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Spanish River Carbonatite Complex

Industrial Mineral Beneficiation Program – Pelletizing

November 2014

Prepared by:
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AN INTRODUCTION

September, 2014



THE COMPANY

Boreal Agrominerals Inc. (Boreal or the Company) produces and markets, mainly under the label “Spanish River Carbonatite” (SRC) a natural, non-chemical mineral fertilizer and soil remediant. SRC, which is cost-effective whether used by traditional farmers, organic crop growers, in the back garden or by horticulturists, is produced by Boreal from its 100% owned large, mega-tonne, mineral deposit near Sudbury, Ontario.

Incorporated on February 2, 2012, Boreal is a private company, which, in 2012, completed an agreement to acquire for shares the Sudbury deposit, a 21 year mining lease, quarry permit and on-going business. The predecessor company was founded in the 1990s by the late Malcolm Slack, Canadian mining engineer and executive. The family business, from inception to 2012, was focused on research, field testing, product acceptance and general market development.

THE BOREAL OPPORTUNITY

The Boreal and SRC business opportunity is defined by the following two circumstances:

- The number of serious challenges currently facing agriculture (see ‘problem’ below);
- The mounting volume of evidence, from those who have used SRC in the field and progressively from third party laboratories, that the application of natural mineral fertilizers, aka ‘rock dust’ and specifically SRC, are pivotal to solving food production issues.

i.e. SRC represents one of the answers to the question as to how 9 billion humans will be fed in 2050!

The Agricultural Problem

Garry Zimmer, Boreal’s agricultural advisor, in his book “The Biological Farmer” puts it this way: “The initial results of what we call the conventional system of farming seemed good. Crop yields and animal production skyrocketed. But what about the long-term effects – the hard dead soil, the poisoned groundwater, the increasing pest problem? The fact that today’s food is so lacking in vitamins and minerals that we have to give livestock costly ration supplements and take vitamin and mineral pills ourselves. Or the fact that most fruits and vegetables grown commercially have to be rushed to market before they spoil - - - Has conventional agriculture really fulfilled its promise? Does it really produce good results? Is there a better way?”

The “green revolution” delivered substantial crop yields but after fifty years of chemical and physical abuse North America’s prime farmlands have been fundamentally altered and the evidence is overwhelming that chemically dominated agricultural science is not up to the task of halting progressive soil degradation let alone effecting a reversal towards sustainability. Agribusiness is a global environmental problem and all developed nations have targeted reigning in the agricultural industry to responsible environmental practices that for political and economic reasons agriculture alone as a major polluting industry has been immune. Food quality and safety, the trend to identifying and labeling nutrient content and toxic substances in food will change forever the buying habits of an ever-increasing number of better-informed consumers. These irreversible trends are back dropped by the fact that arable acreage now sitting at 40% is shrinking and food production will need to double in the next 30 years.

THE ORGANIC SOLUTION

A better informed consumer has resulted in the organic agriculture movement and starting from a minuscule base is now treated as a new growth industry with sufficient major potential to be aggressively embraced by the mainstream players in the food chain. The disorder in estimating the retail market is disappearing and hard data is emerging to support the incredulous growth of organic produce currently estimated at 42 billion for 2014 in United States. The world’s largest single market for organic produce is the USA, which has legislated national standards for organically produced food commodities. The accolades of organic is better has been met with healthy skepticism, can organic agriculture feed the world? The current market is perceived as to catering to the world’s most affluent and the higher prices paid for organic food is a reflection of higher operating costs and lower yield.

