

# Middelkoop Discovery Alert

*'One discovery is all you need'*

***This is a Discovery Alert and no buy or sell recommendation -***

## **Analysis 'Ring of Fire' World Class Chromium Discovery**

Hello all,

Much has been said of the 2007 Eagle One copper/ nickel discovery by Noront, in what is now referred to as the Ring of Fire, Ontario, propelling Noront to the front pages of the exploration scene. However large the metal value of this and subsequent deposits is, we believe the recent discovery of a number of chromium deposits on the adjoining properties has a far greater potential value.

This week the Northern Miner reported coking coal and iron ore heavyweight Cliffs Natural Resources (CLF-N) is investing US\$3.5 million in a private placement for a 19.9% stake in KWG Resources (KWG-V) to gain a foothold in this sizable chromite discovery in the Ring of Fire, McFauld's Lake area

In the article KWG Resources CEO Smeenk commented: *"Here we have a primary chromitite deposit which is very high grade, 40% or more chrome, and with very thick widths. This could be the biggest deposit of its kind on the globe"*. Smeenk also said that the in-situ value of a pittable resource of this magnitude could be in the many billions of dollars. If proven, such a large deposit may have the potential to supply the entire North American market. Very few people are aware of the value and characteristics of chromium discoveries. *"This is very reminiscent of 1991 when there wasn't anybody in the western hemisphere who knew anything about diamonds. And then (Charles) Fipke made a discovery and we all had to go up a very steep learning curve. Now the same thing is occurring with the earth scientists and the investing community about chrome"*, Smeenk commented in the article.

Freewest Resources and Noront Resources also have made important chromium discoveries along the same trend in recent months. The three chromite projects lie along a 12-14 km-long northeast-southwest structural trend and all sit within the same peridotite body. While all of the projects still require much more drilling, results to date indicate that together, they form one of the most significant chromite discoveries ever made in North America. But the McFauld's Lake area is remote. The distance to the nearest railroad at Nakina, Ont., is 230 km and there is no electric power line in the area. Despite the lacking infrastructure, it is easy to see why we are excited. Before we give a more detailed explanation, we would first like to give a short Chromite 101 in order to address the knowledge gap, then we will look at the strategic importance of chromite, after which we will get down to the business of discussing the potential in the Ring of Fire.

### **Chromite 101**

Chromium is derived from chromite ore, and, either by itself or in the ferrochrome combination, has a wide range of uses in the metallurgical, the chemical and refractory industries. A quarter of the metal of any stainless steel knife, for example, is made of chromium. It is also used in alloy steel, plating of metals, pigments, catalysts and refractories. In these industries, there is no replacement for chromium, and this is due to the unique characteristics of chromium: it is strong, clean, and resistant to high temperatures and corrosion.

Chromium is an abundant metal, and its host, chromite ore, is mined in various places in the world. Current world chromite ore production is around 19 million tons, 36% of which is produced in South Africa. The world's estimated reserves are 11 billion tons, giving us just under 579 years' supply at current demand levels. Nothing to worry about, you would say. However, not all chromite ore is the same, and this is probably where investor-ignorance comes begging. There is a high variance in pricing of chromite ore, which is related to a mixture of:

- Grade (% Cr<sub>2</sub>O<sub>3</sub>) – commercially tradeable between 35-55%
- Chromium to iron ratio (Cr:Fe), where anything approaching 2:1 is a measure making the ore more easily processable to cater for specialist applications
- Levels of magnesium compared to the iron content (higher magnesium levels affect the reducibility of the ore, making processing more difficult)
- Increasing replacement of aluminum for iron in the deposit, which also helps reducibility
- 'massiveness' of the ore versus more friable ores

In fact, the ore from nearly every deposit that is mined, has a separate pricing. So instead of your regular dollar price per ounce or pound, as is apparent in the gold and uranium industries, we could have the pricing of mined ore from Oman noted as: 38 percent of the ore to the coast of Oman block transaction price is 260 U.S. dollars.

