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ASSESSMENT REPORT

describing

GEOLOGY, MINERALIZATION AND GEOCHEMISTRY

at the

SPARKLE PROPERTY

Sparkle 1- 86

YB93812 - YB93897

NTS 105G/8

Latitude 61°22'N Longitude 130°13'W

in the

Watson Lake Mining District
Yukon Territory

prepared by

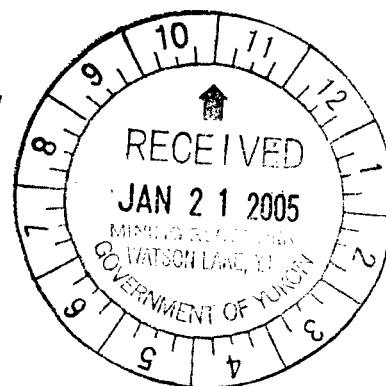
Archer, Cathro & Associates (1981) Limited

for

TRUE NORTH GEMS INC.

by

William A. Wengzynowski, P.Eng.
January 2005



094533

Costs associated with this report have been
approved to the amount of \$ 40,900.00
for assessment credit under Certificate of
Work No. QL25711



Mining Recorder
Watson Lake Mining District

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SUMMARY AND RECOMMENDATIONS

The Sparkle property is an emerald exploration target. It consists of 86 mineral claims located 28 km south of the Robert Campbell Highway in southeastern Yukon. The claims are staked under the Yukon Quartz Mining Act and cover approximately 1800 hectares. The Sparkle property is owned by Glacier Gems Inc. and is under option to True North Gems Inc., which can earn a 100% interest.

No emeralds have been discovered on the Sparkle property but they do occur at the Tsa da Glisza (formerly Regal Ridge) prospect, 20 km to the southwest. Emeralds are a gem variety of beryl with characteristic deep green colouration caused by chromium impurities. Exploration conducted at the Sparkle property is based on a published exploration model that incorporates features known to occur at Tsa da Glisza. This model for emerald formation involves beryllium rich, hydrothermal fluids migrating upward and outward from a granitic intrusion to produce veins in chromium rich wallrocks of mafic and ultramafic composition. Alteration of the wallrocks by the fluids brings the two key geochemical components together, thus permitting crystallization of emeralds in open spaces along vein fissures.

The Sparkle property is underlain by felsic to intermediate Devonian metasedimentary and metavolcanic strata that have been intruded by a Cretaceous two-mica granite stock. The Devonian stratigraphy is Kudz Ze Kayah unit DK muscovite schist, quartz augen schist and minor muscovite-biotite schist. Intrusive rocks comprise a two-mica granite outcropping in the southeastern part of the property plus peripheral pegmatite sills and dykes, aplite dykes and quartz veins.

Soil geochemical surveys conducted in 2003 and 2004 identified two areas in the southwestern portion of the claim block with elevated beryllium values to a maximum value of 9.9 ppm. Chromium response however, is generally subdued not exceeding 100 ppm and is not coincident with the highest beryllium values. In most instances, the elevated beryllium response is associated with exposures of large silver mica bearing pegmatites and quartz veins either isolated or in contact with narrow lenses of rusty weathering, hydrothermally altered, mica rich felsic schist.

The geological, mineralogical and geochemical characteristics of the Sparkle property are not prospective for emerald formation and no additional work is recommended at this time.

INTRODUCTION

The Sparkle property is located in the Finlayson Lake District of southeastern Yukon Territory. It consists of 86 mineral claims located 28 km south of the Robert Campbell Highway in southeastern Yukon. The claims are owned by Glacier Gems Inc. and are under option to True North Gems Inc. This report describes the results of the 2004 exploration program and compares them to results from other properties in southeastern Yukon that are also being explored for emeralds.

Work at the Sparkle property was conducted by a four person crew using helicopter support from June 11 to 18. It consisted of geological mapping, prospecting, soil geochemical sampling and claim surveys. One day of follow up prospecting was conducted from a nearby camp on August 23

Both exploration phases were managed by Archer, Cathro & Associates (1981) Limited under the author's supervision. Appendix I contains the Author's Statement of Qualifications.

PROPERTY, LOCATION AND CLAIM DATA

The Sparkle property comprises a contiguous block of 86 mineral claims located in southeastern Yukon at latitude 61°22' north and longitude 130°13' west on NTS 105G/8 (Figure 1). Claim data are shown below while locations of individual claims are shown on Figure 2. The claims are registered with the Watson Lake Mining Recorder in the name of Glacier Gems.

<u>Claim Name</u>	<u>Grant Number</u>	<u>Expiry Date</u>
Sparkle 1-86	YB93812-YB93897	March 26, 2009

*Expiry date includes 2004 work that has been filed for assessment credit but not yet accepted.

ACCESS AND GEOMORPHOLOGY

The Sparkle property lies about 34 km south of the junction between the Robert Campbell Highway and the limited access Kudz ze Kayah Road. It is 175 km northwest of the community of Watson Lake, where the closest year round helicopter base is located. In summer 2004, most camp moves and supply runs were done with a helicopter from a temporary base at McEvoy Lake, 55 km north of the property. Equipment, supplies and personnel were usually driven from Whitehorse to Finlayson Lake by truck, a distance of 545 km. The closest lake suitable for float equipped fixed-wing aircraft is Wolverine Lake about 10 km north of the property. The nearest airstrip is on the Tsa da Glisza property located 20 km to the southwest.

The Sparkle property lies within the Pelly Mountains in the headwaters of the Liard River. Elevations on the property range between 1250 and 1760 m. Topography is relatively subdued. The property occupies two northwest trending ridges bisected by a broad drainage with gentle to moderate hillsides (typically 15 to 30°). Ice sheets covered the entire Pelly Mountain area during the Pleistocene and alpine glacial features such as cirques and tarn lakes are common. The property is mostly above tree line. Vegetation is limited to scattered willow and buckbrush at lower elevations giving way to grass and lichen covered rock at higher elevations.

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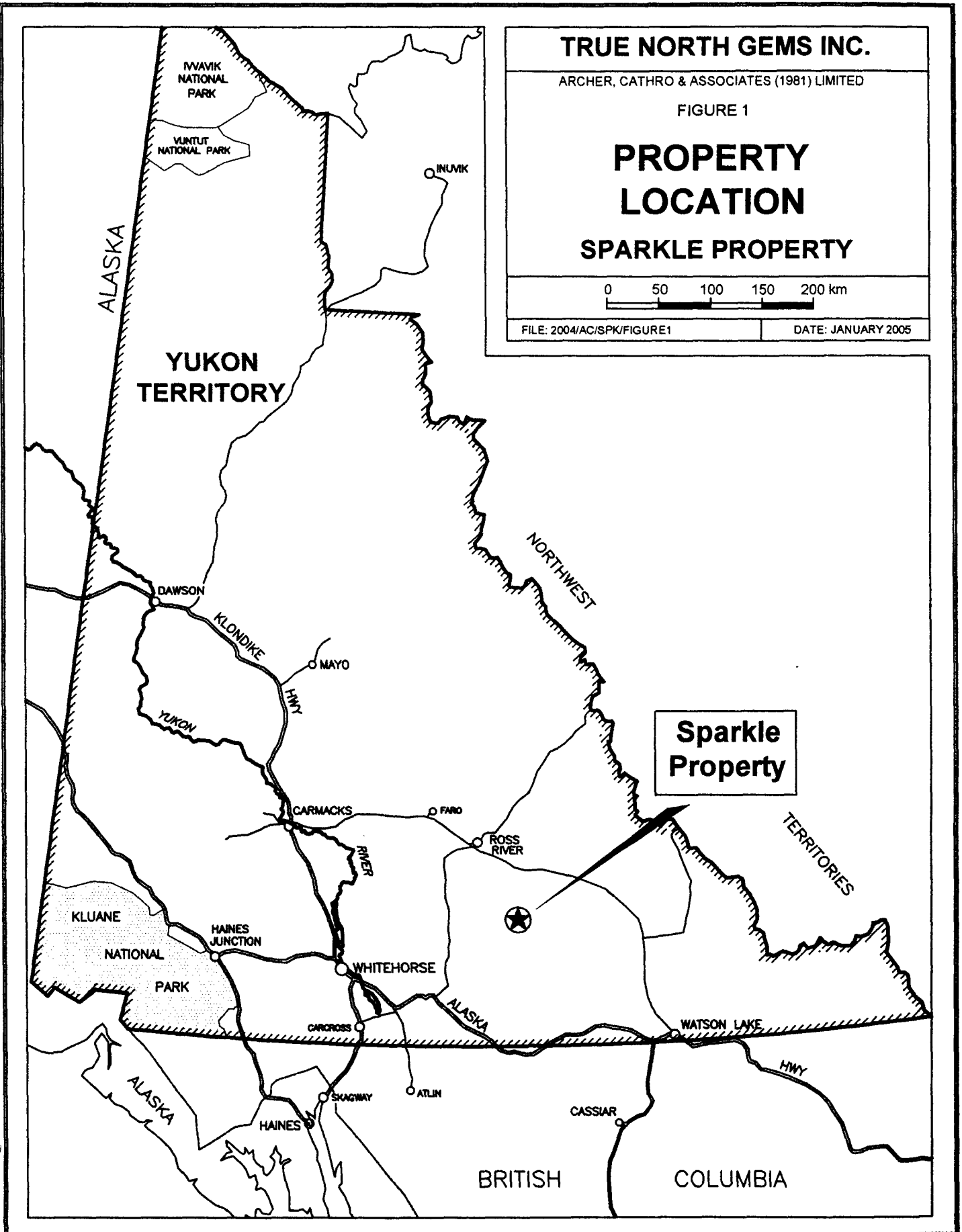
FIGURE 1

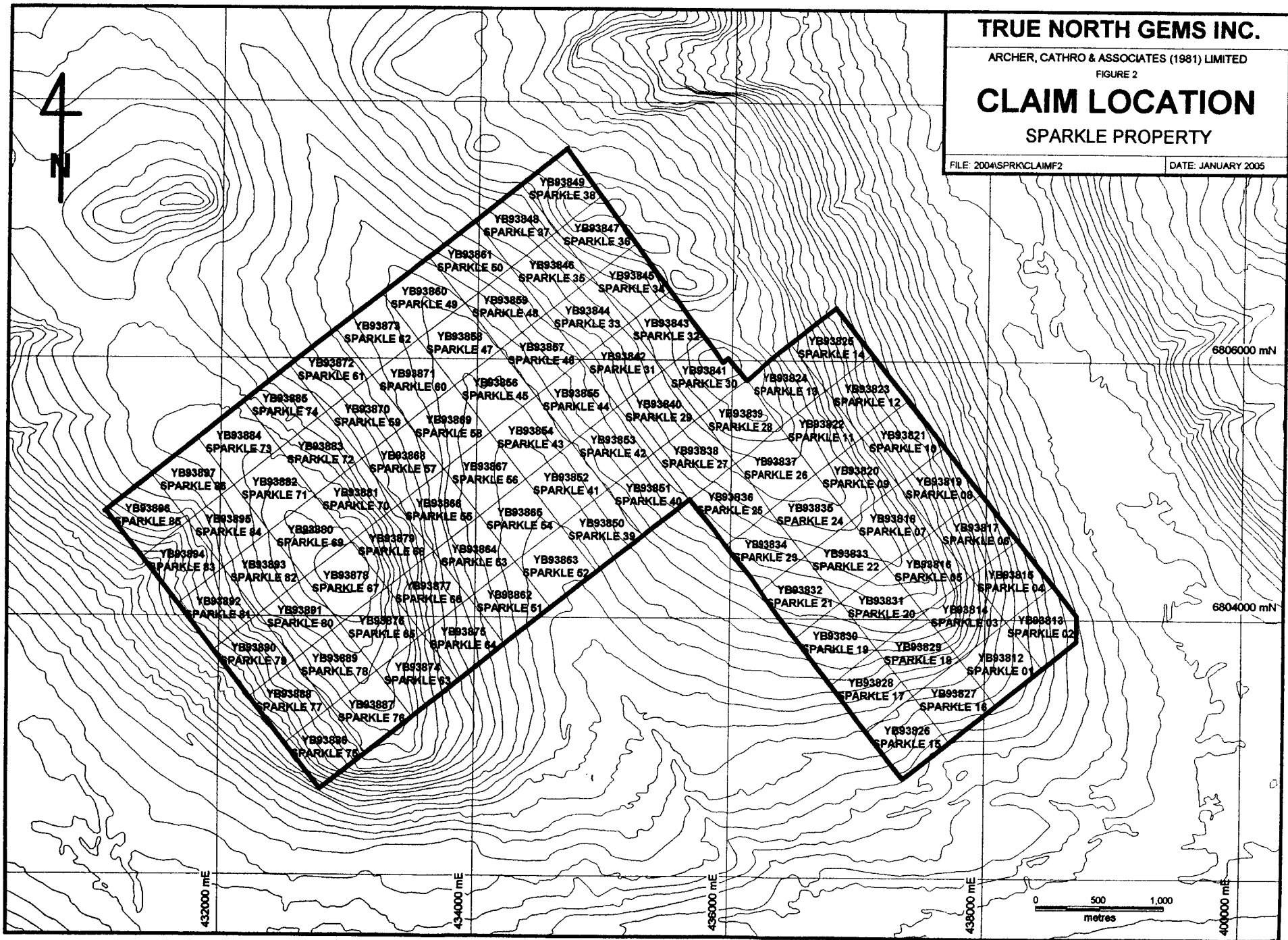
**PROPERTY
LOCATION
SPARKLE PROPERTY**

0 50 100 150 200 km

FILE: 2004/AC/SPK/FIGURE1

DATE: JANUARY 2005





Creeks draining the claims provide ample water for camp purposes and there are good campsite locations.

The climate in the Pelly Mountains is characterized by very cold, long winters, truncated fall and spring seasons and short, cool and often wet summers. The normal operating season for mineral exploration is from late May through early October.

PROPERTY HISTORY

The Finlayson Lake District has seen sporadic exploration since the 1960s for a number of deposit types, notably volcanogenic massive sulphides (VMS), tungsten skarns and asbestos. Much of the work was reconnaissance in nature and was conducted as part of wide ranging regional scale programs. The most recent and most intensive exploration began in 1994 following discovery of the Kudze Kayah VMS deposit. This discovery resulted in a staking rush that enveloped much of the district. Follow up exploration led to the discovery of additional VMS deposits (Wolverine, Ice, GP4F and Fyre Lake).

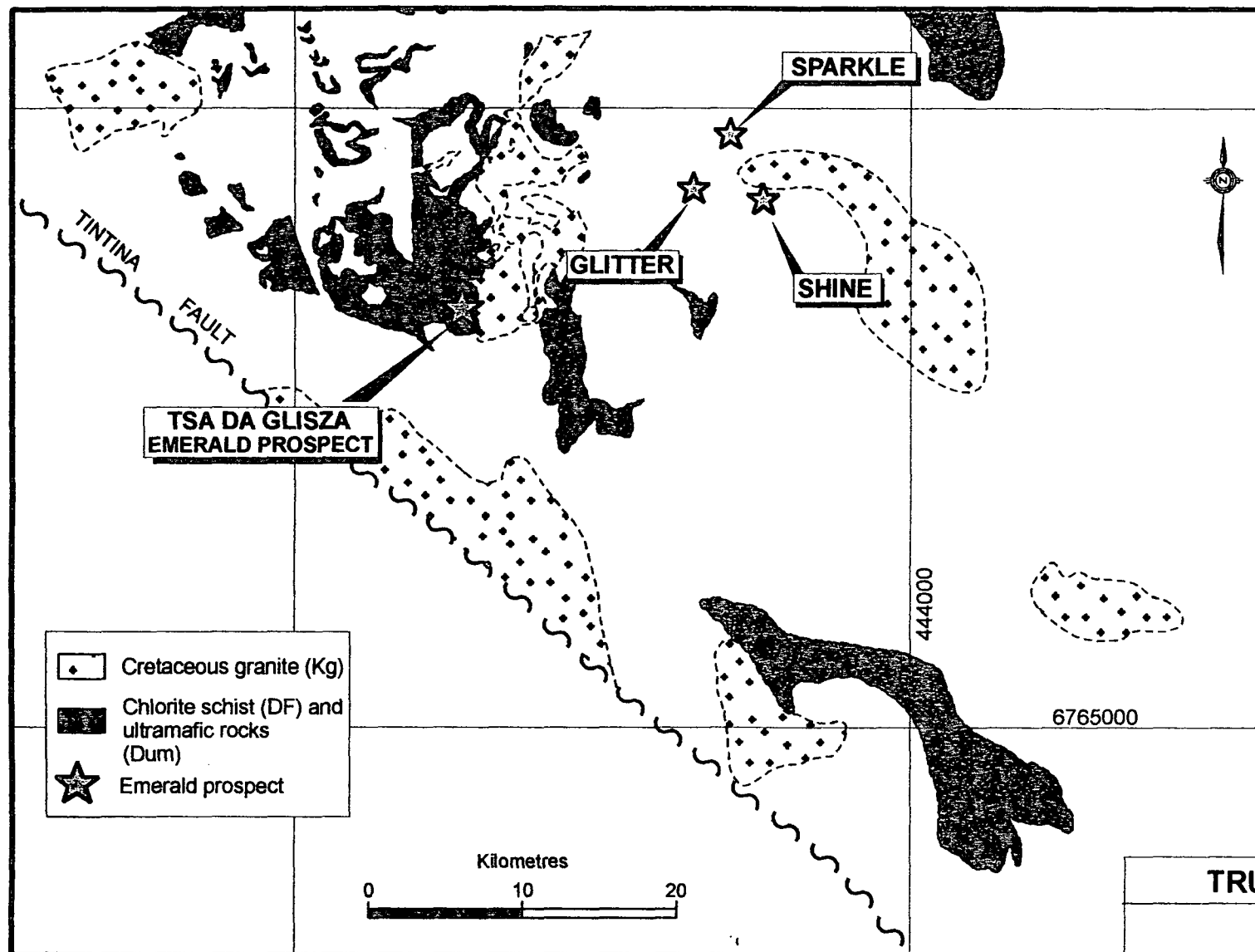
The emerald potential of the district was first recognized in August 1998 when the author discovered an occurrence at what is now the Tsa da Glisza prospect. The discovery was made on behalf of Expatriate Resources Ltd. while exploring for VMS type, base metal mineralization. The first emeralds were found by prospecting while following up anomalous copper, tungsten, gold and beryllium values obtained from contour controlled soil sampling. Expatriate performed focused emerald exploration at Tsa da Glisza in 1999 and identified a number of emerald showings in outcrop and float over a 950 by 350 m area. In 2000 True North purchased the Tsa da Glisza property from Expatriate and has since continued to define the emerald prospect through geological mapping, prospecting, soil geochemistry, diamond drilling, trenching, bulk sampling and underground development.

