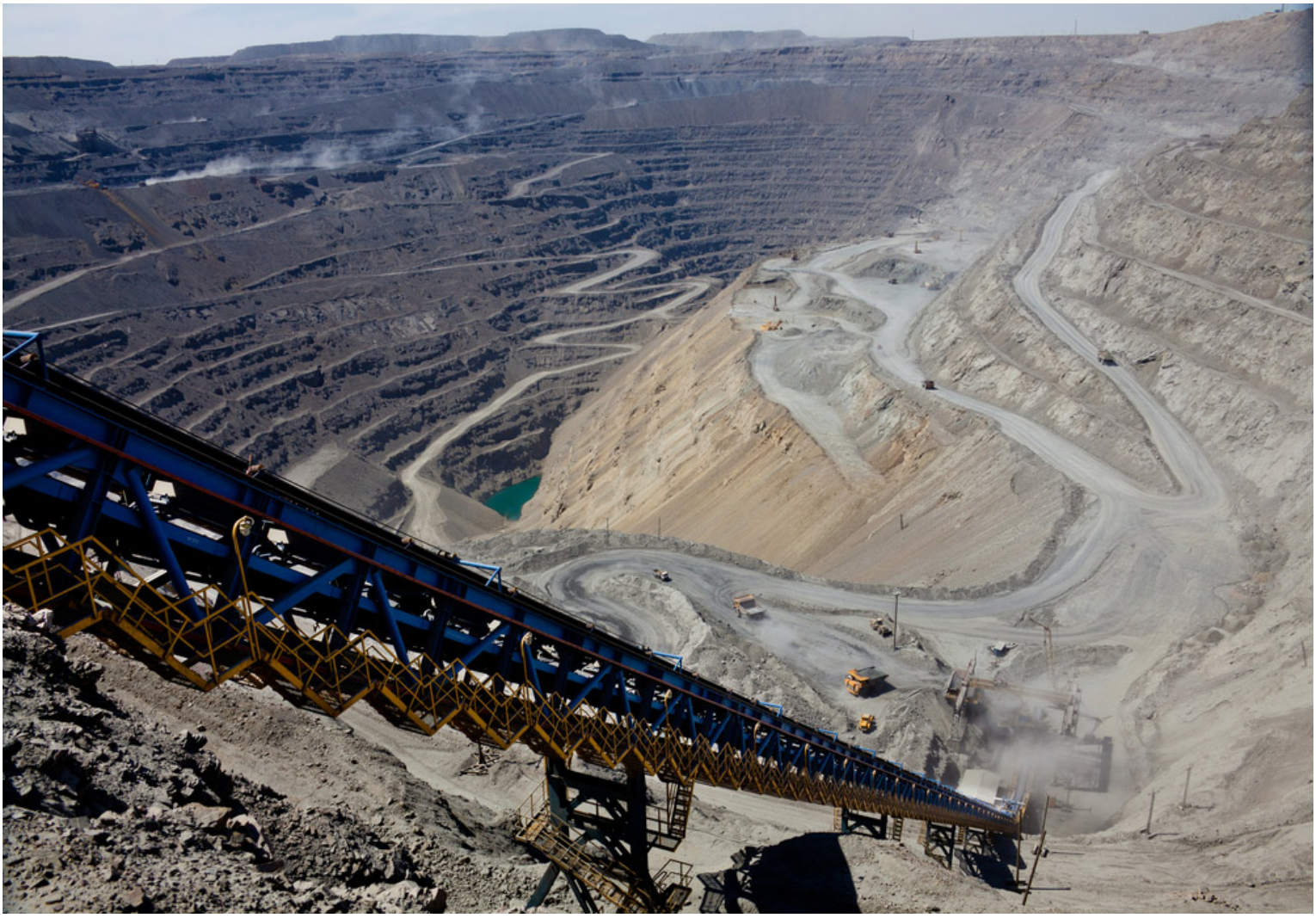
TMR: Stephen, thanks for your time and your insights.

Asbury Graphite Mills Inc. CEO Stephen Riddle, widely regarded as an expert in the graphite and carbon industry, is the fourth-generation leader of the privately owned company. Founded in New Jersey in 1895, Asbury Graphite is a processor and supplier of all types of granular and powder natural and synthetic graphite, petroleum and metallurgical cokes, anthracite coal, carbon black, carbon fibers and other inert materials. Joining the company as territory sales manager in June 1979, Riddle progressed to assistant sales manager (1984), sales and export marketing manager (1986), president (1995) and, in January 2011, to CEO. Riddle, who attended Lafayette College and Deerfield Academy, is a member of the Electrochemical Society, ASM International, the Casting Industry Supplier Association, American Foundry Society and American Powder Metal Institute.

Read what other experts are saying about:

- Energizer Resources Inc.
- Focus Graphite Inc.
- Saint Jean Carbon Inc.

Want to read more *Mining Report* interviews like this? Sign up for our free e-newsletter, and you'll learn when new articles have been published. To see a list of recent interviews with industry analysts and commentators, visit our Streetwise Interviews page.



Leave a comment

Discussion • Community • Help

There are no comments on this thread.
You have an opportunity to be the first!

Get it for my site