Ore is usually processed into either ferrochrome (between 50-65% Cr) for application in the stainless steel industry, or processed into chromium metal (99% pure), for more specialised application. Ferrochrome prices also vary hugely depending on the grade of chromium, high-carbon ferrochrome reaching to around \$2.5/ lbs, during 2008. A ton of chromium peaked at around \$12,000 in 2008.

Chromite ore of 39% Cr<sub>2</sub>O<sub>3</sub> contains 39% of chromic oxide per ton of ore. Chromic oxide, in turn, contains 68.42% chromium per ton. Thus, a ton of 39% Cr<sub>2</sub>O<sub>3</sub> contains just under 27% chromium metal.

If we haven't lost you yet, you are doing well. Let's go on to the strategic importance of chromite. This may get a little dreary, but hang in there, it is important.

### **Strategic importance**

Chromite could just be like any other base metal, were it not for the fact that its characteristics make it an invaluable part of various production processes. This value makes the chromium sector so much different and, arguably, more important than other base metals. A number of strategic and geopolitical implications are apparent.

The US defense industry considers chromium to be one of the most strategic of minerals. Chromium is an essential element in the production of jet engines, missile components and armor plating, and any enduring disruption of supply of chromium is therefore a direct threat to US defense production capabilities and the continuation of defense operations. The US does not produce chromium in significant quantities, and must therefore import it.

### **Russia and China as world powers.**

Both states will likely claim a larger role in the future power arena, whose basis will increasingly imply the possession, wielding and application of commodities for domestic purposes. Both powers will need larger supplies of ever scarcer commodities. The struggle for scarce commodities have always been, and always will be, at the root of military and political conflict. China's and the US' active involvement in Africa proves the point. Both Russia and China are already the largest producers of chromium metal, neither country producing any significant amounts of chromite ore at home. To satisfy rising demand levels, they will need to secure supply by locking up at the source.

### **Supply constraints will add to the problems.**

Currently, South Africa supplies the world with 38% of demand for chromite. Last year, during the oil and gas prices hikes, South Africa was unable to provide enough inputs for its electricity production, directly impacting the mining and processing of chromite ore, a very electricity-intensive industry. Total South African supply was impacted markedly, and although oil prices have come down since as a consequence of the credit crisis, peak oil logic dictates oil prices will rise again in the near future, and stay up. Other large ore producers are:

- India, who will probably keep an ever larger piece of the pie for domestic use,
- Kazakhstan, falling under the political umbrella of Russia, and Zimbabwe, already at the center stage of China – US competition over commodities.

To make matters worse, the current crisis will lead to a shut down of mining activity across the commodity board on a large scale. A large chromite supply in Canada, one of the most stable states in the world, would be of huge significance to the US.

### **Production of end-goods at the source.**

As a consequence of rising energy prices and transport costs, we are already seeing the production of end-goods increasingly being moved towards the source: the mines. Companies are increasingly vertically integrated, putting ever greater pressure on the have-nots to lock in supplies, and providing the haves with an opportunity for expanding their role in a strategic sector such as the steel industry.

### **Eco paradigm.**

Eco-awareness is set to become part of the new social paradigm. Chromium and the PGEs (as well as Rare Earth Elements) are major inputs to solar panel technology, hybrid cars, and fuel efficient engines. This industry will become one of the major boom sectors in the next decades, and this will significantly impact demand for these raw materials.

### **Ring of Fire**

So what does all this mean for our little area of the world: the Ring of Fire?

Well, three high grade chromite ore zones were discovered in the McFaulds area, during the course of 2008. Freewest (FRW.V) has discovered the 100% owned Black Thor deposit, and the Big Daddy deposit, 4 km along strike to the SW was discovered by the Freewest-Spider-KWG joint venture. 5 Km South West of the latter, Noront (NOT.V) has found 100% owned Blackbird One, during its Eagle One drilling program. Step out drilling at Blackbird One revealed Blackbird Two, due East. The string of deposits is believed to be part of a trend with a total strike length of

14km, running from Blackbird One to Black Thor. In between these properties lies the enigmatic Fancamp (FNC.V), which hasn't yet let its drills speak. The map below, courtesy of Freewest, depicts the position of the various deposits.