It was the “father of the fertilizer industry” Justus Freiherr von Liebig with his discovery of nitrogen as an essential plant nutrient that commenced the transition to inorganic nitrogen – phosphorous - potassium fertilizer which played a major role in the “green revolution” transition. Unknowingly farmers have become effectively 100% dependent on purchased water soluble fertilizer to grow their crops and maintain yields; quite simply without these plant nutrients current global food production will collapse. There is no debate on the role that these essential elements play in food production but with the “green revolution” came a narrowing in the agriculture sciences, where the understanding of the complex relationship between minerals microorganisms and plants was ignored. Major scientific advances across a broad spectrum of disciplines has established that soil/plant/food/nutrition/health webs are infinitely more complex and interrelated than believed and conventional agricultural science retarded by the dominance of chemical dependent solutions is critically inadequate and a new multi discipline science paradigm, is required. The science is rapidly evolving on the crest the information technology revolution. Regardless of whether organic or conventional the critical requirements to maintain and increase food production will be a greater understanding of the food web.

As stated, geoscience’s major role has been pre-empted over the past 50 years as chemical based farming and agribusiness increasingly dominated the agricultural sciences. The global imperatives for environmental and ecological sustainability, along with safe and nutritious food will require the

advanced capabilities of geoscience; in particular the study of the reactivity of unique natural minerals in various soil systems and plant nutrients made available by complex biological/mineralogical interactions. Today the hostilities between the two production models are blending into a hybrid system where the very best of both worlds are being utilized to address global food requirements over the next 30+ years.

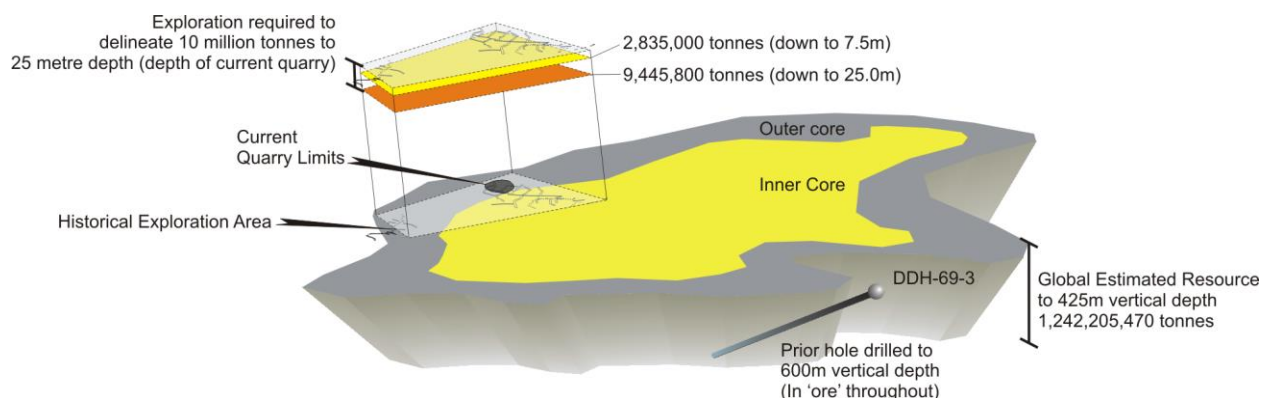
The Solution

An entirely natural, organically-approved, mineral fertilizer, SRC's mineral composition is among the reasons that it is an agricultural problem solver. SRC is a combination of minerals such as calcium (60%), phosphorous (5%), potassium (2%), iron (4%) in association with magnesium and most of the micronutrients, trace elements and rare earths that are essential for optimal soil balance and healthy plant growth. SRC regenerates the earth's mineral and microbial levels, soil structures and nutrient cycling abilities -- resulting in greater yield, healthier crops and food that keeps way fresher, longer. In addition to enhancing color, health, taste and profits, non-water soluble SRC can be applied at any time during growing season and holds well in soil reserve. Because it does not pollute ponds, streams or watercourses Boreal's carbonatite is ideal for the environmental remediation of contaminated ground, flood damage, mine tailings and reforestation.