There are no recorded mineral occurrences on the Sparkle property. The nearest and the most relevant MINFILE occurrence is the Redline VMS prospect 105G124 located 8 km to the northwest along the same ridge system. Exploration at this occurrence has been largely reconnaissance scale and has included geological mapping, prospecting and soil and stream geochemical surveys plus limited diamond drilling (Deklerk, 2002).

GEOLOGICAL SETTING

Regional Geology

The Sparkle property lies within the Yukon-Tanana Terrane, 33 km northeast of the Tintina Fault (Figure 3). This regional scale, transcurrent fault extends across Yukon and into Alaska and resulted in approximately 420 to 460 km of dextral offset in Early Tertiary times (Mortensen, et al, 2000). The Yukon-Tanana Terrane is composed of complexly deformed, greenschist to lower amphibolite facies metamorphic rocks of Paleozoic age (Tempelman-Kluit, 1977). The main components are Pre-Late Devonian metaclastic and carbonate rocks, and Late Devonian to Mississippian metavolcanic, metasedimentary and metaplutonic rocks. The latter package includes bimodal volcanic suites, serpentinized ultramafic bodies thought to be sills, and granite and quartz monzonite stocks of the



Yukon-Tanana Terrane

After Murphy et al. (2003)

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FIGURE 3

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REGIONAL SETTING

SPARKLE PROPERTY

Simpson Range Plutonic Suite. Figure 4 is a schematic stratigraphic column showing the relationships between the main Paleozoic units and their approximate ages. Figure 5 illustrates the regional geology in the vicinity of the claim block as compiled by Murphy and Colpron in 2001.

Rocks of the Yukon-Tanana Terrane represent an island arc assemblage that was deformed and imbricated during accretion to the North American craton in the Late Paleozoic (Mortensen, 1992). A second stage of deformation occurred in the Early Cretaceous prior to emplacement of peraluminous granitic intrusions belonging to the approximately 112 Ma Anvil Plutonic Suite (Mortensen, 1999).

Property Geology

The Sparkle property is primarily underlain by competent felsic metavolcanic rocks of Unit DK (Figure 6). These rocks contain well developed foliation which generally trends northwest and dips gently to moderately to the northeast between 8 and 35°. Three sequences identified are typically expressed as dirty silicified and bleached felsic schist, quartz augen schist and minor muscovite-biotite schist. The latter two are largely interfingered and contain thin layers of moderately recessive golden weathering schist with minor tourmaline development in proximity to pegmatites, quartz veins and aplites.

The largest accumulation of intrusive rocks occurs in the south portion of the property where a large biotite-muscovite granite pluton was previously mapped by Murphy, et al., (2003). It consists of weakly to non-foliated, medium to fine grained biotite muscovite granite. Fine grained muscovite leucogranite was also recognized near the margins of the pluton. Structures peripheral to the pluton consist of a sheeted pegmatite and aplite sill complex including minor sheeted quartz veins. The pegmatites range from 30 cm to 3 m true thickness and contain abundant feldspar and silver white micas plus trace amounts of stubby black tourmaline and red garnet. Quartz veins are uncommon but where observed, they often contain tourmaline either along the selvages or within the vein. Rare tourmaline bloom was also observed. Aplite is uncommon and no associated tourmaline was noted.

DEPOSIT TYPES

The Sparkle property is located about 20 km northeast of the Tsa da Glisza emerald prospect. At Tsa da Glisza, chromium rich emerald crystals occur within quartz veins and in layers and pockets within altered selvages developed along the margins of the veins. At least 13 mineralized veins occur in a 2 sq km area on either side of a prominent ridge. The mineralized veins cut chlorite schist of the Fire Lake mafic metavolcanic unit (DF) near the contact with a granitic stock of the Anvil Plutonic Suite (Kg). The veins typically range between 0.2 and 1 m in width. The emerald crystals are up to 4 cm long and are typically surrounded by fine dark tourmaline with minor scheelite and chalcopyrite. Emerald is developed adjacent to the veins where they cut mica rich layers within the chlorite schist, and occasionally in the veins themselves (Groat, et al, 2002).

During summer 2002, True North conducted bulk sampling at the prospect. On December 12, 2002, it reported favourable results from seven areas. The most promising values were from the Southwest Zone where a 6.36 tonne bulk sample yielded 11.59 kg of gem concentrate, of which 121.42 g were gem quality and 587.33 g near gem quality. A total of 284, +4.5 mm gemstones were extracted from the concentrate, at an average of 0.33 g (1.75 carats) per stone (Smith, 2002).

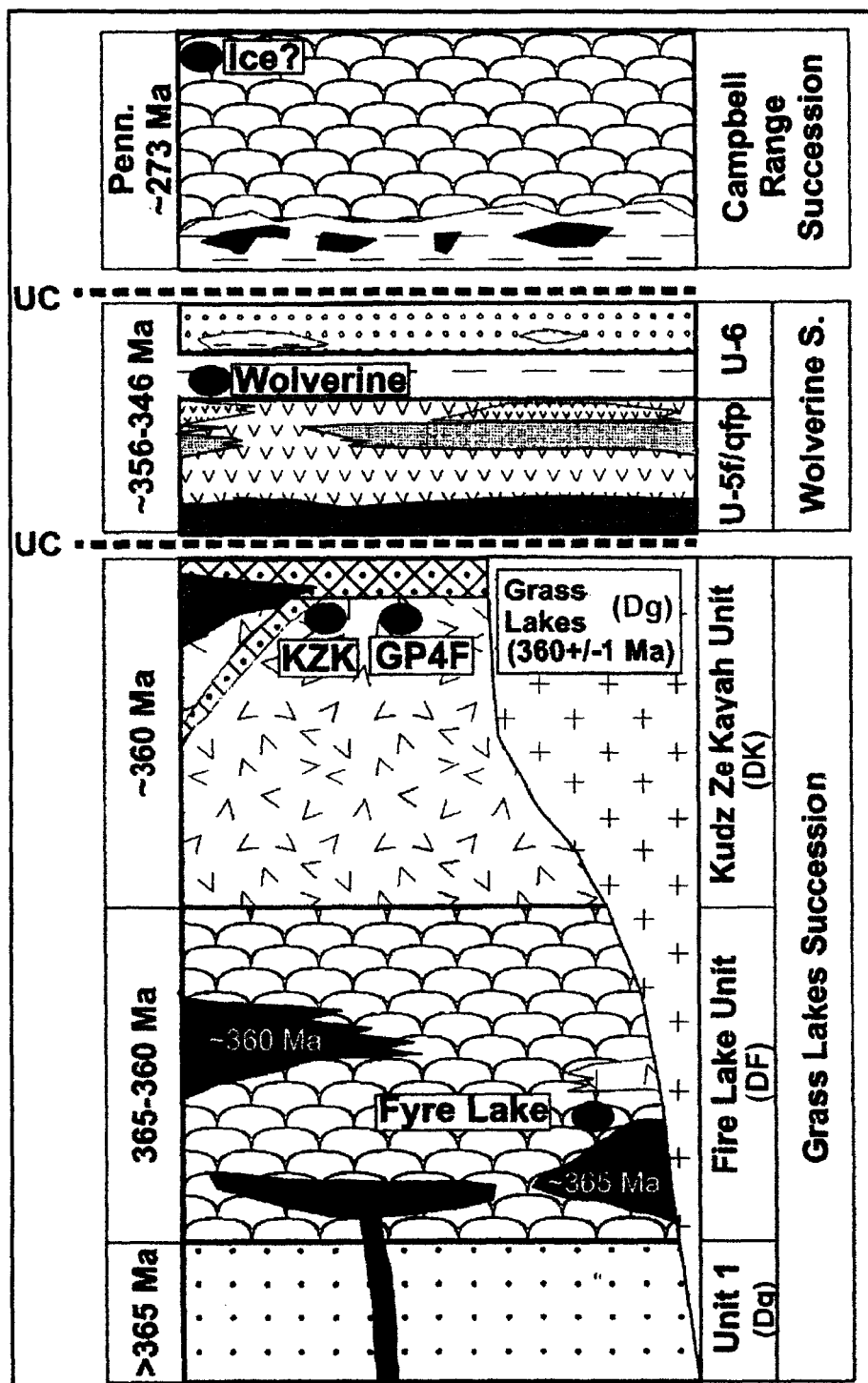


Fig 4. Schematic section of the Finlayson Lake District with the Paleozoic stratigraphy and location of VMS deposits. Dark intrusive rocks within the Fire Lake Unit are ultramafic unit Dum. Cretaceous granitic intrusions (Kg) are not shown. Modified after Murphy and Piercey (1999, 2000) and Piercey, et al, (2002)

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FIGURE 4

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STRATIGRAPHY SPARKLE PROPERTY

INTRUSIVE ROCKS

- Kg biotite-muscovite granite
 Msg unfoliated to strongly foliated
 biotite-hornblende granite
 and quartz monzonite
 Dg Grass Lakes Augen Orthogneiss
 Dum serpentinized ultramafic

SYMBOLS

- geological contact
 — normal fault
 — thrust fault
 - - - unconformity

LAYERED ROCKS

Campbell Succession

- basalt
 phyllite

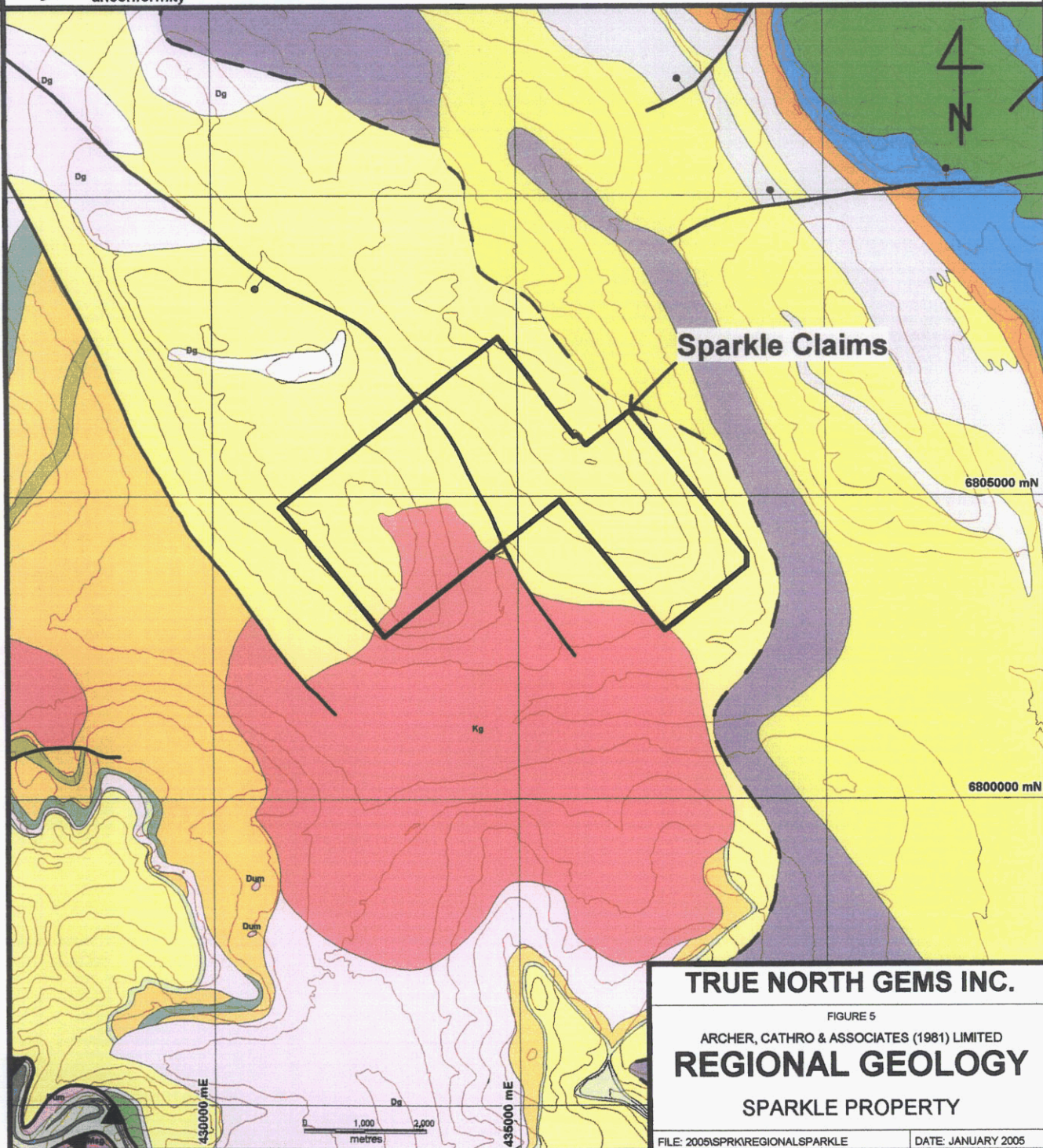
Wolverine Succession

- chlorite phyllite
 metatuff and exhalite
 muscovite-quartz phyllite
 carbonaceous phyllite
 sandstone and phyllite

Grass Lakes Succession

- DK
 feldspar-muscovite quartz schist
 carbonaceous phyllite and quartzite
 chloritic phyllite
 DF
 plagioclase - chlorite phyllite and schist
 Dq
 psammitic schist
 marble and calcareous schist
 biotite-plagioclase-actinolite-chlorite schist

Modified after Murphy & Colpron, 2001



Additional surface and underground mini-bulk sampling were continued in 2003 and 2004 from which a 2,533 tonne sample yielded 38.8 kg of rough emerald including 6.25 g/t that was gem and near gem quality (Rohtert, 2004). More importantly however, was a new emerald discovery referred to as the Shadow Zone approximately one kilometre southwest of Regal Ridge.

Emerald deposits are relatively rare, with current or past production from mines in Columbia, Pakistan, Afghanistan, Russia, Zambia, Egypt and Brazil. They are subdivided into two main types. Most emerald deposits belong to Type I (Schwarz and Giuliani, 2001) which are related to granitic intrusions. The Columbian occurrences are unique and comprise Type II. There, the emeralds are associated with hydrothermal activity in areas where fluid circulation is controlled by tectonic features such as thrust faults and shear zones. Tsa da Glisza is thought to be a Type I deposit based upon its geological setting.

Figure 7 illustrates the basic model for emerald formation at Tsa da Glisza. Fundamentally, emeralds are the gem variety of green beryl. The green colour is caused by chromium or less commonly, vanadium impurities. The source of the beryllium needed to form the beryl at Tsa da Glisza is thought to be a nearby unit Kg granitic stock. Fluids derived from that beryllium reservoir presumably migrated outward and upward through the adjoining unit Dum ultramafic rocks and unit DF mafic metavolcanic schist, which are chromium reservoirs. Interaction between the beryllium enriched vein fluids and chromium bearing wallrocks resulted in formation of emeralds along the margin of the veins (Murphy, et al, 2003).

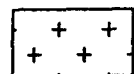
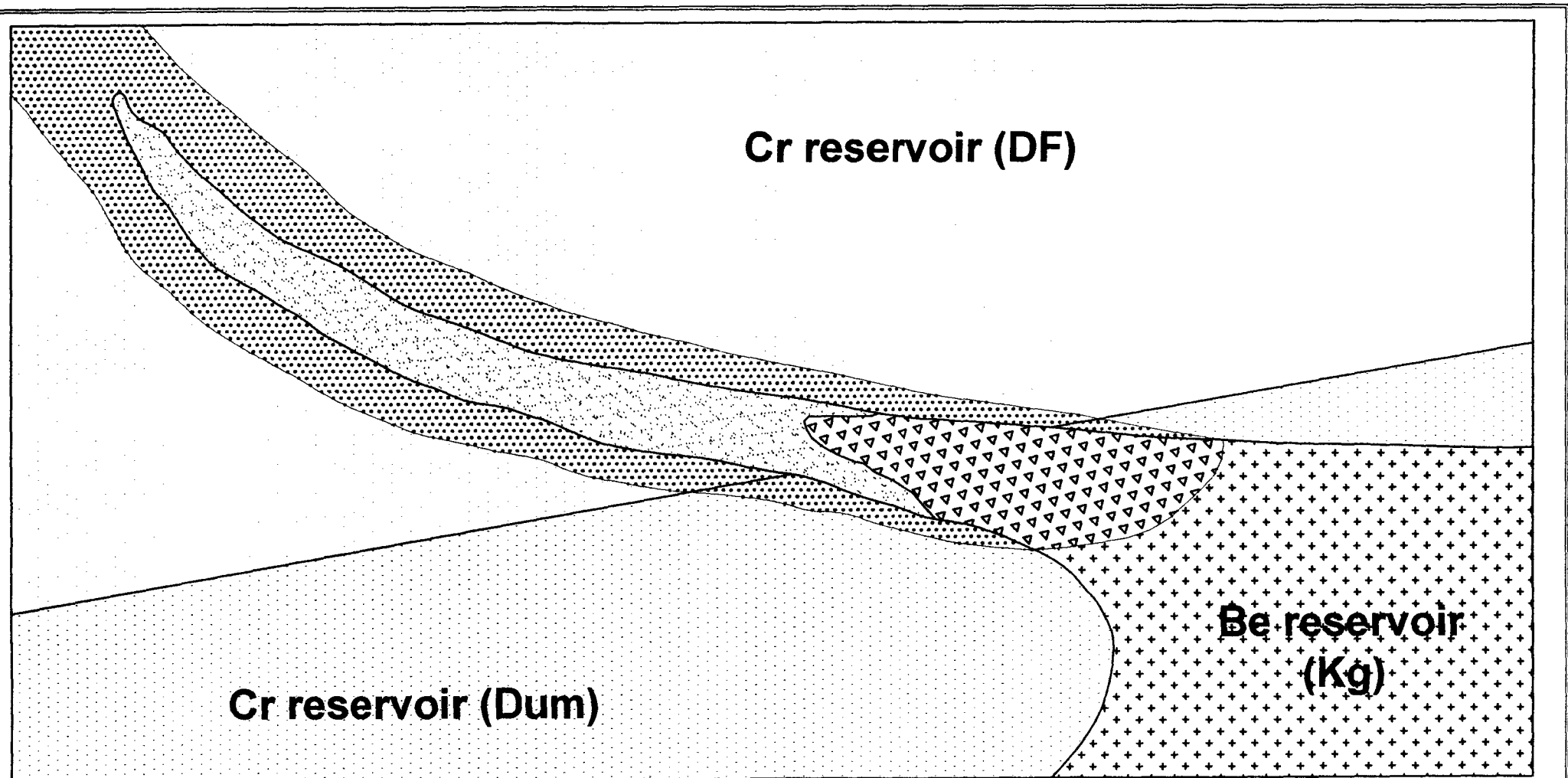
2004 EXPLORATION PROGRAM

The 2004 work program at the Sparkle property was conducted in two phases. The first phase was done by a four person crew from June 11 to 18. The second phase was performed by a four person crew from a tent camp on the Glitter property on August 23. Work was focussed on five target areas (A-E) identified from previous geochemical surveys conducted by True North. The 2004 program included geological mapping, prospecting and soil geochemical surveys. Soil and rock samples were shipped to ALS Chemex in North Vancouver. Here the soil samples were dried, screened to -80 mesh while rock samples were dried, fine crushed to -2 mm and pulverized to 75 micron. Pulps were then processed using HF, HNO₃ and HClO₄ digestion followed by an HCl leach and a combination of ICP-mass spectrometry and ICP atomic emission spectroscopy analyses. This process is described as a near total digestion. The analyses were for a total of 47 elements. Certificates of Analysis are contained in Appendix II.