Let's compare this zone to a deposit of similar size: the Kemi mine in Finland. The Kemi mine is set on a 15km long intrusion, containing 11 chromite orebodies averaging 40m thick, in places 200m deep, and a grade of a lowly 26% Cr<sub>2</sub>O<sub>3</sub>. Despite this diminutive grade, the mine is made economical because of the immediate on-site processing of ore into ferrochrome, and on into stainless steel. Kemi has ore reserves of 41.1 Mt, and inferred resources of 86.1 Mt. In 2005, 1.1 Mt of ore was processed into 235,000t of ferrochrome, at an assumed market value of \$2 /lbs this makes for a value of just over \$1 billion. In one year. And Kemi is low grade, requiring lots of processing.

Now let's project this onto the Ring of Fire. A very rough averaging of the 8 holes drilled at the Freewest and Spider deposits reveals a chromic oxide of 39% in the high grade sections, averaging 34m (hole-) widths, with a Cr:Fe ratio of 1.74:1. Lower grade sections at Freewest and Spider are markedly lower. At Noront, the same 39% is apparent in the high grade sections. Hole widths are somewhat lower at 23m, the Cr:Fe ratio averaging 1.87:1. However, Noront's lower grade sections are only marginally lower in grade than the high grade sections, increasing hole widths to over 50m. These are serious grade vs widths.

### **Potential**

Freewest believes that the Black Thor deposit by itself should easily be capable of holding 72 Mt of ore, at a value of approximately \$ 29 billion. Given that both the Freewest Big Daddy deposit and Noront's Blackbird One hold similar grades, widths and depths, added to as yet undrilled anomalies on all properties, the increasingly apparent link between the Ni/Cu and the Cr deposits, and Fancamp's wait and see attitude, all makes the likelihood of a multi-million tonnage in the ore deposits along the 14km strike length a huge probability. Now that is what's getting us excited.

We could be talking about a \$ 100 billion or more asset for a major to pounce on, just counting the chromite. And we all know how the world reacted to Noront's discovery of the Eagles. We can also safely say that a major will want all the chromite together with all the Ni/Cu deposits along the 14 km zone. Thus, any major interested, will have to negotiate with Noront, Spider, Freewest, KWG and possibly Fancamp. And as we have seen in the introduction to this analysis, a number of majors have woken up already. The recent takeover of the Noront board of directors by a hedge fund, is one indication of the majors stirring.

Another is a major's buying in on the Spider joint venture, as mentioned above. And Freewest has a good working relationship with a third major. History also dictates that a battling of majors will take place long before the whole area has been drilled to bits. Once they have seen enough potential, they often scoop up and get on with mining. Interesting times indeed.

### **Conclusions**

Well, we've made quite a journey, just to prove our point;

- Chromite has great metal and political value.
- The Ring of Fire contains a variety of metals that together have a huge strategic importance.
- We expect future supply shortages from current producers.
- We expect increasing demand for metals that are in huge supply in the Ring of Fire.
- Canada is a stable country in a chromite world where political stability is an asset.
- And perhaps most importantly, the Ring of Fire has a huge potential metal value.

### **The combined market caps of the five players are:**

Freewest (FWR.V) \$ 51 mln  
Spider (SPQ.V) \$ 14 mln  
Fancamp (FNC.V) \$ 10 mln  
KWG (KWG.V) \$ 9 mln  
Noront (NOT.V) \$ 171 mln

Although we are not predicting a winner, we believe that all of them have a huge upward potential once the majors battle over the spoils. These discoveries are simply "too big to ignore".

A combined market cap of \$ 255 mil for a set of assets potentially worth multiples of billions of dollars, is about as good an investment opportunity as you are ever likely to get.

Willem Middelkoop, February 7th 2009

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