BOREAL'S FOUNDATION ASSET

SPANISH RIVER CARBONATITE

(Schematic - not to scale)



Notes

- Price, sold in bulk (as it comes from the ground) \$35 - \$75 per tonne
- Price, when bagged and sold in smaller quantities: \$250 to > \$1,000/t
- Average target selling price: \$200 per tonne
- Equivalent gold grade: 5.5 g/t
- In situ value of deposit, above 7.5m (\$200 x 2.835 t) \$567,000,000
- Open pit mining cost ~\$10/tonne

This rare magmatic deposit is located an hour from one of the largest mining centres in the world, Sudbury, Ontario. The unusual geological genesis of the deposit renders the deposit unique.

MISSION

Boreal's mission is to capitalize on three fundamentally favorable circumstances:

1. The abundant supply, low production cost and inherent beneficial properties of SRC;
2. The successful product testing and market research that Boreal has completed to date;
3. The realization that we need to grow more nutritional food in a more sustainable manner (the challenge) and the growing awareness of the essential role that minerals, SRC in particular, must play in providing an answer.

CORPORATE STRATEGY

Boreal plans to accomplish its mission in three phases:

Phase I -- Continue supplying organically certified SRC fertilizer (bulk and packaged) to the organic, conventional farm and other related horticultural markets; primarily through distributors -- backed by client testimonials and formal scientific validations.

Phase II -- Expand the economic potential of SRC by robustly addressing the large volume market in the Sudbury Mining District for green industrial mineral products -- for which purpose the contents and location of the Boreal deposit are ideally suited.

Phase III -- This is an expansion-oriented, three step phase, namely:

- I. Expand the deposit/ resource by completing additional exploration and permitting;
- II. Expand the geographical market range by providing value added, higher priced pelletized, micronized and adjunctive products -- by building or acquiring an in house production facility;
- III. Develop additional Northern Ontario agromineral resources with Sudbury centered processing and transportation logistics;
- IV. Expand by means of related deposit or company acquisitions or strategic mergers.

OPERATIONS

Sales and Marketing

Boreal's sales strategies are designed to capitalize on the increasing demands created by the evolving '21 Century Green Revolution'. The prime marketing focus is one that is seen as most likely to advance the planned transition from bulk sales to the provision of higher priced pelletized and micronized products, as Boreal progresses toward diminishing its former reliance on sales to individual organic and traditional farmers. Marketing will focus on reaching the consumer through larger and established operators. This approach is promoted through product substantiation at the scientific level, an area in which considerable progress has been made as a result of research partnerships having been established with accredited universities and laboratories.

SRC has also been extensively and successfully field- tested and has endless positive user testimonies -- see Company website: www.borealaqrominerals.com

SRC is approved for use on certified organic crops and is registered as a fertilizer in Canada and has passed the various Ontario and British Columbia Ministry of Environment tests to allow the product to be included as a compost amendment at various major landfill/composting sites and as a soil amendment in those jurisdictions where parks, playing fields, lawns, forests and gardens are being legislated chemical free.

Industry Trends & Product Demand

The high level of product acceptance that SRC has received is a reflection of the rapidly expanding organic crop market for which effective, approved, competitively priced, natural fertilizers are in short supply. This in turn is driven by the rapidly dawning realization – backed by scientific validation – that, while current food production methods are unsustainable, silicate rock dust, such as SRC, can:

- Maintain yields
- Decreases disease pressures
- Improve water quality
- Sequester atmospheric CO₂
- Eliminate aluminum and other base metal toxicities

The above noted facts result in a demand for SRC from conventional, in addition to organic agriculture. The reality is that the prolonged use of highly concentrated, water-soluble chemical fertilizers is unsustainable and that the answer is no longer the continued application of micronutrient-deficient N-P-K pollutants. Trends favorable to the demand for SRC are here to stay!

FINANCIAL AND CURRENT FUNDING OBJECTIVES

Over the past two years Boreal has attracted over \$2m in seed capital, at a time in Canada when few, if any, juniors and startups were successful in obtaining financial support. Sales projections for 2014 are for base case sales of some 12,000 tonnes – compared to some 4,500 t in 2013. Sales contracts under negotiation could add at least another 30,000 t⁺.

