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Boreal Agrominerals Inc.

Spanish River Carbonatite Complex Exploration Program

Technical Report - Particle Size Analysis and Geochem

Client Number: 411155

Prepared by Christopher Caron

Phone: 705-561-3011

Email: chriscaron.amp@gmail.com

www.BorealAgrominerals.ca

Corporate Address: Boreal Agrominerals Inc.

#25, 109 Oromont Drive, North York, ON, M9L 2Z1

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Introduction:

Boreal Agrominerals Inc. has been exploring and developing the Spanish River Carbonatite Complex for over 20 years. Boreal produces an agromineral fertilizer from this deposit which is used as a crop input and for environmental remediation.

The main minerals of interest are Calcite, Apatite, Biotite/Vermiculite. These minerals are found in the weathered cap of the deposit in the form of a “residuum”. This residuum is 3-5 meters thick over the area we are developing.

The residuum must be screened for use as an agromineral, the screening process produces material that resembles sand with a consistent geochemical profile and physical characteristics.

It is important for us to know the particle size distribution for several reasons:

- Particle size affects agronomic suitability
- Customers require this data for technical reasons
- Research partners require this data for other studies
- For quality control purposes
- To determine if there is a relationship between particle size and mineral distribution for future metallurgical study of ore beneficiation by sizing

Boreal contracted with ALS labs to perform a particle size distribution analysis and Geochem analysis on each of the size fractions. The size fractions were chosen to conform with North American standards for the testing of agricultural lime.

The sample was a 10kg composite which is representative of screened material totalling 50 000 tons. The screened material has proven to be very homogeneous and is the final product. This 50 000 ton lot was mined and processed from the 250m working face of the east bench of the quarry located on mining lease LE107372. (See Figure 3)

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.

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 - Outer Core

The actual contact between the transition zone and outer core is not well defined and is based on the degree of sovite verses 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.

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.

Interpretation of Results

The results of the particle size analysis confirm that the screened material is within the particle size guidelines for agronomic suitability.

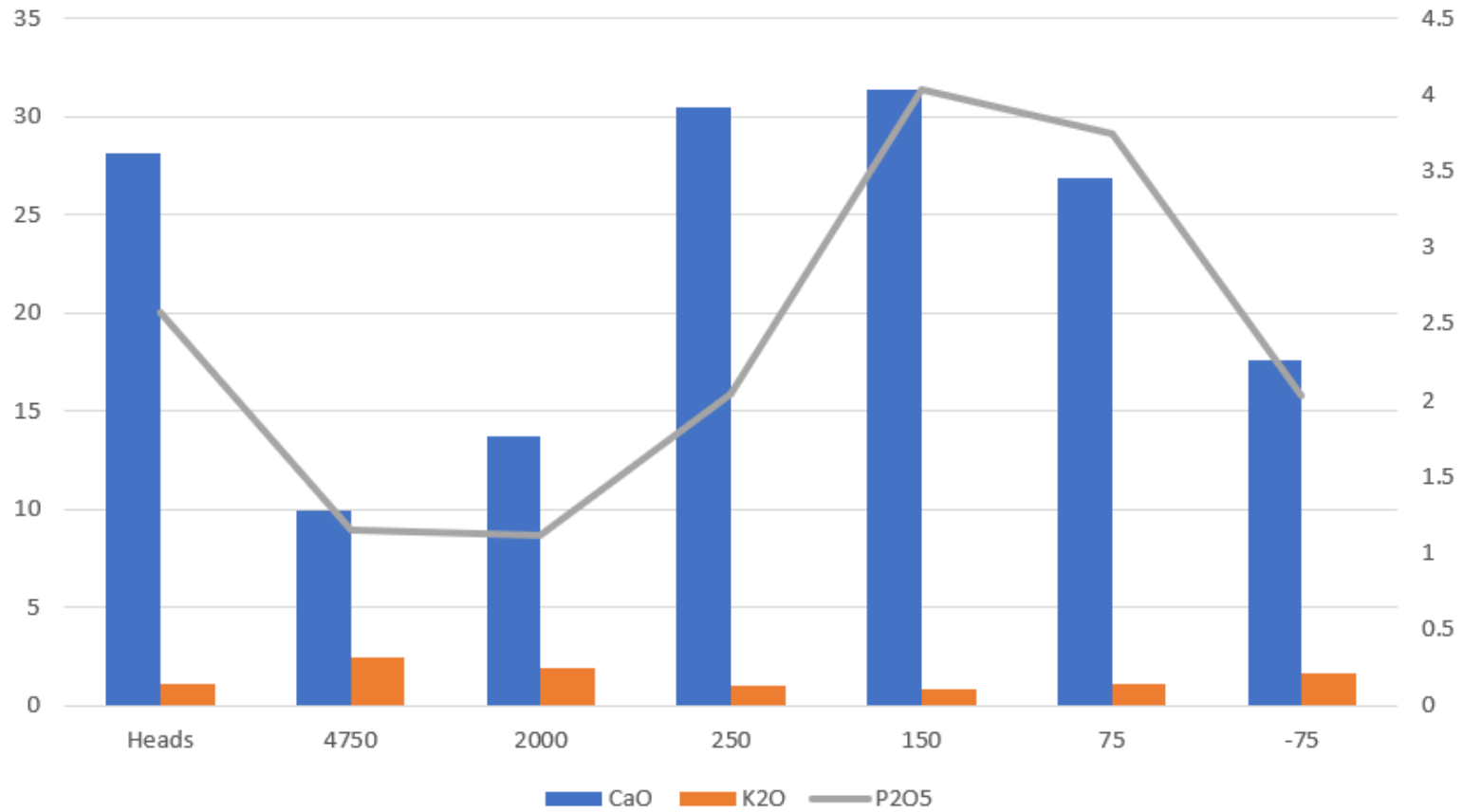
These results also conform to the requirements of our customers.