Mineralization

Prospecting identified multiple occurrences of weak tourmaline altered, rusty weathering, felsic schist on the Sparkle property within the area of target D. The alteration zones are developed in close proximity to pegmatite sills which often contain quartz segregations near the selvages. The alteration envelopes are generally thin (up to 20 cm) and laterally discontinuous, not traceable for more than 5 m along strike. No beryl mineralization was recognized in these areas.

Stubby tourmaline crystals and small red garnets were commonly observed at all target areas associated with pegmatite and aplite sills and dykes. Pegmatite dykes and sills plus quartz veins also



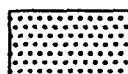
Be reservoir (Kg)



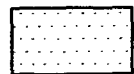
Cr reservoir (DF)



Aplite/pegmatite



Emerald bearing scheelite-tourmaline
alteration selvage



Cr reservoir (Dum)



Quartz-tourmaline-beryl vein

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FIGURE 7

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

EMERALD FORMATION MODEL
SPARKLE PROPERTY

contain large books of opaque to translucent muscovite/phlogopite mica booklets which are commonly developed near the salvages. A sample of this material collected from the southern part of target area D returned 8.73 ppm beryllium, 174 ppm chromium, 41.9 ppm tin and 4.4 ppm tungsten.

Geochemistry

Soil samples were collected from all five target areas as either contour controlled samples or grid controlled samples. Contour sampling was conducted at 50 m intervals along contour lines spaced 100 to 200 m apart. Grid soil sampling was conducted over target D and encompassed an area measuring 700 by 500 m. Soil samples were collected at 50 m intervals on lines spaced 50 m apart. All sample sites are marked with 0.5 m wooden lath bearing an aluminum tag inscribed with either a sample number or grid co-ordinates and sample number. The samples were taken from B or C Horizon soil, usually at depths between 15 and 25 cm below surface. Sample locations and geochemical results are illustrated on Figures 8, 9, 10, 11 and 12. The elements beryllium (Be), chromium (Cr), tin (Sn) and tungsten (W) were the primary considerations for defining areas of geochemical interest. The thresholds for assessing anomalies using the four-acid near total digestion method were as follows:

Anomalous

Be	5 ppm
Cr	200 ppm
Sn	10 ppm
W	8 ppm

Samples collected from areas A, B, and C returned low values for most emerald indicators with the exception of one tungsten value of 39.8 ppm from area B. Areas D and E however, yielded 21 anomalous beryllium values up to 9.9 ppm. Detailed prospecting in the vicinity of these sites confirmed the presence of localized hydrothermal alteration associated with mica and/or tourmaline bearing pegmatite and quartz veins. Tungsten and tin values are also anomalous but generally non-coincident with the areas of elevated beryllium response. Only one soil sample taken from the property yielded a chromium value exceeding 200 ppm. This sample was taken from area E.

INTERPRETATION AND CONCLUSIONS

Some of the geological factors required for emerald development, according to the Tsa da Glisza deposit model, are satisfied at the Sparkle property. These include quartz tourmaline veins and associated recessively weathering tourmalinized golden schist horizons which is indicative of at least localized hydrothermal alteration cells within reactive sections of the felsic schist. Beryllium geochemical values are also believed to be sufficiently elevated in these areas to promote the formation of beryl.

The one critical factor however, that seriously impedes the potential for emerald mineralization on the Sparkle property is the absence of the Fire Lake mafic metavolcanic (Unit DF) stratigraphy, which hosts the Tsa da Glisza deposit. This regional stratigraphic sequence is thickest in the vicinity of Fire Lake and wanes significantly northwards below and towards the Kudz Ze Kayah and Wolverine Lake VMS deposits. Unit DK felsic metavolcanics comprise the entire section exposed at the Sparkle

property indicating it is too high in the regional stratigraphic column for emerald formation using the Tsa da Glisza model. Chloritized units within the unit DK do not possess the inherent chromium values observed within the Fire Lake DF unit. The lower elevations of the property were investigated, but none of the mafic metavolcanic rocks was observed. Furthermore, the mobility of beryllium in the intrusives is questionable as the presence of large books of silver mica are abundant in areas of anomalous beryllium response and may be acting as a trap limiting interaction with the adjacent wall rocks. A sample of the micas collected for analysis yielded beryllium values akin to the highest obtained from the soil geochemical survey on the property.

No additional work is warranted at the Sparkle property. Although beryl could be present, it would likely be in low quantities and possess a generally white to pale colouration.

Respectfully submitted,

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED



William A. Wengzynowski, P.Eng.

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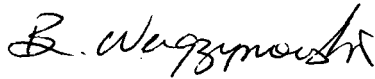
APPENDIX I

AUTHOR'S STATEMENT OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

I, William A. Wengzynowski, geological engineer, with business addresses in Vancouver, British Columbia and Whitehorse, Yukon Territory and residential address in Garibaldi Highlands, British Columbia, do hereby certify that:

1. I am President of Archer, Cathro & Associates (1981) Limited.
2. I graduated from the University of British Columbia in 1993 with a B.A.Sc in Geological Engineering, Option I, mineral and fuel exploration.
3. I registered as a Professional Engineer in the Province of British Columbia on December 12, 1998 (Licence Number 24119).
4. From 1983 to present, I have been actively engaged in mineral exploration in the Yukon Territory, Northwest Territories, northern British Columbia and Mexico.
5. I have personally participated in and supervised the fieldwork reported herein.



William A. Wengzynowski, P. Eng.

APPENDIX II
CERTIFICATES OF ANALYSIS



ALS Chemex

EXCELLENCE IN ANALYTICAL CHEMISTRY

ALS Canada Ltd.

212 Brooksbank Avenue

North Vancouver BC V7J 2C1 Canada

Phone: 604 984 0221 Fax: 604 984 0218



To: EP

C/O ARCHER, CATHRO & ASSOCIATES (1981)

LIMITED

1016-510 W HASTINGS ST

VANCOUVER BC V6B 1L8



Page: 1

10-JUL-2004

Account: EMP

CERTIFICATE VA04039300

Project: Sparkle

P.O. No.:

This report is for 150 Soil samples submitted to our lab in Vancouver, BC, Canada on 23-JUN-2004.

The following have access to data associated with this certificate:

AL ARCHER
JOAN MARIACHER

ROB CARNE
VANCOUVER OFFICE

DOUG EATON
BILL WENGZYNOWSKI

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
SCR-41	Screen to -180um and save both
LOG-22	Sample login - Rcd w/o BarCode

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION
ME-MS61	47 element four acid ICP-MS

To: EP

C/O ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

1016-510 W HASTINGS ST

VANCOUVER BC V6B 1L8

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.

Signature:



ALS Chemex

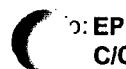
EXCELLENCE IN ANALYTICAL CHEMISTRY

ALS Canada Ltd.

212 Brooksbank Avenue

North Vancouver BC V7J 2C1 Canada

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EP
C/O ARCHER, CATHRO & ASSOCIATES (1981)
LIMITED
1016-510 W HASTINGS ST
VANCOUVER BC V6B 1L8

Project: Sparkle

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Date: 10-JUL-2004
Account: EMP

CERTIFICATE OF ANALYSIS VA04039300

Sample Description	Method Analyte Units LOR	WEI-21 Recvd Wt. kg 0.02	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01
BB38001		0.28	0.37	8.2	5.5	730	7.26	0.94	1.07	0.22	107.5	9.6	65	18.3	17.9	4.21
BB38002		0.16	0.05	7.06	6.9	940	2.3	0.49	1.54	0.35	66.1	11.4	69	5.54	13.2	3.63
BB38003		0.24	0.07	6.94	4.4	1030	3.27	0.63	1.08	0.71	91.3	11.7	87	9.43	13.4	3.21
BB38004		0.14	0.44	6.71	2	980	2.68	0.49	1.06	3.03	65.6	31	38	6.56	25.2	2.09
BB38005		0.18	<0.01	8.48	0.5	640	7.92	0.19	1.08	0.78	88	11.6	68	36.2	23.6	3.65
BB38006		0.18	0.03	8.7	1.8	870	5.31	2.36	1.74	1.03	137.5	20.4	76	28	12.1	5.53
BB38007		0.32	0.07	7.06	3.4	660	4.37	0.57	2.09	0.24	78.8	15.1	61	9.84	17.3	5
BB38008		0.28	0.09	6.6	3.4	670	4.29	0.54	1.63	0.21	66.3	13.6	71	8.36	16.5	4.09
BB38009		0.30	0.1	5.95	3.4	710	3.38	0.58	1.18	0.25	77.6	9.4	96	7.17	14.2	3.09
BB38010		0.36	0.05	7.04	3.8	660	4.28	0.59	2.43	0.23	70.4	16.8	93	11.95	21.5	5.21
BB38011		0.38	0.06	6.16	3	600	3.82	0.47	1.8	0.18	62.1	14.5	85	11.05	18.5	4.49
BB38012		0.16	0.13	6.11	2.6	680	5.79	0.85	1.22	0.31	64.2	12	65	10.4	18.8	3.78
BB38013		0.26	0.09	7.07	4	760	4.33	0.52	2.12	0.19	74.7	16.7	88	10.45	22	5.18
BB38014		0.24	0.09	6.47	2.8	770	3.5	0.95	1.44	0.31	84.4	13.1	97	9.76	16	3.87
BB38015		0.20	0.08	6.52	3.9	870	3.47	4.46	1.1	0.22	84	10.4	121	9.83	13.3	3.05
BB38016		0.18	0.1	6.88	2.4	810	3.09	0.55	1.49	0.2	87.9	10.2	78	9.92	17.4	3.53
BB38017		0.30	0.12	7.16	2.7	780	3.88	0.67	1.72	0.26	92.2	11.6	75	11.95	14.4	3.99
BB38018		0.26	0.11	6.99	3.1	570	4.9	0.85	1.53	1.36	70.3	10	42	11.2	13.1	4.1
BB38019		0.40	0.09	7.78	4.5	350	5.27	0.42	0.79	0.19	145	5	39	17.65	7.8	3.75
BB38020		0.34	0.07	6.7	3.2	610	3.89	0.69	1.92	0.65	69.2	14	55	9.73	15.6	4.31
BB38021		0.20	0.34	8.98	1.9	660	4.99	0.47	1.07	0.28	141	10.4	67	20.4	27.4	3.47
BB38022		0.36	<0.01	9.94	1.5	760	4.41	0.37	0.62	0.05	144.5	14.6	77	22.3	27.1	4.94
BB38023		0.06	0.73	2.77	1	430	3.47	0.14	1	0.5	124	3.8	21	3.27	20.8	1.39
BB38024		0.22	0.07	6.96	3.5	680	3.44	0.39	2.12	0.24	60	14.7	60	10.4	18.1	4.96
BB38025		0.18	0.08	7.11	2.7	800	4.35	0.64	2	0.25	77.5	13.7	72	11.7	16.9	4.62
BB38026		0.24	0.1	7.29	2.3	640	4.71	0.46	2.52	0.27	72.9	17.3	52	13.1	18	5.42
BB38027		0.28	0.02	7.46	4	690	4.07	0.52	2.49	0.27	75.8	19	70	11.9	20.1	5.67
BB38028		0.30	0.07	6.58	4.7	700	3.78	0.68	1.85	0.3	79.9	14.6	77	10.9	18.2	4.67
BB38029		0.22	0.33	7.4	3.7	440	6.35	0.69	1.84	0.18	78.9	16.9	91	22.9	20.4	4.66
BB38030		0.18	0.51	8.04	1.2	660	5.48	0.87	1.64	0.21	79.5	9.3	44	14.75	25.5	2.85
BB38031		0.14	0.13	7.31	1.2	820	1.76	0.36	1.56	0.21	54.9	8	20	5.1	23.3	2.28
BB38032		0.08	0.42	4.3	1.4	470	4.87	0.48	0.95	0.8	210	29.4	21	4.82	35.7	2.02
BB38033		0.20	0.09	7.14	1.2	740	1.32	0.1	1.94	0.05	32.7	7	6	1.39	16	1.96
BB38034		0.26	0.05	6.97	1.7	740	4.38	0.32	1.96	0.1	86.7	13.8	25	6.33	13.5	5.15
BB38035		0.28	0.08	6.95	2.6	670	3.62	0.6	1.78	0.15	61.2	13.6	51	11.05	15	4.9
BB38036		0.30	0.1	7.13	2.8	630	3.46	0.54	2.34	0.18	63.9	13.3	47	10.6	17	5.48
BB38037		0.28	0.15	7.92	1	340	7.69	0.48	2.96	0.14	42.9	29.9	178	44.7	9.7	6.95
BB38038		0.30	0.14	6.77	1.6	500	3.18	0.69	2.39	0.23	69.8	15.8	58	10.5	22.8	5.97
BB38039		0.24	0.23	6.21	1.2	770	2.61	0.35	1.57	0.51	59	8.6	30	5.08	19	2.5
BB38040		0.20	0.1	10.9	0.4	650	3.67	0.65	0.77	0.03	233	8.1	78	28.8	23.8	4.31

Comments: REE's may not be totally soluble in MS61 method.



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Project: Sparkle

Page: 2 - B

Total Pages: 5 (A - D)

Date: 10-JUL-2004

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CERTIFICATE OF ANALYSIS VA04039300

Method Analyte Units LOR	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01	ME-MS61 La ppm 0.5	ME-MS61 Li ppm 0.2	ME-MS61 Mg % 0.01	ME-MS61 Mn ppm 5	ME-MS61 Mo ppm 0.05	ME-MS61 Na % 0.01	ME-MS61 Nb ppm 0.1	ME-MS61 Ni ppm 0.2	ME-MS61 P ppm 10	ME-MS61 Pb ppm 0.5
Sample Description															
BB38001	26.4	0.3	1.6	0.096	2.42	87.1	175.5	0.87	435	1.63	0.93	24.9	20	1800	16.2
BB38002	19.05	0.15	2.7	0.057	2	34.6	33.2	1	673	1.4	1.85	15.4	20.6	930	16.6
BB38003	20.1	0.18	2.5	0.055	2.39	47.2	42.5	0.88	801	1.39	1.42	18.6	25.5	1620	25.3
BB38004	19.6	0.12	3	0.036	2.1	33.2	29.7	0.45	4730	2.59	1.73	12	16.2	1710	23.3
BB38005	30.7	0.18	1	0.027	3.75	46.3	209	0.61	1390	5.35	0.75	79.6	27.2	4530	33.1
BB38006	31	0.18	1	0.053	1.92	17	256	3.65	758	0.77	0.26	15.5	123.5	850	11.6
BB38007	22.6	0.19	2	0.096	1.98	33.7	51.6	1.36	817	1.08	1.78	29.5	21.3	1620	14.4
BB38008	20.9	0.18	2.2	0.074	2.22	33.1	51.5	1.2	693	1.14	1.66	23.2	26.1	1580	17.8
BB38009	17.75	0.16	2.1	0.053	2.12	42.3	41.5	0.94	553	1.12	1.42	15.4	29.3	960	17.4
BB38010	23.8	0.19	1.9	0.091	2.13	34	44.5	1.58	939	1.1	1.81	25.4	28.7	930	15.9
BB38011	20.3	0.16	1.7	0.077	1.68	28.7	51.8	1.56	673	0.94	1.5	23.1	29.5	770	14.7
BB38012	18.9	0.17	1.8	0.066	1.67	33.1	47.9	0.96	1005	1.94	1.36	16	21.6	3320	17.2
BB38013	21.6	0.18	1.9	0.091	1.78	37.5	60.7	1.56	981	1.27	1.68	27.3	29.1	1380	15.7
BB38014	20.4	0.17	2.1	0.061	2.08	42.9	38.7	1.06	903	1.52	1.44	23.4	26	870	18.1
BB38015	21.3	0.18	2.6	0.054	2.49	45.2	40.2	0.94	515	1.38	1.34	21.2	35.9	950	25.3
BB38016	21.2	0.19	2.8	0.06	2.15	45	34.4	1.02	566	1.46	1.65	21.7	21.2	750	18
BB38017	22.8	0.19	1.8	0.07	2.25	47.9	48	1.26	630	1.4	1.7	24.5	23	450	17.5
BB38018	23.8	0.19	2.1	0.08	1.99	39.4	86.9	0.98	541	2.99	1.58	26.6	14.5	1940	12.9
BB38019	31.1	0.22	1.9	0.073	2.91	76	207	0.77	271	4.17	1.11	34.7	9.9	1080	14.4
BB38020	19.6	0.19	1.8	0.075	1.76	35.9	56.5	1.19	1035	1.82	1.66	31	19.5	1900	13.9
BB38021	25.2	0.24	1.2	0.058	2.29	94.2	113.5	1.22	420	1.34	0.99	12.4	30.7	1300	16.6
BB38022	29.2	0.24	0.6	0.072	3.17	76.9	160	1.6	520	1.62	0.94	17.6	32	480	23.6
BB38023	7.21	0.31	1	0.028	0.53	107.5	10.2	0.35	326	1.34	0.48	4.6	11.4	3660	4.7
BB38024	22.3	0.18	2.4	0.088	1.88	28.7	48.7	1.36	861	1.26	1.78	26.3	21.4	1190	12.1
BB38025	23.2	0.19	2.4	0.087	2.1	37.5	45.9	1.29	824	1.22	1.78	30.3	20.8	880	14.4
BB38026	23.2	0.21	1.8	0.097	2.1	38.7	64.7	1.58	1410	0.95	2.18	30.9	19.4	1540	10.4
BB38027	23.7	0.21	2	0.105	2.1	36.7	69.3	1.68	977	1.12	1.92	32.4	23.6	1820	10.7
BB38028	22.7	0.2	2	0.087	2.15	39.7	63.6	1.41	660	1.25	1.6	27.8	28.6	1230	15.7
BB38029	23.7	0.27	1.6	0.08	2	63.5	120.5	1.72	556	2.14	1.32	24.1	34.1	1440	15.3
BB38030	21.4	0.22	3	0.036	2.14	65.6	68.9	0.86	413	2.69	1.82	12.4	27.1	1110	13.2
BB38031	19.25	0.14	3.8	0.03	2.38	31.6	27	0.64	399	1.72	2.23	7.3	13.3	1050	11.7
BB38032	9.43	0.44	1.1	0.032	0.63	144.5	27.5	0.33	1365	1.68	0.47	3.7	27.5	2670	13.1
BB38033	17.95	0.1	4.4	0.018	2.17	18.3	18.9	0.67	375	1.55	2.7	5.1	4.7	480	8.8
BB38034	24.2	0.18	1.8	0.095	2.42	25.7	62.7	1.33	743	1.04	1.84	42.2	10.9	2200	12.3
BB38035	23.4	0.17	1.9	0.093	2.17	25.7	35.9	1.24	870	1.46	1.94	32.4	16.4	1120	13.9
BB38036	22.9	0.23	1.4	0.096	1.93	24.9	51.4	1.44	844	1.08	1.85	37.8	18.2	1980	10.8
BB38037	21.6	0.21	0.6	0.082	1.9	18.3	78.3	3.7	1335	0.98	1.03	20.5	103	1220	6.8
BB38038	22.3	0.22	1.2	0.095	1.51	31.7	57.4	1.66	1035	1.31	1.69	30.6	22.4	1100	12.5
BB38039	16.4	0.25	2.5	0.039	1.6	49	21.9	0.55	1480	2.21	1.72	9.3	11.8	4570	18.4
BB38040	31.1	0.34	0.7	0.058	2.43	130	128	1.36	530	3.57	1.18	13.6	23.2	790	23.5

Comments: REE's may not be totally soluble in MS61 method.