While base case revenues for the 2014 fiscal and calendar year are preliminarily projected in the area of \$1.3 m, with modest profitability the potential for greater demand and higher profit margins remain management's expectation.

While the Company has adequate working capital to execute near term operations, \$1,500,000 is required to proceed with its proposed exploration program. (Drill 78 holes to an average depth of 25 metres, with the expectation of obtaining a ~ 10m tonne (NI 43- 103) resource. The purpose of the program is to define a resource and to facilitate both future mining and processing plans and the Company's plans to target the higher value pelletized, micronized and carbon-based fertilizer markets.

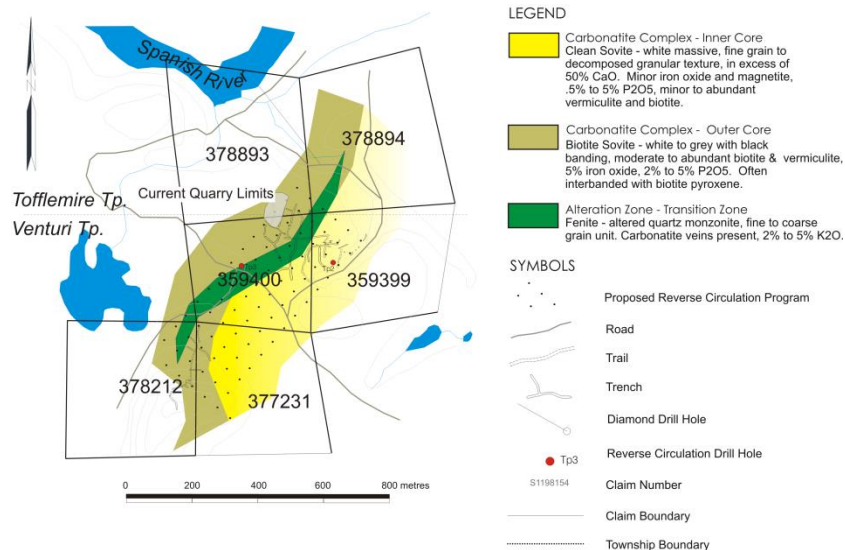
The Proposed Funding:

Issue 3,750,000 shares @ \$0.40 per share for proceeds of \$1,500,000

Use of Proceeds:

Definition drilling	525,000
Report of ore resource (43 -101)	25,000
Metallurgical tests (Serran Lab, Brazil)	100,000
Engineering study (plant/mine design)	160,000
Environmental/road access study	40,000
Research & Development	100,000 (Assumes no government assistance)
Working capital	<u>550,000</u>
TOTAL	<u>\$1,500,000</u>

Proposed 2014 Exploration Program



Proposed Exploration Program would entail 78 reverse circulation drill holes at an average depth of 40 metres. The estimated total footage would be 3120 metres.

SHARE CAPITAL

Shares currently outstanding	22,045,000
Options & warrants	620,000
New funding \$1.5m @ \$0.40	<u>3,750,000</u> (14%)
Fully diluted --post offering	<u>26,415,000</u>

OFFICERS AND DIRECTORS

John M. Slack, OCET, CEO & Director – Soil science lecturer, organic farmer and mine developer.

Peter M. Brodie-Brown, B.Com Chairman, Director – Over 30 years as independent business consultant.

Paul W. Pitman, B.Sc., P.Geo., President, Corp. Sec. & Director – Long time experience as consulting geologist.

Jim Pirie, PhD, P.Eng. – Dr. Pirie is the President and CEO of Deveron Resources Ltd.

Gary Steer, Vice-President, Sales – Experienced marketing and sales executive.