With regards to the minerals of interest: Calcite (CaO), Apatite (P₂O₅), Biotite/Vermiculite (K₂O) the following trends can be observed when the geochem data is compared by particle size:

- The K₂O spikes in the very large fraction and the very small fraction. This can be attributed to the increased presence of large biotite flakes and the very fine vermiculite in these fractions respectively.
- The P₂O₅ follows the CaO in the intermediate fractions.

This result confirms field and geological observations and presents an opportunity for future study to determine if particle size separation by cyclone, screen or other gravity methods could produce products with increased P₂O₅ or K₂O.

Mineral Percentages vs. Particle Size - Spanish River Carbonatite Residuum



Particle Size - Microns	% CaO	% K2O	% P2O5
Heads	28.1	1.12	2.58
+4750	9.93	2.41	1.15
+2000	13.7	1.9	1.11
+250	30.5	1.03	2.04
+150	31.4	0.83	4.03
+75	26.9	1.09	3.74
-75	17.55	1.67	2.03

Figure 1: Boreal Agrominerals Property Location Map



Figure 2: Boreal Property Access Map

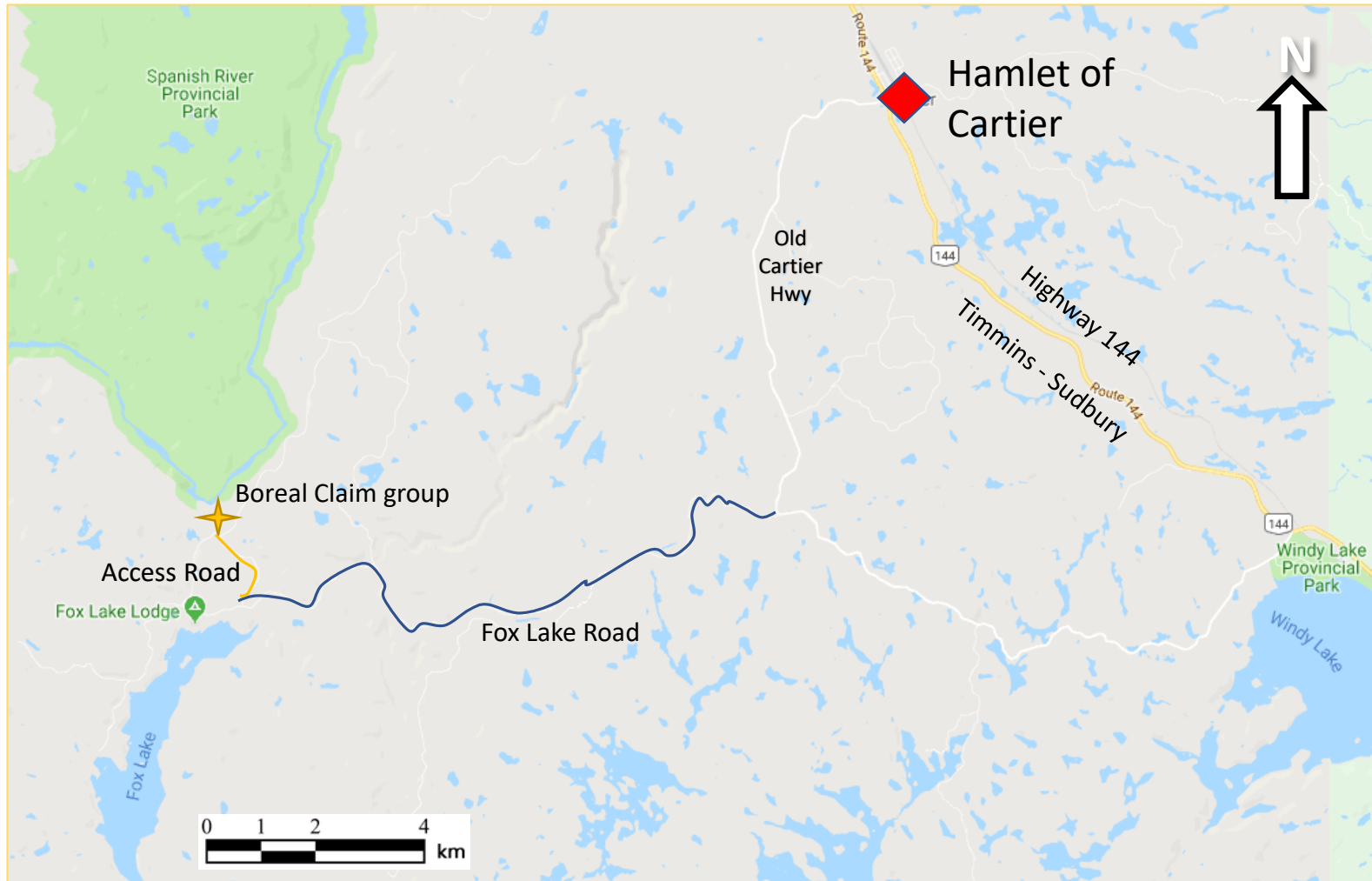


Figure 4: Sample Location



Figure 4: ALS Report on Screen Size Analysis



June 12, 2019

Mr. Chris Caron
Boreal Agrominerals Inc.
613 Main Street
Lively, Ontario P3Y 1M9

Dear Mr. Caron;

Re: Particle Size Analysis and Chemical Analyses on Boreal SRC 2019 Sample KM5959

We are pleased to inform you that the particle size analysis and chemical analyses on a single sample provided from the Spanish River Carbonatite plant have been completed. About 10 kilograms of sample shipping from ALS Minerals Sudbury was received at ALS Kamloops Metallurgy for testing on May 29, 2019.

Upon receipt, the sample was homogenized and a representative sub-sample was extracted and pulverized. A particle analysis was conducted on approximately 2.1 kilogram sub-sample using mesh sieves indicated by the client. A 1201 μ m K₈₀ was determined. The detailed particle distribution can be located in Appendix I - Particle Sizing Data.