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Page: 2 - C
Total Pages: 5 (A - D)

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CERTIFICATE OF ANALYSIS VA04039300

Sample Description	Method Analyte Units LOR	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
		Rb	Re	S	Sb	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V
		ppm 0.1	ppm 0.002	% 0.01	ppm 0.05	ppm 1	ppm 0.2	ppm 0.2	ppm 0.05	ppm 0.05	ppm 0.2	% 0.005	ppm 0.02	ppm 0.1	ppm 1
BB38001		171.5	<0.002	0.04	0.62	2	6.8	104.5	2.15	<0.05	25.9	0.624	0.72	8.8	168
BB38002		113.5	<0.002	0.02	0.92	1	3.4	285	1.28	<0.05	11.8	0.492	0.45	2.6	118
BB38003		206	<0.002	0.04	0.76	1	4.9	191	1.63	<0.05	18.4	0.49	0.63	3.4	104
BB38004		124.5	<0.002	0.06	0.58	<1	3.8	302	1.02	<0.05	13.7	0.301	0.51	3.1	56
BB38005		>500	<0.002	0.04	0.42	1	30.6	179.5	44.9	<0.05	25.1	0.409	2.16	6.5	65
BB38006		128.5	<0.002	0.01	0.14	<1	7.6	57.4	1.77	<0.05	9.8	0.407	1.29	1.8	102
BB38007		120	<0.002	0.02	0.47	1	7.9	155.5	2.36	<0.05	13.3	0.912	0.47	2.9	145
BB38008		117.5	<0.002	0.03	0.48	1	6.1	173.5	1.81	<0.05	12.9	0.696	0.53	3	109
BB38009		108	<0.002	0.04	0.5	<1	4.6	187.5	1.31	<0.05	14.7	0.437	0.48	3.1	85
BB38010		132	<0.002	0.02	0.49	1	9	147	1.99	<0.05	12.6	0.908	0.52	2.4	166
BB38011		96.5	<0.002	0.02	0.38	1	6.8	122.5	1.77	<0.05	10.9	0.716	0.43	2.2	129
BB38012		119.5	<0.002	0.09	0.47	1	5.5	151.5	1.29	<0.05	14.4	0.5	0.4	4.1	128
BB38013		103.5	<0.002	0.03	0.48	1	7.6	149	2.76	<0.05	13.4	0.811	0.46	2.6	155
BB38014		177	<0.002	0.04	0.54	<1	6.5	155	1.99	0.05	15.8	0.683	0.53	3	127
BB38015		176	<0.002	0.04	0.64	<1	6.6	151	1.84	0.05	16.8	0.531	0.67	3.4	104
BB38016		140	<0.002	0.04	0.58	<1	5.8	212	1.95	<0.05	16.3	0.684	0.51	3.4	114
BB38017		153.5	<0.002	0.02	0.45	1	8	156	2.03	<0.05	17	0.755	0.59	3.2	134
BB38018		147	<0.002	0.06	0.48	1	9.1	135.5	2.72	<0.05	16.8	0.596	0.61	6.7	107
BB38019		253	<0.002	0.03	0.24	<1	12.8	89.6	2.94	<0.05	45.4	0.43	0.99	6.1	73
BB38020		119	<0.002	0.08	0.39	1	7.3	152	5.3	<0.05	14	0.836	0.41	3.5	124
BB38021		145.5	<0.002	0.08	0.16	1	4.1	170.5	1.19	<0.05	31.3	0.382	0.71	11.1	75
BB38022		206	<0.002	0.03	0.06	<1	4.7	134	1.58	0.06	32.6	0.488	1.05	6.1	91
BB38023		30.1	<0.002	0.28	0.27	2	1.6	115.5	0.39	<0.05	10.8	0.165	0.12	10.3	41
BB38024		104.5	<0.002	0.04	0.52	1	7.6	192	2.02	<0.05	10.2	0.895	0.43	2.4	150
BB38025		167.5	<0.002	0.03	0.51	1	8.5	163	3.06	<0.05	13.8	0.844	0.49	3.7	146
BB38026		124	<0.002	0.03	0.27	1	8.5	141.5	2.42	<0.05	9.5	0.967	0.49	2.6	147
BB38027		120.5	<0.002	0.02	0.46	1	8.6	143	2.45	<0.05	11.4	1.025	0.52	2.6	166
BB38028		120	<0.002	0.01	0.5	1	8.1	143	2.19	<0.05	13.2	0.84	0.53	2.6	140
BB38029		157.5	<0.002	0.05	0.28	1	9.5	128.5	2.18	<0.05	17.8	0.687	0.74	11.4	132
BB38030		110.5	<0.002	0.06	0.33	1	4.4	401	1.1	<0.05	15.6	0.354	0.54	6.8	65
BB38031		87.5	<0.002	0.08	0.39	<1	1.9	486	0.63	<0.05	9.5	0.265	0.39	3.4	48
BB38032		32.8	<0.002	0.24	0.54	3	1.1	125.5	0.34	<0.05	9.1	0.117	0.26	26.5	28
BB38033		47.9	<0.002	0.02	0.38	<1	0.8	605	0.46	<0.05	5.8	0.268	0.22	2.3	54
BB38034		141	<0.002	0.04	0.24	1	5.6	171.5	2.99	<0.05	11	1.09	0.48	2.7	122
BB38035		193	<0.002	0.04	0.39	1	8.2	129.5	2.29	<0.05	10.7	0.957	0.54	2.9	148
BB38036		111.5	<0.002	0.03	0.44	3	9.4	122.5	2.37	<0.05	9.5	1.115	0.48	2.5	144
BB38037		183.5	<0.002	0.03	0.2	2	19.8	92.8	2.72	<0.05	5.1	0.793	0.95	1.6	172
BB38038		103.5	<0.002	0.03	0.23	3	8.1	131	2.09	<0.05	11.4	1.105	0.43	3.2	169
BB38039		83.7	<0.002	0.17	0.51	3	2.1	327	0.67	<0.05	12.2	0.286	0.31	8.5	63
BB38040		166	<0.002	0.06	0.12	2	4	174	1.03	0.06	45.3	0.454	0.8	8.3	87

Comments: REE's may not be totally soluble in MS61 method.

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Sample Description	Method Analyte Units LOR	ME-MS61	ME-MS61	ME-MS61
		Y ppm 0.1	Zn ppm 2	Zr ppm 0.5
BB38001		55.1	132	36.1
BB38002		19.9	87	70.7
BB38003		17	130	64.9
BB38004		9.9	140	85.3
BB38005		19.8	195	20.3
BB38006		20.3	212	23.6
BB38007		38.4	108	50.8
BB38008		32.3	88	56.1
BB38009		20.3	81	56.2
BB38010		34.1	103	47.1
BB38011		28.9	90	42.9
BB38012		21.1	81	44.4
BB38013		33.3	98	46.3
BB38014		25.6	88	55.9
BB38015		19.6	78	67.3
BB38016		21.3	82	73.6
BB38017		26.7	82	45.3
BB38018		29.6	110	50.4
BB38019		19.5	93	44.2
BB38020		32.5	106	43.5
BB38021		29.8	67	30.8
BB38022		11.8	95	16.1
BB38023		60.5	30	23.9
BB38024		34.7	85	61.6
BB38025		32.9	90	65.5
BB38026		47	93	46.2
BB38027		49	97	50.1
BB38028		32.6	110	51.7
BB38029		54.1	100	39
BB38030		27.9	76	84.1
BB38031		11	55	110
BB38032		79.7	43	26
BB38033		7	48	127
BB38034		52.5	85	48.2
BB38035		38.1	82	51.1
BB38036		54.3	88	47
BB38037		28	120	14.8
BB38038		45.4	116	32.7
BB38039		42.6	64	94.8
BB38040		18.4	71	23.5

Comments: REE's may not be totally soluble in MS61 method.



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CERTIFICATE OF ANALYSIS VA04039300

Sample Description	Method Analyte Units LOR	WEI-21 Recvd Wt. kg 0.02	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01
BB38041		0.14	0.08	8.45	0.5	590	2.3	0.42	1.04	0.08	160	6.2	59	15.15	14.3	3.13
BB38042		0.10	0.1	7.55	1	730	1.28	0.09	2.26	0.18	39.3	7.8	8	1.26	15.9	2.34
BB38043		0.18	0.04	7.01	3.7	860	3.1	0.74	0.93	0.05	79	5.8	62	7.73	11.7	2.62
BB38044		0.20	0.12	7.64	1.7	900	1.5	0.13	1.56	0.06	46.1	3.7	10	2.24	19.8	1.41
BB38045		0.16	0.31	5.78	2.7	740	3.14	0.62	0.78	0.29	91.3	8.1	65	9.56	13.7	2.71
BB38046		0.24	0.29	6.77	2.7	690	2.94	0.63	1.3	0.18	72	9.8	46	10	19.1	3.85
BB38047		0.32	0.17	7.56	3.9	690	4	1	1.34	0.28	83.6	11.9	67	12.45	25.2	4.51
BB38048		0.32	0.45	6.53	0.8	510	2.89	0.36	1.99	0.22	64.3	16.6	37	11.85	18.2	6.22
BB38049		0.34	0.08	8.64	1.3	330	4.49	0.38	0.22	0.12	129.5	4.9	23	17.35	8.1	3.02
BB38050		0.22	0.23	7.73	2.7	690	3.09	2.44	1.9	0.14	83.3	13.1	92	11.95	20.6	4.98
BB38051		0.20	0.34	8.1	0.9	720	9.56	12.7	1.4	0.44	69.9	28.1	81	27.5	36.1	4.29
BB38052		0.34	0.09	7.09	2.6	800	3.21	0.68	1.02	0.24	138.5	10.9	79	10.55	14	2.99
BB38053		0.22	0.09	7.51	1.3	790	1.26	0.1	1.98	0.03	39.7	5.7	5	1.42	17.2	1.81
BB38054		0.22	0.19	6.95	5.8	670	3.53	0.68	1.14	0.12	125.5	12.1	65	10.1	21.3	3.68
BB38055		0.26	0.12	7.91	0.7	740	1.64	0.17	1.42	0.05	61.3	8.1	25	4.1	24.1	2.7
BB38056		0.42	0.13	7.43	5.2	740	3.97	0.94	1.63	0.31	98	13.7	60	13.55	25.1	4.93
BB38057		0.22	0.15	7.52	3.1	760	2.42	0.48	1.72	0.14	64.7	10.3	40	6.7	20.7	3.25
BB38058		0.22	0.1	6.58	3	700	2.93	0.49	0.94	0.17	88.9	7.1	46	7.84	15.3	2.79
BB38059		0.32	0.15	9.1	0.3	680	3.12	0.35	0.64	0.57	151.5	16.8	64	10.7	31.4	4.6
BB38060		0.20	0.34	8.32	1.8	550	3.84	0.66	0.81	0.29	94.2	20.5	65	16.8	27.1	5.28
BB38061		0.26	0.07	7.5	6.4	600	3.02	0.57	1.33	0.14	180.5	13.4	70	8.06	21.3	4.27
BB38062		0.28	0.11	7.68	5.9	870	5.01	0.92	0.91	0.23	77.1	10.9	114	9.93	12.2	3.87
BB38063		0.28	0.1	6.85	6.1	800	4.1	0.88	0.79	0.19	85.4	10.7	100	10.65	12	3.62
BB38064		0.26	0.12	6.58	8.6	780	3.5	0.72	0.82	0.15	87.7	8	80	8.26	11.2	4.49
BB38065		0.18	0.13	7.54	3.2	730	3.59	0.59	0.61	0.07	135	7.9	74	13.6	21.1	3.73
BB38066		0.20	0.12	8.77	2.5	690	4.25	0.67	0.67	0.05	180.5	15.6	78	17.15	31.5	4.52
BB38067		0.26	0.12	6.82	6.6	710	2.79	0.56	1.62	0.33	80	12.3	83	7.28	20.5	4.97
BB38068		0.20	0.16	7.02	4.2	660	3.48	1.2	2.35	0.24	98	19.4	106	11.25	26.6	4.89
BB38069		0.18	0.3	6.24	4.5	750	3.11	0.7	0.69	0.38	91.7	8.9	57	9.1	20.3	3.39
BB38070		0.16	0.26	9.62	1.1	750	5.03	0.62	0.52	0.12	140	16.6	77	16.8	42.2	5.26
BB38071		0.22	0.1	10.15	0.5	750	3.41	0.64	0.68	0.12	165.5	26.1	82	16.05	52.1	5.14
BB38072		0.14	0.08	7.52	1.4	800	1.33	0.16	1.71	0.07	42.9	4.9	7	1.93	20.3	1.62
BB38073		0.18	0.11	7.16	2.8	700	2.85	0.5	1	0.3	118.5	11.5	61	10.55	20.5	3.25
BB38074		0.20	0.16	7.21	1.9	760	3.17	0.52	0.91	0.36	89.5	8.5	54	11.25	18.3	2.77
BB38075		0.20	0.18	8.56	3.2	770	3.84	0.96	0.75	0.19	184.5	11.2	78	18.1	26.6	3.78
BB38076		0.12	0.17	8.08	2.2	730	3.54	0.57	0.71	0.31	99.8	12.6	51	14	40.4	3.12
BB38077		0.18	0.13	9.2	3.1	790	4.76	0.82	0.53	0.09	172.5	8.2	76	19.85	45.7	4.41
BB38078		0.22	0.14	7.5	5.3	970	3.43	1.39	1.1	0.57	92.7	10.6	71	12.3	19.8	3.97
BB38079		0.20	0.15	7.2	5.4	750	2.73	0.57	1.23	0.17	60.5	13.6	79	7.93	22.4	3.66
BB38080		0.22	0.13	9.32	2.8	660	3.18	0.65	0.51	0.15	178	9.4	78	10.8	43.9	4.7

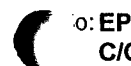
Comments: REE's may not be totally soluble in MS61 method.



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CERTIFICATE OF ANALYSIS VA04039300

Sample Description	Method Analyte Units LOR	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
		Ga	Ge	Hf	In	K	La	Li	Mg	Mn	Mo	Na	Nb	Ni	P	Pb
		ppm 0.05	ppm 0.05	ppm 0.1	ppm 0.005	% 0.01	ppm 0.5	ppm 0.2	% 0.01	ppm 5	ppm 0.05	% 0.01	ppm 0.1	ppm 0.2	ppm 10	ppm 0.5
BB38041		27.3	0.26	1.2	0.05	1.8	86.7	66.9	1.02	388	2.62	1.37	15	14.7	710	17.8
BB38042		19.15	0.18	3.3	0.019	1.9	20.7	17.5	0.89	448	1.46	2.66	5.5	7.1	640	8.4
BB38043		24.4	0.21	1.7	0.044	2.6	41.6	39.6	0.63	354	1.14	1.38	18.8	20.8	620	24.7
BB38044		19.7	0.15	3.5	0.019	2.37	24.6	22.4	0.42	357	1.74	2.65	7.5	3.4	400	11.2
BB38045		19.4	0.21	1.9	0.055	1.69	46.1	28.3	0.52	1920	1.95	1.12	21.3	18.2	3750	17.2
BB38046		21.9	0.22	1.5	0.078	1.62	40.7	47.8	1.08	531	1.88	1.49	21	20.7	2180	13.1
BB38047		23.2	0.23	1.1	0.073	1.75	42.3	63.8	1.23	605	2.15	1.29	21.1	30.4	1910	13.9
BB38048		22.5	0.29	1.1	0.099	1.21	42	53.5	1.54	1005	1.56	1.52	27.7	15.8	2600	8.4
BB38049		31.5	0.23	1	0.049	3.03	65.3	114	0.77	205	1.3	0.72	27.4	11.6	960	13.2
BB38050		27.7	0.26	1.3	0.088	1.76	41.2	54.5	1.48	712	1.95	1.26	27.7	34.6	530	48
BB38051		24	0.2	0.6	0.059	1.4	26.6	84.5	0.99	3350	1.54	0.67	25.2	47.5	2950	16.9
BB38052		22.3	0.26	1.6	0.05	2.38	72.5	53.8	0.95	682	1.36	1.34	20.7	26.8	440	24.9
BB38053		19.65	0.18	3.6	0.016	2.17	21	20.7	0.64	390	1.56	2.7	5.7	5.2	690	9.4
BB38054		20.6	0.26	1.5	0.059	1.83	65.2	58.3	1	518	1.34	1.46	21.5	32.1	920	18.6
BB38055		20.5	0.19	2.5	0.026	2.25	32.4	43	0.74	470	1.46	2.1	8.1	13.4	780	13.6
BB38056		24.8	0.27	1.5	0.095	2.01	51.1	69.6	1.3	798	2.26	1.54	29.6	28.9	1640	15.6
BB38057		21.6	0.22	2.5	0.046	1.97	34.9	43.2	1.1	517	1.69	2	14.3	20.9	1120	12.2
BB38058		21.9	0.22	1.7	0.056	1.97	48.3	39.4	0.73	365	1.36	1.55	21.8	20.1	1570	15.2
BB38059		26.8	0.29	0.6	0.054	2.78	80.5	53.4	1.2	581	1.31	0.9	14.4	38.4	1660	20.5
BB38060		24.5	0.26	1	0.078	1.54	50.2	74.9	1.12	1605	2.81	0.78	20.7	31.5	2480	16.3
BB38061		23.8	0.31	1.5	0.069	2.12	96.9	56.1	1.17	649	1.2	1.47	22.9	31.8	930	23
BB38062		23.3	0.23	2	0.065	2.73	39.3	79.2	1.03	473	1.34	1.26	21	48.4	430	40.4
BB38063		24	0.23	2	0.064	2.84	43.3	68.4	0.93	506	1.52	1.08	21.1	40.1	580	44.8
BB38064		19.85	0.23	1.8	0.053	2.24	45.2	56	0.79	448	1.76	1.08	16.8	29.6	640	37.6
BB38065		25.7	0.29	1.4	0.058	2.44	68	57.7	0.66	377	1.46	0.98	20	28.4	670	27.7
BB38066		28.3	0.32	0.9	0.063	2.75	99.1	132.5	1.07	610	1.19	1.25	21.7	42.9	550	23.9
BB38067		22.7	0.26	1.8	0.088	1.8	37.9	48.4	1.27	703	1.46	1.49	30.2	29.6	1340	18.5
BB38068		23.4	0.29	1.4	0.082	1.71	48.2	70.9	2.07	828	1.49	1.38	25.8	47.2	1400	12.7
BB38069		21.7	0.24	1.6	0.061	1.63	51.1	50.5	0.8	420	1.82	0.91	21	26.5	1660	16.1
BB38070		30	0.29	0.9	0.063	2.88	73.5	81.2	1.17	664	2.19	0.73	18.8	46.5	1490	22
BB38071		30.4	0.31	1	0.063	3.37	86.5	118	1.3	871	1.38	0.89	16.2	60.5	1100	28.1
BB38072		17.5	0.15	3.9	0.019	2.1	23.7	21.1	0.52	361	1.56	2.46	6.1	3.7	490	10.2
BB38073		18.85	0.23	1.5	0.054	2.03	64.1	63.1	0.86	547	1.11	1.19	17.7	22.9	1040	21.7
BB38074		19.4	0.21	1.5	0.053	2.27	50.1	49.6	0.64	433	1.1	1.16	16.3	17.8	1100	23.7
BB38075		25.6	0.37	1.8	0.069	2.47	98.7	82.2	0.79	921	1.67	1.14	18.4	21.4	1040	26.9
BB38076		22.9	0.27	1.8	0.053	2.29	57.2	76.5	0.63	446	1.54	1.1	14	25.5	1260	20.7
BB38077		28.7	0.33	1.1	0.064	2.76	95.6	124.5	0.88	415	1.4	1.14	20.5	24.9	800	29
BB38078		23.1	0.18	2.2	0.08	2.1	52.9	70.8	1.16	565	1.76	1.28	24.6	23.7	730	15.6
BB38079		19.25	0.22	1.6	0.057	1.87	29.8	52.7	1.22	451	1.18	1.26	18.6	28.7	740	14.8
BB38080		24.1	0.38	1	0.064	2.34	102.5	83.3	1.18	568	1.58	0.84	12.7	24.2	1380	20.6