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Property Description and History

The Spanish River Carbonatite Complex is enveloped in a halo of fenitized granitic rocks. Carbonatite rocks with a high silicate mineral content occur along the periphery of the body. Lower silicate carbonatite occurs toward the core. The contact between fenitized wall rock and carbonatite appears to be over a maximum thickness of 300 metres. This observation is based on the trenching program and the Union Carbide drill hole. This area is referred to as the "Transition Zone" and is a complex, erratic assemblage of layered biotite sovite, fenite and mafic rocks. The transition zone appears to be a result of contact metamorphism and metasomatism. Discreet lenses bands and veins of high purity sovite have been located in this zone. The sovites in this area appear to have higher quantities of magnetite, vermiculite and apatite.

The second classification of the complex is referred to as the "Outer Core". This classification is used for the purpose of describing the trenching program and is adopted from a drill hole completed in 1968, by Union Carbide. The outer core is very similar to the transition zone with exception of a marked increase in sovite (calcite).

The third and last classification of the complex is the "Inner Core", comprised almost entirely of sovite.

Property Location and Access

The Spanish River Carbonatite Complex straddles the common boundary of Venturi and Tofflemire Townships just south of a sharp bend in the Spanish River known as the “Elbow”. The property is cut by numerous, very well maintained, logging roads.

Access to the property is via the Fox Lake Lodge road, which turns off highway 144 at Cartier. From Cartier it is 25 km) to the property. All river and creek crossing have had culverts and bridges put in place to handle heavy logging trucks. Cartier is the closest town, a village with approximately 500 inhabitants (check). Within the town limits is a rail spur owned by C.P.R. Sudbury is approximately 60 kilometres south of Cartier on highway 144. Total driving time from Sudbury to the property is 1½ hours.

General Geology of the Spanish River Carbonatite Complex

Regional Structural Geology

The Spanish River Complex Carbonatite Complex lies within the Abitibi Subprovince of the Superior Province of the Canadian Shield. The complex occurs along a north-south striking fault zone along the west side of the Sudbury Basin. According to the 1987 O.G.S. Study 30 this fault system maybe a graben structure branching off the Ottawa-Bonnechere graben, a system hosting carbonatite-alkalic rock complexes in the Nipissing area.

Airphotos of the region also suggest the complex occurs at the point of intersection of a number of regional lineaments.

Carbonatite Complex Structure

Shearing and brecciation of the enveloping quartz monzonite is common. Fractures are commonly filled with mafic pyroxenes, amphiboles and calcite. There is evidence in the trenching and the Union Carbide drill hole that blocks of fenite have peeled off the walls and are incorporated into the complex. Banding of fenites and sovite is common.

Post faulting has not been encountered at this time. The heterogeneous mixture and lack of outcrop makes it very difficult at this time to suggest that post faulting has occurred.

Fenitized Quartz Monzonite

The host rock enclosing the Spanish River Complex is massive, medium grained pink quartz monzonite. In contact with the complex the quartz monzonite has been fenitized. The granitic rock becomes mottled pink and green-blue in colour. Sodic amphibole and pyroxene have replaced the quartz in the quartz monzonite.

The fenitized quartz monzonite is brecciated and intruded by dark green mafic veins. Carbonate is commonly associated with the veins and fracture fills. The closer to the intrusive the greater the number of mafic and calcite filled fractures and veins.

Spanish River Carbonatite Complex – Transition Zone

The transition zone is predominantly fenite, but exhibits less brecciation and more banding. There is a marked increase of sovite veins, lenses and bands. The purity of the sovite in this zone varies from 45% CaCO₃ to nearly pure. The variations and types of accessory mineral found in the sovite is as follows:

- Vermiculite – 0 to 15%
- Biotite – 0 to 15%
- Magnetite – 0 to 5%
- Pyrrhotite – 0 to 5%
- Apatite – 0 to 5%

Overburden thickness overlying the transition zone varies from 0 to 15 metres. Bedrock exposed is highly oxidized and weathered. A seismic survey conducted in 1975 over this area suggested depths of overburden were 50 to 90 feet and that bedrock was covered by a dense layer that came to surface.