A sub-sample was removed from each size fraction generated from the particle size analysis and pulverized. A whole rock analysis with trace elements by lithium borate fusion was conducted on the head cut and sub-samples of the size fractions by ALS Minerals Vancouver. A certificate of the assay results can be located in Appendix II - Special Data. Remaining sample and test products were disposed following completion of the test program.

Thank you for choosing ALS Metallurgy Kamloops for your testing needs. If you have any questions, please contact us directly.

Sincerely,



Yiyao (Pierce) Liu, EIT
Junior Metallurgist



Robert Sloan, P. Eng.
VP ALS Metallurgy
Americas



June 12, 2019

June 12, 2019
KM5959

Electronic Distribution:
Chris Caron, Boreal Agrominerals Inc, Lively, Ontario

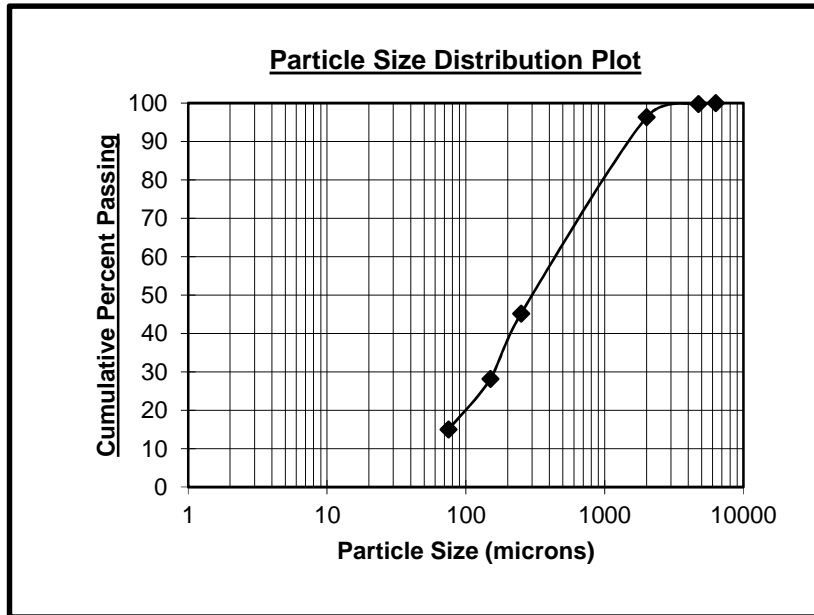
APPENDIX I - KM5959

PARTICLE SIZING DATA

TABLE I-1
SCREEN ANALYSIS
KM5959 Spanish River

Product	Particle Size µm	Weight % Retained	Cumulative % Passing
1/4 Inch	6300	0.00	100.0
4 Mesh	4750	0.24	99.8
10 Mesh	2000	3.46	96.3
60 Mesh	250	51.13	45.2
100 Mesh	150	17.02	28.2
200 Mesh	75	13.17	15.0
-200 Mesh	75	13.64	1.3
TOTAL		100.00	**

K80 =1201µm



APPENDIX II - KM5959

SPECIAL DATA



ALS Canada Ltd.
2103 Dollarton Hwy
North Vancouver BC V7H 0A7
Phone: +1 (604) 984 0221 Fax: +1 (604) 984 0218
www.alsglobal.com/geochemistry

To: ALS METALLURGY, DIV OF ALS CANADA LTD
2957 BOWERS PL
KAMLOOPS BC V1S 1W5

Page: 1
Total # Pages: 2 (A - B)
Plus Appendix Pages
Finalized Date: 8-JUN-2019
Account: KRL

CERTIFICATE VA19134463

Project: KM5959
P.O. No.: A2399
This report is for 7 Pulp samples submitted to our lab in Vancouver, BC, Canada on 3-JUN-2019.