Comments: REE's may not be totally soluble in MS61 method.



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Method Analyte Units LOR	ME-MS61 Rb ppm 0.1	ME-MS61 Re ppm 0.002	ME-MS61 S % 0.01	ME-MS61 Sb ppm 0.05	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.2	ME-MS61 Tl % 0.005	ME-MS61 Ti ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1	ME-MS61 W ppm 0.1
Sample Description															
BB38041	96.7	<0.002	0.03	0.18	2	4.2	203	1.17	<0.05	30.4	0.505	0.49	5	93	1.8
BB38042	42.4	<0.002	0.03	0.44	2	0.8	650	0.39	<0.05	4.9	0.301	0.23	2.5	60	0.5
BB38043	150.5	<0.002	0.02	0.54	2	6.7	166.5	1.45	<0.05	14.3	0.463	0.76	2.6	85	3.2
BB38044	63.8	<0.002	0.02	0.52	1	1.4	533	0.56	<0.05	7.3	0.231	0.35	3	33	1
BB38045	119.5	<0.002	0.16	0.59	2	6.3	111	1.62	<0.05	16.2	0.439	0.5	5.3	86	3.4
BB38046	93.4	<0.002	0.11	0.53	2	5.9	158.5	1.42	<0.05	15.4	0.565	0.48	5.1	113	2.7
BB38047	117	<0.002	0.09	0.49	2	6.7	113.5	1.46	<0.05	17.8	0.525	0.5	5	121	11.2
BB38048	85.5	<0.002	0.09	0.17	3	5.9	129.5	1.7	<0.05	13	1.08	0.42	6.5	173	12.8
BB38049	232	<0.002	0.04	0.21	2	10.6	43.2	1.86	<0.05	31.5	0.289	0.9	4.3	45	5.2
BB38050	107.5	<0.002	0.04	0.39	3	9	158.5	1.78	<0.05	15	0.803	0.53	3	155	3.5
BB38051	204	<0.002	0.16	0.24	2	14.6	262	1.64	0.35	13	0.491	0.94	3	77	4.2
BB38052	171.5	<0.002	0.03	0.48	2	5	174.5	1.65	<0.05	23.4	0.476	0.73	4.9	88	2.5
BB38053	52.9	<0.002	0.02	0.46	1	0.8	609	0.4	<0.05	5.5	0.243	0.27	2.5	42	0.6
BB38054	115.5	<0.002	0.04	0.64	2	5.3	166.5	1.6	<0.05	19.7	0.5	0.62	3.6	97	2.6
BB38055	87.5	<0.002	0.04	0.43	1	1.3	466	0.6	<0.05	10	0.281	0.43	3.1	47	0.7
BB38056	145.5	<0.002	0.03	0.66	3	8.2	127.5	2.02	0.07	16.8	0.758	0.65	4.7	151	2.9
BB38057	92.6	<0.002	0.06	0.51	2	4	414	1.01	<0.05	10.6	0.427	0.45	3.5	93	3.1
BB38058	133.5	<0.002	0.09	0.56	2	6.3	137.5	1.59	<0.05	13.8	0.426	0.51	3.3	82	2.4
BB38059	178.5	<0.002	0.11	0.13	2	3.1	149.5	1.09	0.07	24	0.394	0.74	6.8	71	1.7
BB38060	113	<0.002	0.15	0.22	2	4.9	124.5	1.32	<0.05	15.7	0.606	0.51	5.4	125	3.2
BB38061	124.5	0.002	0.04	0.43	2	5.3	152	1.66	<0.05	32.4	0.669	0.61	5	107	10
BB38062	156	<0.002	0.02	0.73	2	7.5	132.5	1.72	<0.05	14.8	0.437	0.91	3	81	3.4
BB38063	158	<0.002	0.02	0.71	2	7.4	122	1.67	<0.05	16.6	0.468	0.9	3.1	91	3.1
BB38064	133.5	<0.002	0.03	1.83	2	4.9	127	1.37	<0.05	15.8	0.423	0.71	3.1	94	2.2
BB38065	167.5	<0.002	0.05	0.53	2	6.9	129	1.59	<0.05	22.1	0.483	0.86	4.2	94	3.1
BB38066	212	<0.002	0.05	0.34	2	7.2	145	1.97	0.05	32.5	0.507	1.19	6	95	2.8
BB38067	102	<0.002	0.04	0.59	3	6.9	131.5	1.99	<0.05	13.6	0.843	0.54	3	138	2.7
BB38068	133	<0.002	0.04	0.51	3	8.4	132.5	1.82	<0.05	13.6	0.79	0.65	3.7	156	39.8
BB38069	128	<0.002	0.11	0.69	2	6	111.5	1.51	<0.05	12.4	0.43	0.57	4.2	101	3.3
BB38070	210	<0.002	0.1	0.23	2	4.7	125.5	1.56	0.07	23	0.491	1.01	6.4	95	2.3
BB38071	209	<0.002	0.06	0.15	2	3.3	181	1.21	0.06	26.5	0.488	1.09	6.7	88	2.3
BB38072	52.6	0.003	0.02	0.5	1	1	564	0.49	<0.05	7	0.212	0.3	2.6	36	0.7
BB38073	112.5	0.002	0.07	0.43	2	5	131	1.87	0.06	22.7	0.496	0.73	4.9	89	15.7
BB38074	133.5	0.002	0.08	0.47	2	5.4	131	1.51	0.07	18.1	0.439	0.73	3.8	82	2.6
BB38075	169.5	<0.002	0.07	0.51	2	6.1	151.5	1.74	0.08	37.5	0.514	0.98	7.4	106	3.3
BB38076	129.5	<0.002	0.12	0.42	2	4.5	218	1.41	0.05	19	0.378	0.86	6.6	74	2
BB38077	185	<0.002	0.25	0.31	2	8	162.5	1.91	0.09	33.8	0.511	1.18	7.4	95	2.4
BB38078	148.5	<0.002	0.03	0.81	2	7.7	138.5	2.07	0.07	14.6	0.594	0.8	3.9	140	4.2
BB38079	106	0.002	0.04	0.66	2	5.2	136.5	1.61	0.06	10.3	0.511	0.58	2.7	122	3.9
BB38080	136	0.002	0.48	0.23	2	3.2	168	1.03	0.1	33.5	0.406	0.8	7	83	2

Comments: REE's may not be totally soluble in MS61 method.



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CERTIFICATE OF ANALYSIS VA04039300

Method Analyte Units LOR	ME-MS61 Y ppm 0.1	ME-MS61 Zn ppm 2	ME-MS61 Zr ppm 0.5
Sample Description			
BB38041	15.2	54	38.4
BB38042	10.8	53	125.5
BB38043	13.8	59	60.2
BB38044	8	46	143.5
BB38045	19.4	60	67.7
BB38046	27.2	84	53.3
BB38047	26.2	94	35.3
BB38048	48.8	114	32.4
BB38049	13.2	60	30
BB38050	30	92	40.2
BB38051	19.5	126	17.8
BB38052	18.8	90	54.4
BB38053	9	49	143
BB38054	22.4	74	44.5
BB38055	7.7	60	98.3
BB38056	39.8	118	46.1
BB38057	17.6	74	92.4
BB38058	21.1	62	51.3
BB38059	16.4	91	20.6
BB38060	21.6	101	31.2
BB38061	27.3	86	44.1
BB38062	18	133	70.3
BB38063	16.6	136	72.4
BB38064	14.9	119	64.7
BB38065	14.2	69	48.9
BB38066	17	91	30.5
BB38067	33.9	104	55.7
BB38068	40.8	98	47
BB38069	22.6	71	51.9
BB38070	15.6	94	27.5
BB38071	15.4	116	35.9
BB38072	7.8	44	122
BB38073	18.6	75	35.1
BB38074	14.1	67	41.3
BB38075	20.2	91	48
BB38076	13.2	69	57
BB38077	14.6	75	31.3
BB38078	26	88	56.7
BB38079	17.1	73	38.5
BB38080	16.4	68	27.6

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CERTIFICATE OF ANALYSIS VA04039300

Method Analyte Units LOR	WEI-21 Recvd Wt. kg 0.02	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01
Sample Description															
BB38081	0.16	0.3	8.42	2.3	1020	2.53	1.1	0.36	0.37	113	7	68	18.2	31.6	3.07
BB38082	0.22	0.22	9.71	1.3	940	4.05	1.18	0.69	0.11	235	10.4	90	22	46	5.02
BB38083	0.18	0.34	6.78	8.8	770	3.71	1.8	0.55	0.3	75.6	12.3	67	14.45	28	3.88
BB38084	0.16	0.19	10.55	2.8	950	4.36	0.92	0.52	0.15	123.5	12.6	94	17.6	53.2	5.47
BB38085	0.28	0.2	10.85	0.9	760	4.2	1.02	0.52	0.06	342	10.8	85	21.4	50.1	5.65
BB38086	0.22	0.16	8.12	2.7	680	3.75	0.68	0.7	0.13	176	12.8	66	13.45	31.2	3.95
BB38087	0.26	0.12	8.64	2.3	610	3.67	0.77	0.44	0.04	203	7.1	64	17.45	25.5	3.55
BB38088	0.26	0.11	7.66	1.1	740	1.29	0.14	2.12	0.04	33	8.2	6	1.35	20.5	2.14
BB38089	0.26	0.38	9.19	0.6	730	4.42	1.08	0.51	0.15	145.5	20.4	79	24.1	47.8	4.6
BB38090	0.30	0.13	7.94	2.6	680	4.15	0.7	2.66	0.3	80	19	52	7.51	26.7	6.19
BB38091	0.24	0.16	7.41	3.8	750	3.32	0.87	1.84	0.22	97.1	15.2	77	8.69	23	4.44
BB38092	0.24	0.19	7.87	2.5	640	3.86	0.8	1.78	0.27	118.5	13.4	64	9.3	25.5	4.44
BB38093	0.28	0.26	7.73	1	780	1.58	0.35	1.82	0.08	40.1	7.3	12	3.7	21.5	2.02
BB38094	0.26	0.15	8.65	1.1	630	2.92	0.59	0.89	0.19	156	11.8	71	13.9	43.8	4.15
BB38095	0.30	0.1	10.25	1	680	3.61	0.89	0.39	0.06	281	8.3	77	18.15	34.1	4.32
BB38096	0.28	0.17	10	0.8	660	3.44	0.82	0.39	0.04	346	6.5	79	27.5	41.6	5.03
BB38097	0.36	0.19	9.73	2	740	3.82	1.07	0.38	0.09	156	14.2	82	25.9	43.6	5.04
BB38098	0.22	0.13	8.92	1.3	860	3.29	0.9	0.53	0.07	193.5	4.9	100	17.45	53.1	4.27
BB38099	0.24	0.29	8.92	2.3	820	3.09	0.83	0.55	0.07	170.5	12.6	81	22.9	33	3.21
BB38100	0.20	0.51	7.12	2	590	3.08	0.94	1.24	0.14	133.5	23.2	105	28.1	39	5.15
BB38101	0.22	0.13	6.87	5.4	790	3.25	0.86	1.66	0.31	84.7	13.2	60	7.04	22.1	4.12
BB38102	0.28	0.11	7.11	2	730	3.31	1.44	1.43	0.12	66.4	7	67	6.13	16.8	2.74
BB38103	0.26	0.21	8.84	6.3	500	4.24	0.98	0.92	0.15	163	13.8	71	12.95	31.4	4.32
BB38104	0.22	0.79	8.21	4.1	690	4.11	1.62	0.62	0.14	112	15.7	65	21	40.3	4.33
BB38105	0.26	0.12	11.3	1.4	700	3.59	0.73	0.35	0.07	254	11.3	93	10.8	48	4.96
BB38106	0.28	0.11	10.05	<0.2	650	3.68	0.46	0.49	0.03	277	5.6	74	14.5	28.35	3.98
BB38107	0.30	0.3	9.29	0.8	690	3.96	1.94	0.4	0.05	346	7.1	77	26.9	90.9	6.11
BB38108	0.28	0.23	9.74	0.8	600	3.19	1.16	0.24	0.03	207	6.4	81	15.35	108.5	6.13
BB38109	0.22	0.28	10.5	0.7	840	7.52	1.34	0.23	0.1	257	10.2	88	55.8	22.1	4.73
BB38110	0.12	0.18	6.84	0.5	800	1.41	0.16	1.52	0.22	34.3	4.7	5	2.17	23.4	1.39
BB38111	0.12	0.24	7.13	1.5	780	1.59	0.17	1.62	0.08	36.4	7.1	7	3.42	23.7	1.72
BB38112	0.26	0.18	7.19	10.3	770	3.05	0.63	1.99	0.27	72.9	15.4	55	6.72	22.3	4.34
BB38113	0.14	0.14	7.97	0.9	750	1.3	0.18	2.44	0.12	35	9.7	12	1.69	21.9	2.47
BB38114	0.20	0.28	8.09	1.7	750	3.12	0.6	0.66	0.23	135	12.2	66	11.85	31.6	3.93
BB38115	0.16	0.32	6.04	2	660	3.01	0.62	0.64	0.25	77.7	8.8	52	12.3	30.2	3.17
BB38116	0.16	0.18	6.59	2.6	600	2.44	0.79	0.51	0.1	72.5	7.9	62	10.7	22.8	3.53
BB38117	0.18	0.11	10.6	1	520	5.53	0.68	0.52	0.13	297	8.3	81	23.8	31	4.86
BB38118	0.16	0.4	8.34	2.4	740	2.37	1.06	0.45	0.12	177.5	5.3	72	19.05	36.2	4.15
BB38119	0.22	0.14	9.19	1.1	420	3.13	1.4	0.54	0.02	278	7.3	67	19.85	29.7	3.25
BB38120	0.16	0.62	8.49	1.7	840	3.8	0.7	0.69	0.12	182.5	5.1	74	10.05	24.95	2.69

Comments: REE's may not be totally soluble in MS61 method.