Spanish River Carbonatite Complex - Outer Core

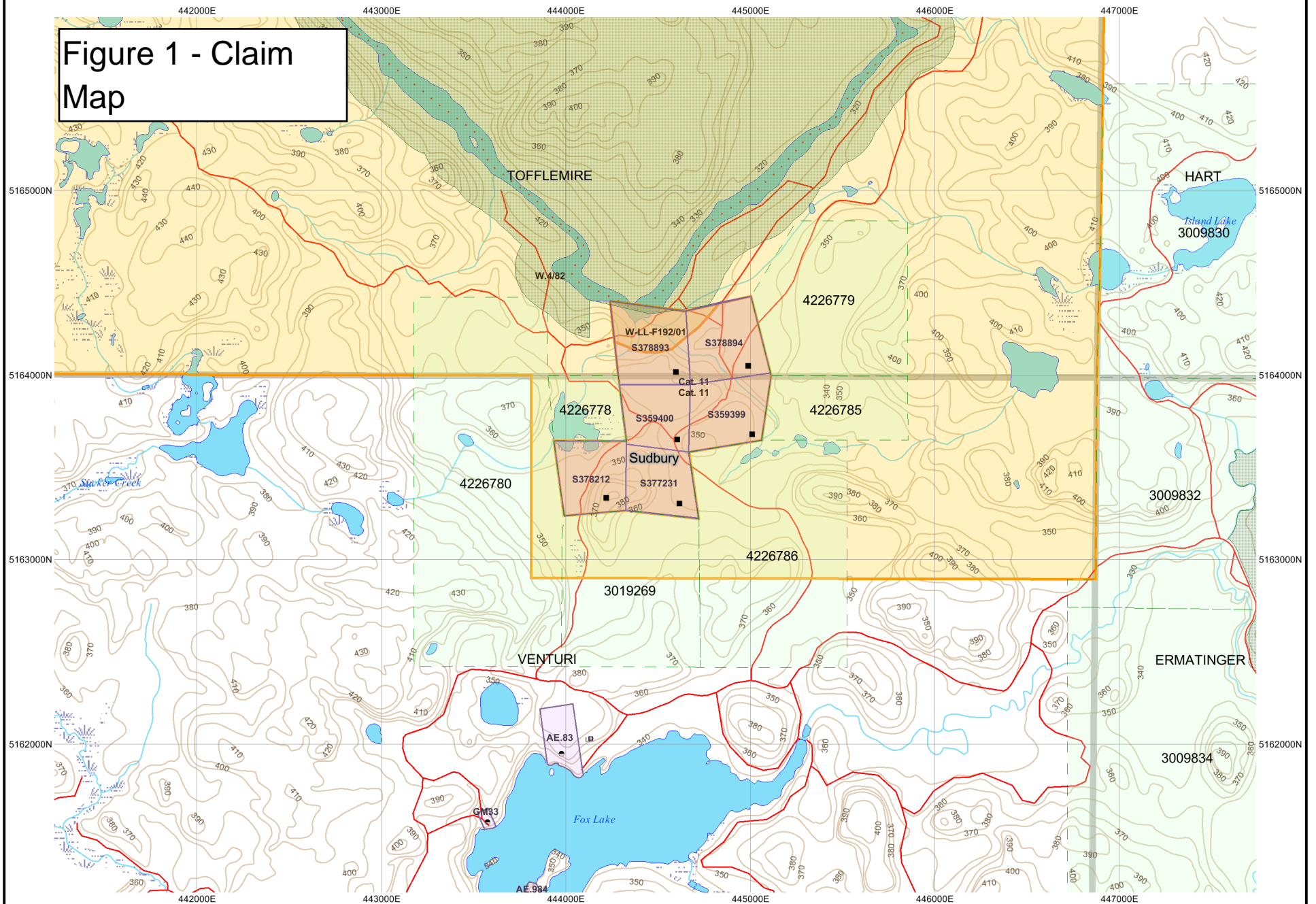
The actual contact between the transition zone and outer core is not well defined and is based on the degree of sovite versus fenite present and overburden thickness. Where there is a sharp increase in overburden would be the logical location for the contact between the complex and altered host rock. The approximate thickness of the outer core based on the above observations would be 200 metres. The outer core appears only to outcrop along the road where Vein No.3 is located. A vertical rotary percussion hole (TP-2) drilled, in 1975, in this vicinity encountered 15 feet of overburden. This is also in the vicinity of test pits, which exposed decomposed sovite very similar to TP-2.