The following have access to data associated with this certificate:

ALS METALLURGY
BRENDA TREMBLAY

SIMONE BAWTREE

PIERCE LUI

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
LOG-24	Pulp Login - Rcd w/o Barcode
DISP-01	Disposal of all sample fractions

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME-ICP06	Whole Rock Package - ICP-AES	ICP-AES
OA-GRA05	Loss on Ignition at 1000C	WST-SEQ
TOT-ICP06	Total Calculation for ICP06	
ME-4ACD81	Base Metals by 4-acid dig.	ICP-AES

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

***** See Appendix Page for comments regarding this certificate *****

Signature:



Colin Ramshaw, Vancouver Laboratory Manager



ALS Canada Ltd.
 2103 Dollarton Hwy
 North Vancouver BC V7H 0A7
 Phone: +1 (604) 984 0221 Fax: +1 (604) 984 0218
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 2957 BOWERS PL
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 Total # Pages: 2 (A - B)
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CERTIFICATE OF ANALYSIS VA19134463

Sample Description	Method Analyte Units LOD	WEI-21 Recvd Wt. kg	ME-ICP06 SiO2 %	ME-ICP06 Al2O3 %	ME-ICP06 Fe2O3 %	ME-ICP06 CaO %	ME-ICP06 MgO %	ME-ICP06 Na2O %	ME-ICP06 K2O %	ME-ICP06 Cr2O3 %	ME-ICP06 TiO2 %	ME-ICP06 MnO %	ME-ICP06 P2O5 %	ME-ICP06 SrO %	ME-ICP06 BaO %	OA-GRA05 LOI %
KM5959 Spanish River-Hd 1		0.28	26.0	4.86	10.20	28.1	3.33	2.15	1.12	0.003	1.09	0.18	2.58	0.29	0.06	19.25
KM5959 Spanish River +4750		0.02	49.9	12.35	7.20	9.93	3.08	4.80	2.41	0.031	0.85	0.11	1.15	0.09	0.10	6.60
KM5959 Spanish River +2000		0.04	43.0	9.97	11.25	13.70	3.75	4.35	1.90	0.009	1.03	0.16	1.11	0.13	0.07	8.95
KM5959 Spanish River +250		0.06	23.9	4.70	9.23	30.5	3.05	2.12	1.03	0.004	0.92	0.18	2.04	0.32	0.06	21.3
KM5959 Spanish River +150		0.06	23.1	3.50	9.87	31.4	3.16	2.00	0.83	0.003	1.00	0.18	4.03	0.31	0.05	19.30
KM5959 Spanish River +75		0.06	27.1	4.36	11.40	26.9	3.70	2.24	1.09	0.003	1.29	0.19	3.74	0.26	0.05	16.85
KM5959 Spanish River -75		0.06	33.7	7.11	14.00	17.55	4.42	2.28	1.67	0.003	1.48	0.21	2.03	0.17	0.07	14.00

***** See Appendix Page for comments regarding this certificate *****



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Project: KM5959

CERTIFICATE OF ANALYSIS VA19134463

Sample Description	Method Analyte Units LOD	TOT-ICP06	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81	
		Total %	Ag ppm	As ppm	Cd ppm	Co ppm	Cu ppm	Li ppm	Mo ppm	Ni ppm	Pb ppm	Sc ppm	Tl ppm	Zn ppm
		0.01	0.5	5	0.5	1	1	10	1	1	2	1	10	2
KM5959 Spanish River-Hd 1		99.21	0.5	<5	0.8	19	41	10	1	11	21	5	<10	104
KM5959 Spanish River +4750		98.60	0.5	6	1.0	16	30	10	2	31	74	7	<10	163
KM5959 Spanish River +2000		99.38	<0.5	7	0.6	18	25	10	<1	13	21	9	<10	107
KM5959 Spanish River +250		99.35	<0.5	5	0.6	15	24	10	1	8	15	5	<10	85
KM5959 Spanish River +150		98.73	0.5	<5	<0.5	17	35	10	<1	11	15	5	<10	87
KM5959 Spanish River +75		99.17	0.6	<5	0.7	24	52	10	<1	12	18	6	<10	104
KM5959 Spanish River -75		98.69	0.7	<5	0.8	46	111	10	1	20	23	6	<10	143

***** See Appendix Page for comments regarding this certificate *****