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Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
Analyte	Ga	Ge	Hf	In	K	La	Li	Mg	Mn	Mo	Na	Nb	Ni	P	Pb
Units	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm	ppm	%	ppm	ppm	ppm	ppm
LOR	0.05	0.05	0.1	0.005	0.01	0.5	0.2	0.01	5	0.05	0.01	0.1	0.2	10	0.5
Sample Description															
BB38081	25.8	0.23	1.3	0.064	2.76	62	46.4	0.53	192	3.62	0.73	18.8	26.3	1020	20.3
BB38082	27.9	0.45	1.3	0.078	3.37	125	78.4	1.1	588	2.61	0.91	22.3	27.6	750	26.3
BB38083	21.9	0.23	1.9	0.079	1.72	38	60	0.88	446	2.64	0.84	19.7	25.35	2560	15.7
BB38084	28.3	0.26	0.8	0.073	3.66	68	124	1.2	608	2.39	0.7	18.4	32.7	940	29.4
BB38085	32	0.59	1.6	0.077	3.41	176	116.5	1.3	506	2.5	0.86	22.2	22.9	1060	39.2
BB38086	22.3	0.32	1.2	0.06	2.43	90.1	75.4	0.91	417	1.56	1.08	17	28.6	540	23.6
BB38087	27.9	0.4	1.5	0.055	2.25	107.5	71.5	0.64	391	1.34	0.83	18.6	20.9	590	30.3
BB38088	17.75	0.13	4.1	0.021	1.96	18.1	17	0.78	405	1.36	2.55	5.4	5.6	520	8.7
BB38089	28.3	0.36	1.2	0.069	2.55	83.4	86.2	0.95	511	2.27	0.74	19.4	38.6	960	35.6
BB38090	25.6	0.27	1.6	0.116	1.82	38.4	59.3	1.88	1055	1.44	2.01	34.9	22.3	1680	12.5
BB38091	20.5	0.27	1.9	0.078	1.83	50.3	44.5	1.45	766	1.94	1.58	26.4	25.3	1230	15.2
BB38092	23	0.29	1.6	0.081	2	60	50.5	1.32	759	1.26	1.68	27.3	22	830	17.9
BB38093	18.25	0.16	3.8	0.023	2	23	22.7	0.65	407	1.88	2.36	6.6	8.3	990	9.7
BB38094	25.2	0.32	1.7	0.053	2.11	85	57.2	1.05	602	1.62	1.13	16	31.7	1080	26.9
BB38095	32.5	0.5	1.2	0.065	2.54	145.5	77.2	1.02	395	2.16	0.85	20.9	16.4	730	38.9
BB38096	34.3	0.61	2.2	0.069	3.08	173.5	67.2	1.23	354	2.41	0.8	23.7	10.8	720	38.8
BB38097	26.7	0.33	1.1	0.061	2.68	79.7	91.4	0.75	422	2.6	0.7	17.5	38.8	840	35.5
BB38098	27.8	0.46	1.5	0.065	3.29	95.9	111.5	0.96	365	1.86	1	17.4	13.1	740	43.2
BB38099	29.6	0.35	1.7	0.059	2.46	92.2	49.8	0.62	431	1.22	0.87	23	23.8	670	31.1
BB38100	24.7	0.34	1	0.071	1.74	73.6	43.3	1.5	1050	1.53	0.81	68.1	57.4	790	28.4
BB38101	20.7	0.28	2.2	0.085	1.82	44.5	47.5	1.2	683	1.5	1.58	26.5	21.6	1500	14.4
BB38102	23.7	0.21	2.1	0.068	2.06	33.7	29.6	0.72	470	1.32	2.03	26.2	14	520	15.5
BB38103	26	0.35	1.1	0.061	1.42	87.1	72.5	1.3	528	2.9	1.05	14.6	36.8	1290	22.7
BB38104	23.8	0.28	1.3	0.064	1.94	60.4	79.2	1.02	543	3.24	0.67	14.2	33.9	1660	20
BB38105	32.5	0.55	0.9	0.063	2.74	135.5	73	1.25	860	1.18	0.62	17.2	19.3	670	41.5
BB38106	31.8	0.57	0.8	0.063	2.38	148.5	128.5	1.26	174	1	1.12	12	14.6	500	28.4
BB38107	31.1	0.65	1.2	0.082	3.5	180	107.5	1.38	489	4.46	0.89	23.3	11.7	880	35.1
BB38108	28.6	0.44	0.8	0.061	3.04	113	79.2	1.1	522	3.75	0.52	20.1	10.3	750	43.3
BB38109	33.7	0.56	2.1	0.079	4.24	147	276	1.14	600	1.74	0.57	24.9	19.8	850	26.6
BB38110	15.85	0.14	4	0.02	2.07	20.1	19.9	0.42	341	1.52	2.35	5.5	5.5	690	9.9
BB38111	17.1	0.14	4.2	0.013	2.05	20	21	0.51	396	1.66	2.41	6.2	6.6	850	10.5
BB38112	21.2	0.25	2	0.089	1.82	36.3	50.7	1.39	743	1.42	1.83	26.8	23.1	1260	13.5
BB38113	19.75	0.19	4.2	0.028	1.9	20.8	18.5	0.95	495	1.54	2.6	6.6	8.7	690	9.8
BB38114	24.6	0.35	1	0.06	2.07	77.7	50.8	1.08	592	2.07	0.8	16.8	23.1	1590	24
BB38115	16.75	0.21	1.9	0.043	1.54	43.3	36.8	0.48	361	2.22	0.93	14.1	30.8	3340	15.4
BB38116	22.1	0.25	1.5	0.063	1.66	40.4	38.2	0.6	369	1.48	0.71	18	17.4	3210	21.1
BB38117	30.1	0.59	1	0.055	2.39	157	151.5	1.63	260	1.78	1.12	11.8	22.4	790	29
BB38118	29.3	0.34	1.6	0.063	2.34	90	37.2	0.74	282	3.02	0.75	21.9	13.2	750	36.6
BB38119	26.8	0.57	1.3	0.049	2.03	149.5	71.6	1.07	252	1.14	1.12	12	25.2	480	49.3
BB38120	29.3	0.41	1.8	0.07	2.61	99.7	38.5	0.39	261	2.75	0.93	21	15.8	610	25.8

Comments: REE's may not be totally soluble in MS61 method.



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CERTIFICATE OF ANALYSIS VA04039300

Method Analyte Units LOR	ME-MS61 Rb ppm 0.1	ME-MS61 Re ppm 0.002	ME-MS61 S % 0.01	ME-MS61 Sb ppm 0.05	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.2	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1	ME-MS61 W ppm 0.1
Sample Description															
BB38081	167.5	0.002	0.17	0.4	2	5	116	1.55	0.1	22.3	0.46	0.86	4.9	102	4.1
BB38082	221	0.002	0.31	0.27	2	7.9	161.5	1.82	0.08	39.9	0.615	1.28	8.4	110	5.1
BB38083	121	0.002	0.14	0.97	2	5.5	103	1.51	0.08	17.6	0.439	0.69	6.2	122	3
BB38084	219	<0.002	0.34	0.19	2	4.5	152.5	1.65	0.13	23.2	0.548	1.37	8.2	107	4
BB38085	226	0.002	0.23	0.26	3	5.3	176.5	2.22	0.07	64.6	0.568	1.45	12.3	110	2.5
BB38086	155.5	0.002	0.07	0.44	2	4.7	128.5	1.55	0.07	32.6	0.451	0.85	5.9	94	2.2
BB38087	149.5	<0.002	0.05	0.31	2	4.9	129.5	2.09	0.06	42.4	0.514	0.83	7.2	106	2.1
BB38088	45.5	<0.002	0.01	0.41	1	0.8	640	0.44	<0.05	4.9	0.287	0.25	2.2	61	0.5
BB38089	185.5	<0.002	0.07	0.35	2	5.3	121.5	1.55	0.11	28.7	0.487	1.08	6.1	103	2.7
BB38090	97.6	<0.002	0.03	0.41	3	8.3	151.5	2.32	0.05	11.7	1.095	0.51	3.1	180	2.6
BB38091	110	0.002	0.06	0.54	2	6.9	132	1.99	<0.05	16.7	0.764	0.52	4.3	142	2.5
BB38092	114	0.002	0.07	0.36	3	7.4	146	2.2	0.06	21.1	0.859	0.58	4.4	128	2.8
BB38093	52.8	0.002	0.06	0.46	1	1.3	567	0.53	<0.05	7.2	0.264	0.36	5	54	0.9
BB38094	139	<0.002	0.1	0.17	2	2.8	251	1.39	0.08	28.3	0.5	0.72	8.5	82	1.5
BB38095	160	0.002	0.15	0.2	2	5.6	176.5	1.75	0.08	51.6	0.572	0.9	9.5	127	2
BB38096	219	0.002	0.43	0.12	3	4.3	140.5	2.22	0.07	69.8	0.624	1.4	11.8	100	1.9
BB38097	163.5	0.002	0.15	0.3	2	4.4	112	1.58	0.1	30.1	0.524	1.06	6.8	106	2.1
BB38098	175.5	<0.002	0.38	0.24	2	4.7	153	1.46	0.14	35.8	0.56	0.86	6.4	98	2.2
BB38099	159.5	<0.002	0.02	0.49	2	5.7	144	1.87	0.08	31.2	0.585	0.92	6	109	2.5
BB38100	148	0.002	0.04	0.37	2	5.1	145	4.86	0.06	21.9	1.535	0.85	4.5	145	2
BB38101	93.6	<0.002	0.04	0.76	3	6.2	145	2.08	0.05	14.1	0.713	0.52	3.4	133	1.9
BB38102	91.9	<0.002	0.02	0.38	2	8.5	132.5	2.37	0.05	14.3	0.616	0.47	2.7	101	3.4
BB38103	95.8	0.002	0.07	0.39	2	3.4	163.5	1.18	0.08	33.4	0.422	0.64	9.7	94	2.3
BB38104	138.5	<0.002	0.19	0.33	2	4.2	157.5	1.09	0.08	21.4	0.386	0.85	10.1	90	3.2
BB38105	179.5	0.003	0.16	0.16	2	3.2	179	1.37	0.16	43	0.55	1.12	8.5	97	1.5
BB38106	138.5	<0.002	0.39	0.13	2	4	335	1.04	0.08	52.7	0.445	0.67	9.4	101	1
BB38107	268	0.002	0.6	0.14	3	5.8	163.5	2	0.14	61.2	0.569	1.69	11.3	96	3.4
BB38108	194	<0.002	0.23	0.17	3	2.9	134	1.73	0.26	38.3	0.556	1.15	7.3	87	1.3
BB38109	348	0.002	0.04	0.26	3	12.7	94	8.65	0.11	53.1	0.598	2.08	8.6	106	6.5
BB38110	57.5	<0.002	0.02	0.48	1	1	514	0.58	<0.05	5.8	0.183	0.29	2.6	30	0.6
BB38111	59.9	0.003	0.04	0.48	1	1.4	531	0.68	<0.05	6.2	0.213	0.31	3	38	0.7
BB38112	92.8	0.002	0.02	0.53	3	6	154.5	2.16	0.05	12.7	0.762	0.46	3.4	140	2.3
BB38113	51	0.002	0.03	0.5	2	1.2	691	0.52	0.05	5.8	0.331	0.28	2.4	76	0.7
BB38114	135.5	0.002	0.18	0.4	2	4	143	1.34	0.08	24.6	0.425	0.71	6.1	89	2.1
BB38115	105	<0.002	0.19	0.58	2	4.1	149	1.4	0.05	17.6	0.354	0.53	7.5	82	2.2
BB38116	111.5	<0.002	0.11	0.49	3	5.2	87.2	1.55	0.06	14.3	0.44	0.58	8.6	92	2.2
BB38117	197.5	<0.002	0.27	0.11	3	4.7	301	1.11	0.06	58.9	0.466	1.14	11	104	1.1
BB38118	137.5	0.002	0.17	0.55	2	4.8	126.5	2.01	0.09	33.4	0.581	0.9	5.8	131	2.2
BB38119	173.5	<0.002	0.07	0.23	3	3.4	171	1.05	0.09	54.6	0.426	0.77	9.7	94	1.3
BB38120	136	<0.002	0.03	0.67	3	9.3	143.5	2.78	0.1	33.3	0.547	0.76	5.4	113	3.9

Comments: REE's may not be totally soluble in MS61 method.



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Project: Sparkle

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CERTIFICATE OF ANALYSIS VA04039300

Sample Description	Method Analyte Units LOR	ME-MS61	ME-MS61	ME-MS61
		Y	Zn	Zr
		ppm 0.1	ppm 2	ppm 0.5
BB38081		12.4	51	40.6
BB38082		20.7	85	37.6
BB38083		17	84	56.2
BB38084		13.2	107	21.4
BB38085		21.8	101	44.7
BB38086		17.6	76	31.6
BB38087		15.7	63	40.5
BB38088		8.2	46	123.5
BB38089		14	85	36.3
BB38090		49.8	117	43.2
BB38091		31.9	87	47.5
BB38092		34.1	77	41.8
BB38093		10.4	48	118.5
BB38094		16.7	84	49
BB38095		17.7	64	36.1
BB38096		22.3	93	62.7
BB38097		14.2	90	30.3
BB38098		14.4	72	34.6
BB38099		14.2	57	50.4
BB38100		18.8	75	26.7
BB38101		36.8	89	56
BB38102		22	59	57.6
BB38103		18.3	81	32.7
BB38104		17.6	81	37
BB38105		14.5	90	27.7
BB38106		18	54	21.9
BB38107		20	99	35.7
BB38108		13.4	88	21.7
BB38109		16.8	94	31.2
BB38110		7.9	43	125
BB38111		8.4	45	123.5
BB38112		34.6	104	48.8
BB38113		9.9	52	118
BB38114		14.8	71	29.1
BB38115		14	52	52
BB38116		13.2	46	38
BB38117		19.8	72	24
BB38118		12.6	53	46.1
BB38119		21.7	52	37
BB38120		14.2	36	55.5

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CERTIFICATE OF ANALYSIS VA04039300

Sample Description	Method Analyte Units LOR	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
		Ga	Ge	Hf	In	K	La	Li	Mg	Mn	Mo	Na	Nb	Ni	P
		ppm 0.05	ppm 0.05	ppm 0.1	ppm 0.005	% 0.01	ppm 0.5	ppm 0.2	% 0.01	ppm 5	ppm 0.05	% 0.01	ppm 0.1	ppm 0.2	ppm 10
BB38121		31.3	0.43	1.7	0.068	2.79	111.5	80	0.84	447	2.08	0.97	22.1	23.3	540
BB38122		24	0.4	1.5	0.058	2.18	108.5	83.2	0.94	538	1.64	0.92	17.1	33.1	1130
BB38123		17.25	0.16	4.4	0.017	2.02	23.1	17.1	0.67	387	1.48	2.53	5.6	5.3	650
BB38124		19.8	0.34	1.7	0.06	1.9	64	45.4	1.13	561	1.62	1.36	22.1	26.25	890
BB38125		24.9	0.31	1.5	0.051	2.18	81	51.1	1.08	462	1.78	1.06	18.7	29.3	960
BB38126		25.5	0.36	1.8	0.065	2.55	84.5	51.8	0.66	417	2.63	0.81	21.6	24.2	530
BB38127		25.2	0.39	1.8	0.054	1.82	77	52.1	0.66	366	1.35	1.05	17.1	26	780
BB38128		31.1	0.43	2	0.074	3.48	129.5	109.5	0.7	307	2.62	0.66	23.4	17.4	770
BB38129		33.3	0.43	1.3	0.051	2.44	108	87.8	1.06	228	1.86	1.16	19.1	23.2	540
BB38130		29.8	0.46	1.5	0.069	2.92	136	60.4	0.85	359	1.94	0.76	21.7	16.2	520
BB38131		30.4	0.44	1.2	0.072	2.8	103.5	91.5	1	358	1.05	0.66	20.8	23.85	830
BB38132		18.85	0.2	3.6	0.031	1.7	20.8	15.7	1.14	445	1.18	2.36	6.1	9.9	430
BB38133		27.2	0.34	1.7	0.051	1.99	76.4	34.1	0.54	469	1.54	1.1	21.4	21.2	800
BB38134		22.5	0.36	1.6	0.088	1.94	71.7	61.2	1.43	730	1.22	1.76	28.7	29.3	1230
BB38135		14	0.19	1.5	0.045	1.07	33.9	22.3	0.42	162	1.4	0.63	11.4	17.4	2650
BB38136		24.6	0.37	1.6	0.055	1.81	91.9	21.5	0.53	281	2.27	0.69	19.4	19.6	2070
BB38137		18.55	0.23	1.9	0.039	1.83	47.7	47.6	0.49	287	1.26	1.3	13	14.4	1950
BB38138		22.1	0.41	1.5	0.055	2.16	88.9	53.6	0.81	455	1.26	1.2	19.5	24.3	740
BB38139		28.8	0.49	1.1	0.07	3.2	134	79	0.98	318	1.3	0.78	20	13.2	600
BB38140		27.4	0.45	2	0.055	2.64	106	72	0.79	334	3.63	1.18	19.2	17.2	690
BB38141		31.8	0.88	1.1	0.069	2.94	255	72.8	1.25	284	2.45	0.89	19.6	15.5	780
BB38142		34	0.53	1.3	0.071	3.13	123	109	0.89	419	1.2	0.93	22.8	17.8	570
BB38143		33	0.48	1.5	0.074	2.83	119.5	138.5	1.06	555	0.76	0.87	21.8	21.1	480
BB38144		33.6	0.38	1.2	0.074	2.79	75.6	97.9	0.87	1175	1.24	0.82	22.5	30.6	1220
BB38145		19	0.23	1.7	0.034	1.23	38.1	27.9	1	345	1.46	1.38	7.8	17.2	1680
BB38146		26.9	0.33	1.7	0.059	3.02	72	57.7	0.77	350	2.5	0.98	22.8	24.4	750
BB38147		35	0.48	2.1	0.072	3.25	111	69.5	0.94	665	2.4	1.06	24.7	25.4	660
BB38148		34.3	0.47	1.3	0.078	3.61	100	84.8	1.1	470	1.74	0.91	23.1	28.3	590
BB38149		36	1.01	1.7	0.065	3.51	261	70.1	1.74	334	2.87	1.31	21.7	25.9	820
BB38150		31	0.51	0.9	0.064	3.07	113	68.1	1.3	435	2.91	0.91	19	15.9	720

Comments: REE's may not be totally soluble in MS61 method.



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CERTIFICATE OF ANALYSIS VA04039300

Sample Description	Method Analyte Units LOR	ME-MS61 Rb ppm 0.1	ME-MS61 Re ppm 0.002	ME-MS61 S % 0.01	ME-MS61 Sb ppm 0.05	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.2	ME-MS61 Ti % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1	ME-MS61 W ppm 0.1
BB38121		201	<0.002	0.06	0.46	3	7.7	159	2.14	0.08	38.6	0.519	1.04	7	105	3.2
BB38122		141	<0.002	0.1	0.3	2	4.4	129	1.77	0.05	36.5	0.455	0.73	7.7	90	2
BB38123		49.9	<0.002	0.03	0.43	1	0.9	606	0.47	<0.05	6.2	0.264	0.24	2.5	53	0.6
BB38124		109.5	<0.002	0.06	0.62	2	5.4	137	1.77	0.06	22	0.587	0.52	4.3	123	2.4
BB38125		141	<0.002	0.09	0.37	2	5.8	151	1.8	0.07	31.9	0.476	0.8	5.5	95	2.1
BB38126		150.5	<0.002	0.06	0.81	2	5.4	126	1.7	0.1	28.5	0.52	0.84	5.5	136	3
BB38127		121	<0.002	0.05	0.46	2	5.3	179.5	1.49	0.06	25.5	0.489	0.68	5.2	95	2
BB38128		217	<0.002	0.15	0.38	3	8.5	130	2.18	0.15	46.9	0.536	1.2	9.7	116	5.1
BB38129		198.5	<0.002	0.24	0.26	2	5.2	152.5	1.7	0.07	46.2	0.525	1.08	7.3	114	1.9
BB38130		211	<0.002	0.13	0.28	2	4.4	152.5	1.77	0.07	49.9	0.529	1.25	7.3	102	2.4
BB38131		188	<0.002	0.12	0.36	2	4.3	127.5	1.61	0.1	33.4	0.554	1.13	6.4	101	1.8
BB38132		42.5	0.002	0.02	0.36	2	1.4	660	0.82	0.07	6.2	0.432	0.24	2.1	112	0.6
BB38133		134	<0.002	0.05	0.64	2	6.9	140	2.08	0.09	29.5	0.522	0.76	4.7	117	2.8
BB38134		123	<0.002	0.02	0.4	3	7.8	133	2.23	0.05	25.9	0.741	0.56	4	120	3.3
BB38135		66.3	<0.002	0.17	0.55	2	3.2	103.5	1.03	<0.05	10.1	0.294	0.39	4.6	74	1.5
BB38136		120.5	<0.002	0.1	0.61	3	3.6	111.5	1.59	0.07	31.9	0.479	0.6	6.3	105	2
BB38137		83	<0.002	0.11	0.34	2	2.6	236	1.02	<0.05	18.7	0.323	0.49	4.7	65	1.3
BB38138		160.5	<0.002	0.07	0.41	2	5.9	154.5	1.84	0.05	31	0.462	0.65	5	88	2.4
BB38139		198.5	<0.002	0.26	0.17	2	5	125.5	1.86	0.05	48.5	0.522	1.12	8.7	101	2.8
BB38140		150.5	<0.002	0.42	0.34	2	4.4	226	1.63	0.05	41.6	0.512	0.98	7.7	107	2
BB38141		203	<0.002	0.35	0.11	4	4.1	209	1.92	0.09	88.2	0.501	1.13	15.1	104	1.8
BB38142		227	<0.002	0.09	0.22	2	8.1	180.5	2.07	0.05	48.8	0.609	1.38	7.7	113	1.9
BB38143		239	<0.002	0.15	0.19	2	3.8	166.5	1.88	0.07	47.9	0.583	1.2	6.8	103	1.3
BB38144		266	<0.002	0.06	0.33	1	8	125	2.12	<0.05	28.6	0.585	0.92	5.7	112	5.2
BB38145		56.4	<0.002	0.15	0.28	1	1.9	306	0.6	<0.05	13.6	0.316	0.29	4.5	76	0.8
BB38146		171	<0.002	0.15	0.6	1	5	129	1.67	<0.05	27.7	0.525	0.8	5.2	124	2.7
BB38147		221	<0.002	0.22	0.47	1	6.9	151	1.96	0.07	38.3	0.629	1	7.6	122	4.6
BB38148		249	<0.002	0.19	0.29	1	8.1	140	2.11	0.07	36.2	0.613	1.19	6.5	116	4.3
BB38149		276	<0.002	0.1	0.16	3	6.9	189	2.02	0.06	103.5	0.644	1.42	17.8	121	3.7
BB38150		234	<0.002	0.56	0.11	1	5.4	184	1.64	0.06	41.7	0.514	1.15	8.1	98	1.7

Comments: REE's may not be totally soluble in MS61 method.