In the O.G.S. Study, "*Spanish River Carbonatite Complex*" the outer core is described as the Outer Phase. The outer phase based on this report is comprised of syenite, pyroxenite, ijolite and biotite sovite.

For the purpose of this report the description of the composition for the outer core is from the Union Carbide drill hole.

“The Outer Core of the carbonatite-filled diatreme, composed of biotite amphibole sovite with some pyrrhotite and minor chalcopyrite and gramphite. There is no appreciable magnetite between 1066’4” and 1339’. Between 1339’ and 1495’ coarse magnetite is present in both sovite and the gramphite. For the purpose of logging this core, 3 rock types are recognized, gramphite, sovite inclusions, which may be either sovite with a high proportion of inclusions, or gramphite, which has been carbonated. In either case, the dark minerals constitute up to 50% of the rock. The proportions of sovite, inclusions and gramphite in this section are: 22%, 32% and 46% respectively.”

Figure 1 - Claim
Map



Appendix 1 – Report on Pelletizing Spanish River Carbonatite. Prepared by RPS

TEST CRITERIA

Rock Powder Solutions Inc who is comprised of Klaas and William Baan was asked by Boreal Agrominerals Inc to conduct a pelleting trial on a forty tonne truckload of SRC for a marketing assessment in agricultural, horticultural and retail markets.

One of Boreal's criteria was a carbon based fertilizer utilizing local Ontario resources. In the fertilizer marketplace, carbon based soil amendments have been used since the 1970's using leonardite and other mined humates but these are costly and have to travel great distance to their end markets.

Through many years of experience in the marketplace and validated through university research, it has been proven at length that SRC is best blended with a carbon source to quickly activate the SRC minerals for plant and soil use. SRC is a biological stimulant and catalyst when blended with carbon sources

In the summer of 2014, RPS started evaluating different pelleting techniques with the five criteria in mind;

1. Pellet quality in regards to durability, look and feel.
2. Pelleting efficiency.
3. Minimal environmental impact.
4. Pellets break down quickly within soil environment
5. Have the ability to blend in other products such as microbial inoculants.

PELLET TECHNOLOGY

There are varying technologies for pelleting product with each having their own unique attributes.

PAN GRANULATION

The most common in mineral agglomeration is pan granulation.

This utilizes a pin mixer for blending liquid binders with the powder, then rolling them into little spheres in the pan using a liquid binder such as lignin sulfonate or molasses. After the pan, the granules are dried through a fluid bed dryer and screened to take out under and over size granules. The screened material ends blended back in with the raw input.

ROLLER COMPACTION

The second technology is roller compaction. Roller compaction is when the feed is fed between two high compression rollers creating a formed pellets, pencil like structures or compressed sheets. The products can then be gently crushed to form granules. The roller compaction is used in many potash mines as the salts are easy to compact using ionic bonding. Auxillary heat may be used to predry and heat the bulk materials and to dry the briquettes after formation. Binders may also be used to help form a strong and dense product.

The third technology is flat or ring die roller extrusion. The rollers compress the materials through tapered holed creating heat and steam in the process. The heat and steam melts the lignin in the carbon binder source which acts as the binder in the pellet. In many cases additional pelleting aids may be used and auxillary heat needed for creating heat and drying of bulk and pelleted products.

ROLLER DIE EXTRUSION

With the die extrusion method, there is the ability to blend in minimum 10% bulky organic matter as the carrier through the mill and the binder. Organic binders in the form of high quality peat, compost and biodigestate are readily available in local Ontario markets in varying quality and availabilities.