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CERTIFICATE OF ANALYSIS VA04039300

Sample Description	Method Analyte Units LOR	ME-MS61	ME-MS61	ME-MS61
		Y	Zn	Zr
		ppm	ppm	ppm
		0.1	2	0.5
BB38121		16	66	46.9
BB38122		17.3	75	37.4
BB38123		9.2	47	128.5
BB38124		22.4	73	42.6
BB38125		15.8	71	42.7
BB38126		13.2	58	49.5
BB38127		13.1	56	52
BB38128		17.8	61	53.1
BB38129		13.2	60	35
BB38130		15.9	69	44.2
BB38131		13	72	37.2
BB38132		9.7	55	102
BB38133		15	51	50.6
BB38134		35	74	40
BB38135		14.4	33	38.7
BB38136		15.8	45	45.5
BB38137		10.6	43	61.4
BB38138		17.6	62	40.9
BB38139		17.2	73	30.7
BB38140		15	60	59.1
BB38141		27.4	76	30.2
BB38142		12.4	84	35.9
BB38143		14.7	104	40.9
BB38144		14.2	114	33.6
BB38145		11.6	47	48.6
BB38146		13.6	71	46
BB38147		14.8	87	58.5
BB38148		16.2	90	33.6
BB38149		37.3	101	45.8
BB38150		14.2	96	24.6

Comments: REE's may not be totally soluble in MS61 method.



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ALS Canada Ltd.
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Phone: 604 984 0221 Fax: 604 984 0218



To: EP
C/O ARCHER, CATHRO & ASSOCIATES (1981)
LIMITED
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VANCOUVER BC V6B 1L8



Page: 1
10-JUL-2004
Account: EMP

CERTIFICATE VA04039301

Project: Sparkle

P.O. No.:

This report is for 178 Soil samples submitted to our lab in Vancouver, BC, Canada on 23-JUN-2004.

The following have access to data associated with this certificate:

AL ARCHER
JOAN MARIACHER

ROB CARNE
VANCOUVER OFFICE

DOUG EATON
BILL WENGZYNOWSKI

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
LOG-22	Sample login - Rcd w/o BarCode
SCR-41	Screen to -180um and save both

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION
ME-MS61	47 element four acid ICP-MS

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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.

Signature:



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Project: Sparkle



Page: 2 - A

Total Pages: 6 (A - D)

Date: 10-JUL-2004

Account: EMP

CERTIFICATE OF ANALYSIS VA04039301

Sample Description	Method Analyte Units LOR	WEI-21 Recvd Wt. kg 0.02	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01
BB38151		0.20	0.22	11.45	<0.2	870	4.53	0.59	0.41	0.06	338	8.4	98	29.7	40.7	5.86
BB38152		0.22	0.2	9.56	2.1	740	3.22	1.04	0.47	0.06	169.5	8	77	20.5	36.7	5.77
BB38153		0.20	0.29	10	2.3	720	4.16	0.68	0.52	0.07	186	12	90	15.6	44.5	6.48
BB38154		0.18	0.16	6.89	4.4	660	3.39	1.54	0.72	0.4	84.2	10.2	64	8.31	22.3	3.84
BB38155		0.26	0.09	6.58	2.9	640	3.19	1.02	1.3	0.16	86	8.6	72	11.15	12.8	2.93
BB38156		0.24	0.04	9.05	2.4	500	3.7	0.53	0.9	0.07	165.5	9	65	7.16	29.8	3.98
BB38157		0.16	0.27	8.18	3.3	720	5.08	5.1	0.53	0.29	115	15.4	85	22.9	48.8	4.43
BB38158		0.32	0.19	8.39	5.1	720	5.28	5.65	0.48	0.22	146	17.2	85	26.4	52.1	4.58
BB38159		0.16	0.18	11.35	1.3	920	6.42	1.86	0.27	0.05	333	10.2	98	34.8	52	5.83
BB38160		0.22	0.14	9.64	<0.2	450	4.55	0.47	0.48	0.05	215	7.8	74	15.05	16.7	3.69
BB38161		0.26	0.18	10.15	0.2	650	4.39	0.93	0.49	0.05	320	7.8	70	16.35	45.8	5.53
BB38162		0.10	0.32	9.36	0.6	580	3.77	0.76	0.38	0.1	199.5	6.6	66	12.5	42.7	5
BB38163		0.20	0.22	10.7	<0.2	860	4.21	1.06	0.44	0.08	>500	9.4	83	24.3	40.5	5.28
BB38164		0.24	0.35	9.68	0.9	850	3.34	0.97	0.4	0.04	236	5	74	17.75	19.4	2.59
BB38165		0.16	0.43	6.42	2.1	660	4.57	1.28	0.71	1.82	108.5	30.7	67	13.8	56.9	3.5
BB38166		0.20	0.2	11.8	1.7	590	5.31	0.52	0.39	0.19	273	23.1	101	17.35	37.5	5.76
BB38167		0.14	0.57	8.32	4.5	540	7.86	7.75	0.6	0.31	72.4	14.8	73	28.7	102	4.97
BB38168		0.22	0.09	7.65	3.6	500	4.58	5.29	2.49	0.18	78.9	16	81	11.45	18	4.22
BB38169		0.28	0.17	9.98	12	380	9.9	5.5	0.44	0.12	168	3.4	21	29.4	17.6	2.98
BB38170		0.16	0.21	8.37	1.7	260	4.38	4.25	5.18	0.34	51.6	32.3	191	21.3	24.2	6.44
BB38171		0.18	0.26	7.82	5.5	230	2.21	7.35	5.47	0.41	27.7	40	224	8.19	44.9	6.71
BB38172		0.14	0.34	9.29	10	480	8.56	8.15	0.92	0.21	192	2.6	18	8.1	24	2.04
BB38173		0.16	0.62	6.85	2.3	490	4.78	33.5	0.42	0.61	148.5	2.3	28	18.1	54	2.01
BB38174		0.14	1.72	1.75	1.2	200	2.51	19.1	0.21	1.1	34.5	1.4	12	3.76	42.5	0.93
BB38175		0.14	0.44	5.43	0.7	490	2.47	3.21	1.2	2.58	47	6.8	20	4.42	34.4	2.1
BB38176		0.22	0.08	7.16	2.4	570	3.62	2.02	2.17	0.28	70.1	13.1	42	5.98	17.2	4.89
BB38177		0.22	0.22	6.88	2	290	2.76	1.04	4.3	0.44	67.8	28.6	75	3.52	32.9	8.35
BB38178		0.20	0.44	9.57	2.1	790	4.4	1.4	0.6	0.41	294	22.5	87	11.05	65.4	5.35
BB38179		0.14	0.48	6.38	9	630	3.95	36.5	0.57	0.55	103.5	8	47	22.5	26	3.31
BB38180		0.18	0.23	8.02	3.6	440	4.71	5.23	1.85	0.24	67.6	23.5	175	28.8	15.2	6.06
BB38181		0.18	0.68	7.06	8.8	460	5.08	8.32	0.34	1.14	83.7	4	36	35.4	23.9	3
BB38182		0.22	0.13	7	3	550	3.72	2.06	0.92	0.2	144	8.7	76	12.5	17.6	4.62
BB38183		0.20	0.49	6.4	18.6	480	6.03	8.69	0.6	1.1	105.5	6.8	34	14.85	22.6	2.38
BB38184		0.14	3.6	3.95	14.3	560	3.73	7.28	0.38	3.37	111	4.9	31	10.15	151	2.33
BB38185		0.28	0.11	8.49	29.4	350	5.33	0.7	0.19	0.15	117	1.5	10	15	9.7	1.32
BB38186		0.12	0.16	6.46	0.6	320	2.81	0.34	3.81	0.32	74.6	26.2	26	5.25	14.8	9.14
BB38187		0.16	0.14	5.83	0.5	290	2.64	0.37	3.61	0.3	65	24.7	31	4.66	11.4	8.51
BB38188		0.16	0.4	6.06	0.4	380	3.05	0.4	3.5	0.61	90.9	21.3	64	3.86	15.8	6.2
BB38189		0.20	0.19	6.37	0.2	300	2.71	0.34	3.73	0.32	57.5	22.75	27	4.39	13.7	9.22
BB38190		0.14	0.2	8.2	3	610	2.63	0.51	1.07	0.13	103.5	10.7	43	7.4	23.1	3.5

Comments: REE's may not be totally soluble in MS61 method.



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Project: Sparkle

Page: 2 - B

Total Pages: 6 (A - D)

Date: 10-JUL-2004

Account: EMP

CERTIFICATE OF ANALYSIS VA04039301

Sample Description	Method Analyte Units LOR	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
		Ga	Ge	Hf	In	K	La	Li	Mg	Mn	Mo	Na	Nb	Ni	P
		ppm 0.05	ppm 0.05	ppm 0.1	ppm 0.005	% 0.01	ppm 0.5	ppm 0.2	% 0.01	ppm 5	ppm 0.05	% 0.01	ppm 0.1	ppm 0.2	ppm 10
BB38151		38.8	0.67	1.2	0.082	4.25	174	116.5	1.48	457	1.92	0.79	25.2	19	870
BB38152		27.8	0.41	1.2	0.065	3	78.3	60	1.08	404	1.58	0.75	19.4	16.1	580
BB38153		29.2	0.46	1.3	0.07	2.68	89.8	74.9	1.02	496	1.56	0.81	21.9	21.4	540
BB38154		22.5	0.3	1.8	0.086	1.58	44	63.5	0.91	376	1.72	1.02	23.5	26	1980
BB38155		22	0.23	1.7	0.053	2.06	40.5	36.7	0.96	494	1.38	1.43	21.3	23.7	640
BB38156		26.7	0.41	0.9	0.044	1.6	78	37.9	1.2	429	1.84	1.29	14.8	22.8	660
BB38157		24.3	0.32	1.6	0.049	2.34	54.8	81.5	0.85	461	1.88	0.97	18.1	49.5	1520
BB38158		26.7	0.4	1.6	0.053	2.47	76	87.9	0.83	495	2.12	0.93	21.1	54.4	1240
BB38159		33.9	0.66	1.1	0.067	4.17	159.5	95.6	0.77	392	1.61	0.74	21.4	23.3	920
BB38160		28.4	0.42	1.1	0.052	1.87	97.5	87.6	1.9	176	0.73	1.44	11.8	33.4	560
BB38161		28.1	0.64	1.2	0.058	3.26	153	72.7	1.14	403	2.06	1	17.3	16.4	890
BB38162		25.6	0.45	0.7	0.058	2.65	98	53	1.04	319	1.79	0.68	15.8	14	1050
BB38163		39.5	1.14	1.1	0.082	3.85	308	76.7	0.99	289	2.46	1.01	24.4	18.9	1110
BB38164		35.4	0.46	1.9	0.071	2.81	122.5	37.2	0.55	231	1.8	0.83	24.5	12.4	500
BB38165		21.7	0.31	1.4	0.052	1.75	49.4	34.4	0.67	2140	1.54	0.98	18.8	39.2	2570
BB38166		32.9	0.56	0.5	0.065	2.32	132	86	1.1	1045	2.23	1	23	37.2	1210
BB38167		27.3	0.28	1	0.064	1.52	36.7	98.1	1.08	490	3.83	0.58	14.9	65.1	2620
BB38168		21.7	0.34	1.5	0.072	1.82	37.7	76.1	1.74	675	1.51	1.84	23.6	34.5	890
BB38169		40.7	0.41	1.8	0.042	2.99	79.4	85.9	1.04	330	4.74	1.59	45.8	7.2	590
BB38170		24.5	0.26	1.1	0.107	1.31	18.2	65.5	3.92	1055	1.24	1.5	24.4	66.8	950
BB38171		18.75	0.27	0.6	0.092	0.9	11.1	63.7	4.68	1080	1.36	1.32	10.9	107	520
BB38172		37.9	0.42	2.3	0.057	2.75	92.4	77.1	0.45	160	10.4	2.24	31.7	4.7	750
BB38173		21.9	0.34	1.6	0.042	2.18	68.2	46.8	0.33	127	9.43	1.39	22.5	8	1370
BB38174		3.81	0.2	0.4	0.024	0.25	18.4	6.7	0.1	85	3.53	0.13	3.4	9.6	3980
BB38175		15.1	0.22	2.1	0.037	1.26	26.8	21.6	0.59	285	2.13	1.38	8.9	11.8	2940
BB38176		22.9	0.32	1.7	0.085	1.78	31.9	40.2	1.38	836	1.35	2.11	30.2	15.8	960
BB38177		24.2	0.37	1.3	0.118	1.21	31.1	39.9	2.52	1420	1.5	1.77	36.5	33.5	2360
BB38178		32.7	0.63	0.7	0.075	1.74	150.5	52.1	0.88	725	3.67	1.34	28.9	47.9	2080
BB38179		23.8	0.25	2	0.047	1.8	49	51.4	0.55	397	4.58	0.95	27.2	17.5	1200
BB38180		22.6	0.1	1.9	0.075	1.73	23.9	121	2.55	821	1.65	0.73	20.5	62.5	1320
BB38181		21.1	0.08	1.8	0.058	1.44	41.6	104.5	0.41	174	9.5	0.58	16	16.7	2910
BB38182		21.7	0.14	1.7	0.072	1.86	70.5	59.2	0.92	527	1.42	1.06	21.6	24.5	1060
BB38183		20.9	0.11	2.5	0.04	2	52.6	60.2	0.41	562	3.14	1.39	25.9	12	3130
BB38184		13.15	0.14	1.5	0.062	0.89	69.6	24.4	0.25	208	3.19	0.47	13.2	27.3	5150
BB38185		26.4	0.13	1.4	0.039	3.72	59.1	65.4	0.32	100	2.67	0.48	22.1	3.3	620
BB38186		23.7	0.15	1.4	0.163	0.94	30.7	47.7	2.62	1795	1.17	1.89	35.6	12.3	3580
BB38187		22.5	0.15	1.4	0.153	0.82	29.7	33.6	2.43	1685	1.35	1.69	38.1	11.8	3610
BB38188		22.5	0.14	2.3	0.119	1.08	39.3	36.6	1.94	1040	1.94	1.76	45.8	24	1590
BB38189		24	0.14	1.3	0.158	0.86	27.1	33.3	2.55	1760	1.14	1.9	36.5	12.1	3120
BB38190		21.2	0.13	2.4	0.047	2.06	50.2	32.2	0.75	328	1.55	1.18	8.9	26.3	1300

Comments: REE's may not be totally soluble in MS61 method.