After evaluating pan granulation, roller compactor and die extrusion, die extrusion was chosen as it provided the most flexibility in regards to carbon binders. Die extrusion is also more environmentally friendly as there is in most cases no external heat source required to dry the pellets. Also die extrusion is more friendly to microbial innoculants in case they are added.

RPS bought a European pellet mill locally that was used for trail purposes at a biomass plant. Through trials by the manufacturer it was demonstrated to meet the criteria set out by RPS.

Generally it is recommended by the large pellet mill manufacturers there is no more then 25% inclusion of minerals into feed or compost blends otherwise there will be significant die and roller wear. This company has demonstrated that it can exceed these recommendations through research and development into die and roller design.

MARKETS

There is varying demands within the market place for soft and hard pellets.

Golf courses for example, want a soft 6mm by 6mm pellet that breaks down and is not visible after the first watering.

A commercial fertilizer company wants a firm and durable pellet that can numerous handlings and blending in with other commercial fertilizers. They want it more in the form of a crumble.

TRIALS

Hard pellets were able to be formed using a blend of 80% carbonatite with 20% dry sphagnum peat and dry lignon sulfonate binder. The blend overall had about 12% moisture which is recommended by the manufacterur for a hard pellets.

For the golf courses and landscape industries, a high quality compost was used with approximately 30% moisture. With the additional moisture, a softer pellet was able to be made fitting the landscape industry requirements.

Pelleting Cost of \$180/mt which includes packaging in one tonne tote bags.
Binder Cost \$65/mt

40 mt delivered is \$1600 for delivery
Binder @ \$65 @ 20% inclusion is 8 mt for \$520

48 mt x \$180 = \$8640 in costs.











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Norwich Ontario
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Invoice

K020

November 6th, 2014

www.rockpowder.ca

HST # 83041 4975 RT0001

Bill To: Boreal Agrominerals
Suite 206, 57 Mill Street North
Brampton, Ontario
Canada
L6X 1S9

SALESPERSON	P.O. NUMBER	SHIP DATE	SHIP VIA	F.O.B. POINT	TERMS
Klaas	various	various	various	Norwich	90 days

Quantity	Description	Unit Price	Amount
48.50	PELLETING SERVICE mt of Spanish River Carbonatite	\$165.00	\$8,002.50
8.5	mt of Calco Soil	\$75.00	\$637.50
	Pelletized 40mt SRC with 8mt high quality peat for an 80/20 blend.		
3	days research, prepping and finalizing pelleting job and report	\$500.00	\$1,500.00
	Thank-you for your business. Klaas Baan		
Subtotal			\$10,140.00

William Baan: 226-228-7077

william@rockpowder.ca

Klaas Baan: 416-569-7339

klaas@rockpowder.ca

HST \$1,318.20

TOTAL \$11,458.20

Appendix 3

Location, Nature and Description of Pelletization Candidate Material

Location:

The material used for the pelletization trial was obtained from Boreal's Leased mining Claim # S359400. This lease is contiguous with mining claim # 4226780 and is the location of Boreal's current mineral extraction activities.

The precise location of the sample that was used for the pelletization trial is a 30m radius around 444546mE, 5163920mN (NAD 83, UTM Zone 17).

Nature and Description of Sample:

The sample used for the pelletization trial is typical of the material currently being mined and sold in bulk by Boreal as an agromineral fertilizer.

The material is nominally 75% Calcite, 10% Apatite, 10% Biotite/Vermiculite and 5% accessory minerals. This feedstock material was mechanically sized by screening to 100% passing 0.45mm, with greater than 90% of the material being between 60 and 100 mesh.

The material resembles common beach sand in texture, colour and size. The material contains nominally 2% moisture.

The sample was shipped in bulk from the deposit to a location in Dowling, Ontario for screening and then forwarded, again in bulk, to Norwich, Ontario for the pelletizing trial.