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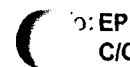
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Project: Sparkle

Page: 2 - C

Total Pages: 6 (A - D)

Date: 10-JUL-2004

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CERTIFICATE OF ANALYSIS VA04039301

Sample Description	Method Analyte Units LOR	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
		Rb	Re	S	Sb	Se	Sn	Sr	Ta	Te	Th	Ti	Ti	U	V
		ppm 0.1	ppm 0.002	% 0.01	ppm 0.05	ppm 1	ppm 0.2	ppm 0.2	ppm 0.05	ppm 0.05	ppm 0.2	% 0.005	ppm 0.02	ppm 0.1	ppm 1
BB38151		329	<0.002	0.41	0.14	2	6.4	148.5	2.03	0.07	65.4	0.652	1.7	12.3	132
BB38152		199.5	<0.002	0.22	0.33	1	5.3	112.5	1.83	0.07	29.8	0.547	0.96	6.1	110
BB38153		200	<0.002	0.14	0.47	1	4	165	1.65	0.06	32.3	0.595	1.15	6.3	112
BB38154		108.5	<0.002	0.08	0.87	1	7.1	101	1.94	<0.05	15.6	0.454	0.53	5.3	113
BB38155		145	<0.002	0.04	0.57	1	8.9	127	1.88	<0.05	17.1	0.532	0.56	3.1	108
BB38156		96.2	<0.002	0.03	0.2	1	3.1	169.5	1.17	0.05	29.8	0.424	0.49	5.5	93
BB38157		187.5	<0.002	0.1	0.54	1	7.8	149.5	2.27	0.09	19.8	0.446	0.94	6.9	100
BB38158		205	<0.002	0.08	0.59	1	8.8	162	2.65	0.13	25.3	0.459	1.04	7.4	104
BB38159		346	<0.002	0.19	0.2	2	11.2	161	2.43	0.09	57.9	0.578	1.87	13.1	114
BB38160		116	<0.002	0.07	0.12	1	3.9	299	1.09	<0.05	47.9	0.459	0.68	9.3	98
BB38161		244	<0.002	0.35	0.13	2	3.8	202	1.62	0.06	54.4	0.472	1.31	10.3	95
BB38162		197	<0.002	0.43	0.14	1	4	153	1.36	0.06	35.9	0.422	1	8.5	86
BB38163		315	<0.002	0.43	0.23	3	6.4	201	2.4	0.06	110.5	0.573	1.49	23.5	118
BB38164		195.5	<0.002	0.04	0.47	1	6.4	136	1.98	0.07	46.1	0.597	0.93	8.3	118
BB38165		264	<0.002	0.09	0.56	1	5.5	135.5	1.77	0.06	17.4	0.439	0.55	12	90
BB38166		169	<0.002	0.05	0.22	2	3.8	132	1.77	<0.05	39.3	0.598	0.6	7.9	140
BB38167		146	<0.002	0.18	0.77	1	6.8	139	1	0.21	16.8	0.357	0.77	11.7	108
BB38168		131.5	<0.002	0.01	0.37	1	9	136	1.86	0.08	17.2	0.656	0.57	3.3	122
BB38169		326	<0.002	0.04	0.36	1	16.6	65.4	6.89	0.33	40.7	0.316	1.25	7.2	47
BB38170		159.5	<0.002	0.02	0.15	2	12.3	134	2	0.11	4.9	1.075	0.62	4	228
BB38171		63.5	<0.002	0.02	0.12	1	5.6	124.5	0.77	0.14	3.6	0.734	0.25	2.7	210
BB38172		206	<0.002	0.07	0.22	2	16	115	2.62	0.33	50.4	0.313	0.7	9.1	44
BB38173		147	<0.002	0.1	0.42	1	8.3	64	1.9	0.63	35.4	0.255	0.76	23.9	54
BB38174		20	<0.002	0.3	0.24	1	1	21.6	0.32	0.36	11.4	0.06	0.1	67.9	11
BB38175		77.2	<0.002	0.15	0.4	1	3.3	291	0.93	0.07	7	0.244	0.23	12.5	63
BB38176		103	<0.002	0.02	0.4	2	6.7	136	2.1	0.08	11	0.947	0.39	2.9	152
BB38177		71.8	<0.002	0.05	0.17	3	7.7	135	2.75	0.05	7.8	1.615	0.25	4.1	265
BB38178		125	<0.002	0.1	0.45	2	5.3	169	2.01	0.07	42.6	0.768	0.48	11.6	141
BB38179		167	<0.002	0.08	1.09	1	10.7	128	2.87	0.87	20	0.39	0.81	8.8	103
BB38180		197	<0.002	0.04	0.46	1	10.4	73.8	1.54	0.14	12.4	0.786	0.97	5.9	160
BB38181		140	<0.002	0.16	0.85	2	8.2	64.6	1.38	0.26	20.8	0.259	0.85	12.3	73
BB38182		123	<0.002	0.05	0.44	1	6.4	119.5	1.7	0.05	28.6	0.512	0.7	5	93
BB38183		171	<0.002	0.14	0.67	1	11.1	66.4	2.78	0.14	29.6	0.29	0.78	13.8	65
BB38184		76.5	<0.002	0.24	0.44	2	4.5	49.4	1.08	0.14	30.5	0.214	0.45	56.6	47
BB38185		240	<0.002	0.03	0.56	1	10.4	37.5	2.04	<0.05	35.4	0.158	1.15	7.6	22
BB38186		57.4	<0.002	0.04	0.14	2	9.2	161	2.31	<0.05	8.1	1.84	0.27	3	261
BB38187		49.8	<0.002	0.05	0.13	2	10	147	2.36	<0.05	8.2	1.915	0.26	3.5	251
BB38188		63.5	<0.002	0.08	0.22	2	6.7	193.5	2.74	<0.05	11.6	1.565	0.33	4.8	204
BB38189		53.6	<0.002	0.05	0.12	2	9.9	165	2.31	<0.05	7.3	1.955	0.3	3	264
BB38190		120.5	<0.002	0.08	0.46	2	2.7	282	0.71	<0.05	19.6	0.311	0.73	4.2	82

Comments: REE's may not be totally soluble in MS61 method.

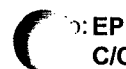
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CERTIFICATE OF ANALYSIS VA04039301

Sample Description	Method Analyte Units LOR	ME-MS61	ME-MS61	ME-MS61
		Y	Zn	Zr
		ppm 0.1	ppm 2	ppm 0.5
BB38151		19.9	99	35.4
BB38152		12.8	71	29.7
BB38153		13	88	38
BB38154		18.2	81	48.6
BB38155		15.4	59	45.9
BB38156		12.8	59	23.6
BB38157		13.5	89	40.4
BB38158		15	92	43.4
BB38159		16.6	77	28.3
BB38160		15.1	57	30.1
BB38161		17	88	31.5
BB38162		13	74	20.3
BB38163		32.6	82	28.7
BB38164		16.2	48	57.5
BB38165		16.8	178	39
BB38166		16.1	80	12.2
BB38167		13.9	118	26.5
BB38168		28.1	71	37.9
BB38169		15.2	53	39.4
BB38170		43.2	92	21.3
BB38171		28.7	69	12
BB38172		19.9	34	54
BB38173		16	38	38.7
BB38174		16	17	10
BB38175		15.6	47	54.7
BB38176		38.3	91	41.6
BB38177		64.9	141	21.2
BB38178		24.6	55	17.5
BB38179		14.4	66	54
BB38180		28.6	88	33
BB38181		12.7	62	34
BB38182		18.6	80	32.9
BB38183		16.6	62	42.7
BB38184		26	43	27.8
BB38185		12.8	43	22
BB38186		76.2	152	19.7
BB38187		76.2	132	21.9
BB38188		72	114	35.5
BB38189		72.1	137	16
BB38190		11.5	69	49.9

Comments: REE's may not be totally soluble in MS61 method.



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Method Analyte Units LOR	WEI-21 Recvd WL kg 0.02	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01
Sample Description															
BB38191	0.14	0.23	7.8	1.9	800	2.38	0.52	1.33	0.11	68.9	6.5	15	4.76	26.4	2.03
BB38192	0.16	0.11	8.98	0.7	580	5.59	2.09	0.57	0.18	240	13.2	72	25	26.1	4.4
BB38193	0.22	0.08	8.3	2	660	2.59	0.38	1.47	0.07	71	13	85	9.9	17.4	5
BB38194	0.18	0.18	7.29	1.9	330	2.42	1.72	4.29	0.69	51.3	31.8	197	17.4	22.2	6.11
BB38195	0.10	0.44	7.1	11	920	2.17	4.85	1.37	2.09	58.9	9.5	11	12.6	17.1	2.24
BB38196	0.10	1.03	4.55	22.5	550	3.23	6.92	0.42	1.51	67.6	12.6	37	15.65	29.9	1.98
BB38197	0.20	0.48	7.88	67.9	410	5.42	8.72	0.37	0.46	151.5	3.2	25	25.7	26	2.19
BB38198	0.26	0.24	8.69	45.1	470	4.49	2.72	0.22	0.37	115	4.7	31	21.1	17.8	2.34
BB38199	0.14	0.37	5.45	1.9	290	4.24	2.02	0.45	0.73	134.5	2.3	15	8.45	13.2	1.64
BB38200	0.16	0.26	7.19	2.2	350	5.34	2.4	0.53	0.46	212	2.7	17	12.2	13	2.27
BB38201	0.28	<0.01	6.8	4.6	1070	2.92	0.27	0.86	0.14	81.5	8.6	45	4.43	9.4	3.16
BB38202	0.26	0.11	5.02	2.8	970	2.54	0.35	0.53	0.32	64.2	5.7	41	7.4	11	2.91
BB38203	0.34	0.03	7.22	3.9	1280	3.4	0.33	1.1	0.17	91.5	10.2	44	7.13	12.6	3.51
BB38204	0.34	0.04	7.57	2.5	1190	3.83	0.41	1.15	0.13	98.7	11.6	41	9.58	12.3	4.48
BB38205	0.34	0.06	6.5	2	1200	2.88	0.34	0.82	0.1	91.6	7.5	36	5.05	8.5	3.24
BB38206	0.18	0.02	7.26	2.5	1410	3.24	0.27	0.83	0.08	85.9	9.2	38	4.55	8.7	3.66
BB38207	0.34	0.03	7.1	4	1250	3.18	0.28	0.99	0.15	91.1	10.3	45	4.85	11.4	3.4
BB38208	0.32	0.06	6.6	2.3	1220	2.86	0.4	0.89	0.11	85.5	6.9	34	4.98	9.9	3.07
BB38209	0.30	<0.01	8.33	1.9	1660	4.25	0.58	1.36	0.07	126	12.8	52	7.94	16.3	4.86
BB38210	0.32	<0.01	6.82	3.3	1360	2.98	0.26	0.83	0.11	88.7	9.1	40	5.94	15.5	3.24
BB38211	0.32	0.04	6.46	1.5	1400	2.71	0.29	0.79	0.08	87.5	5	27	6.45	10.1	2.44
BB38212	0.34	0.04	7.39	3.4	1420	3.34	0.29	0.97	0.13	96.5	11.7	45	6.55	23.9	3.8
BB38213	0.36	<0.01	7.18	3.5	1480	3.18	0.26	1.12	0.15	107.5	11.1	49	5.74	18.4	3.74
BB38214	0.34	<0.01	7	2.2	1400	3.07	0.33	0.87	0.12	109.5	9.7	35	4.21	17	3.58
BB38215	0.30	0.04	6.43	1.6	1210	2.9	0.24	0.47	0.06	87.4	6.5	20	3.37	7.5	2.34
BB38216	0.28	0.03	6.53	5.7	1130	2.35	0.22	0.79	0.16	68.6	7.7	40	2.51	11.8	3.01
BB38217	0.36	0.02	6.1	2.2	1160	2.43	0.26	0.55	0.15	63.6	5.7	26	2.13	7.4	2.62
BB38218	0.36	0.02	6.92	1.9	1460	2.57	0.29	0.72	0.08	68.6	9.5	34	2.85	17.4	3.76
BB38219	0.34	0.06	5.97	3.3	1080	1.98	0.3	0.54	0.14	68.3	5	36	2.73	6.6	2.47
BB38220	0.32	<0.01	6.03	3.3	1160	2.12	0.29	0.85	0.14	84	7.5	39	1.65	7	2.76
BB38221	0.32	0.04	6.44	2.8	1200	2.35	0.22	0.77	0.09	75.2	7.4	37	1.76	7.2	2.65
BB38222	0.26	<0.01	6.01	2.5	1140	2.17	0.26	0.53	0.11	57.9	5.6	30	2.03	6.3	2.61
BB38223	0.28	0.03	6.47	4	1100	2.09	0.27	0.63	0.1	78	6.9	43	2.98	9.7	3.06
BB38224	0.30	0.03	6.11	1.7	1150	1.86	0.18	0.41	0.06	69.1	3.1	32	2.84	5.6	1.68
BB38225	0.32	0.02	6.82	3.8	1260	2.55	0.27	0.65	0.11	79.5	8.8	43	3.06	10.1	3.29
BB38226	0.40	<0.01	6.8	4.9	1300	2.56	0.3	0.74	0.14	82.9	8.9	44	3.23	10.2	3.5
BB38227	0.30	<0.01	6.84	3.1	1520	2.6	0.27	0.68	0.09	93.7	9.3	39	2.84	9.1	3.28
BB38228	0.42	0.1	6.44	3.8	1260	2.36	0.31	0.54	0.1	81.4	6.7	36	3.62	8.3	2.99
BB38229	0.46	0.05	6.69	4.4	1260	2.5	0.33	0.72	0.1	88.6	8.6	40	4.29	10	3.53
BB38230	0.34	0.04	6.82	3.3	1220	2.54	0.33	0.72	0.09	85.4	8.9	41	3.62	11.8	3.72

Comments: REE's may not be totally soluble in MS61 method.



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Method Analyte Units LOR	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01	ME-MS61 La ppm 0.5	ME-MS61 Li ppm 0.2	ME-MS61 Mg % 0.01	ME-MS61 Mn ppm 5	ME-MS61 Mo ppm 0.05	ME-MS61 Na % 0.01	ME-MS61 Nb ppm 0.1	ME-MS61 Ni ppm 0.2	ME-MS61 P ppm 10	ME-MS61 Pb ppm 0.5
Sample Description															
BB38191	19.5	0.1	5.3	0.024	2.15	35.4	33.9	0.46	363	1.91	2.23	8.4	9.6	560	13.8
BB38192	26.8	0.22	1.1	0.054	2.12	119.5	61.5	1.02	487	2.11	1.13	24.9	28	1000	21
BB38193	26.7	0.11	2.8	0.055	2.34	27.3	77.6	1.78	647	3.4	1.95	31.7	28.5	1290	8.1
BB38194	21.2	0.12	1.6	0.089	1.42	24.2	48.3	3.76	984	0.93	1.09	15.8	72.2	1140	9.9
BB38195	17.95	0.07	4.2	0.028	2.02	24.3	28.1	0.48	7110	7.64	1.94	7.7	6	1830	16.2
BB38196	12.75	0.08	1.5	0.033	1.39	33.8	23.1	0.31	2200	4.71	0.53	10.2	13.8	4270	26
BB38197	25.2	0.15	2.3	0.052	2.37	76.3	50.8	0.45	205	6.68	0.63	19.8	8.1	2530	55
BB38198	23.8	0.12	1.9	0.049	2.99	59.6	66.6	0.37	144	3.37	0.58	15.1	12.4	1340	20
BB38199	19.1	0.12	1.3	0.043	1.83	64.6	36.5	0.21	123	23.7	1.41	23.8	7.2	1320	21.1
BB38200	26.7	0.19	2.3	0.048	2.23	104.5	54.2	0.26	142	4.02	1.8	40.7	6.1	1110	22.7
BB38201	17.6	0.11	4.4	0.075	1.66	40.3	27.8	1.04	391	0.9	2.01	17.8	18.4	670	9.8
BB38202	15.25	0.09	3.8	0.057	1.2	34	13	0.43	690	1.39	1.28	15.8	11	4990	9.3
BB38203	20.1	0.12	4.7	0.081	1.72	49.8	35.3	1.11	516	0.97	2.27	22.1	19.2	790	8.8
BB38204	23.5	0.13	3.9	0.095	1.78	44.1	36.8	1.38	657	0.96	2.27	25.2	16.7	800	7.8
BB38205	20.4	0.11	5.4	0.073	1.65	40.3	18	0.93	454	1.06	2.13	24.5	14.8	720	8.2
BB38206	21.1	0.11	5.9	0.084	1.78	40.9	25.7	1.2	534	0.89	2.18	23.7	14.8	760	8.9
BB38207	19.65	0.11	4.7	0.081	1.77	43.3	31.3	1.11	476	0.87	2.17	21.2	19.2	690	9.4
BB38208	20	0.13	5.2	0.068	1.73	36.5	16	0.8	431	1.2	2.14	22.6	11.8	580	9
BB38209	27.7	0.16	5	0.119	2.4	48	45.8	1.6	667	2.19	1.76	28.9	18.8	640	7.4
BB38210	21	0.13	5.1	0.072	1.55	42	22.4	1.02	464	0.99	2.25	21.9	17.3	710	8.5
BB38211	19.25	0.11	5.8	0.058	1.47	40.2	11.3	0.56	373	1.05	2.29	21.9	8.7	1460	7.9
BB38212	20.7	0.12	5	0.078	1.72	45.3	28.3	1.21	532	0.95	2.27	21.5	19.7	730	8.6
BB38213	20	0.13	4.7	0.079	1.78	51.8	26.5	1.22	549	0.95	2.07	21.8	20.5	830	8.8
BB38214	19.9	0.12	5.3	0.085	1.61	51.8	19.8	1.12	519	0.81	2.2	22.1	15.1	900	7.3
BB38215	19.6	0.12	6.7	0.069	1.84	39.8	11	0.7	434	0.94	2.26	20.5	7.7	550	7.5
BB38216	16.4	0.07	4.5	0.06	1.68	34.3	21.5	0.91	369	0.96	1.77	17	18	600	10.2
BB38217	17.15	0.09	7.1	0.061	1.93	31.1	10.8	0.69	575	1.31	1.78	18.5	10.2	1540	7.7
BB38218	19.35	0.1	5.3	0.082	2.3	32.4	18.8	1.35	530	1.13	1.68	20.7	13.8	1080	6.9
BB38219	17.6	0.08	6.1	0.054	1.7	32.8	11.4	0.57	364	1.73	1.51	18.6	10.7	1860	10.4
BB38220	14.7	0.09	5.1	0.056	1.76	41.1	14.8	0.91	385	0.89	1.61	16.2	15.6	660	7.8
BB38221	15.85	0.09	5.3	0.058	1.86	37	15.9	0.9	380	0.94	1.85	17	15	530	8.2
BB38222	18	0.08	6.8	0.068	2.17	28.6	10.9	0.77	304	1.12	1.6	19.2	11.2	580	6.8
BB38223	17.9	0.09	4.5	0.064	1.87	37.6	18.6	0.9	364	1.03	1.67	17.9	16	600	9
BB38224	16.65	0.08	6.5	0.047	1.84	34.8	9.5	0.41	444	0.97	1.83	18.6	7.3	900	7.1
BB38225	18.45	0.1	5.5	0.069	1.8	37.9	20.5	1.08	437	0.92	1.84	18.6	17.8	680	8.6
BB38226	19.1	0.11	6	0.067	1.84	42	20.8	1.07	445	1.07	1.87	19.2	18.4	640	8.8
BB38227	19.1	0.12	6.1	0.073	2.08	46.2	21.1	1.14	467	0.75	2	20.8	16.6	620	7.6
BB38228	18.75	0.1	4.9	0.069	1.84	41.7	16.6	0.81	604	1.45	1.83	17.8	12.8	1120	9.6
BB38229	19.55	0.1	6.1	0.076	1.96	43	20.7	1.12	479	1.04	1.91	20.7	15.6	820	9.1
BB38230	20.2	0.12	4.8	0.079	1.95	43.1	18	1.23	483	1.1	1.88	19.5	15.8	650	9.2

Comments: REE's may not be totally soluble in MS61 method.



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CERTIFICATE OF ANALYSIS VA04039301

Sample Description	Method Analyte Units LOR	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
		Rb	Re	S	Sb	Se	Sn	Sr	Ta	Te	Th	Ti	Ti	U	V	W
		ppm 0.1	ppm 0.002	% 0.01	ppm 0.05	ppm 1	ppm 0.2	ppm 0.2	ppm 0.05	ppm 0.05	ppm 0.2	% 0.005	ppm 0.02	ppm 0.1	ppm 1	ppm 0.1
BB38191		72.3	<0.002	0.03	0.5	1	1.3	461	0.62	<0.05	12.2	0.25	0.38	4.7	38	0.8
BB38192		231	<0.002	0.04	0.28	1	5.2	183	1.74	0.09	36.1	0.789	0.97	7.3	132	2.6
BB38193		104.5	<0.002	0.05	0.35	1	6.7	250	2	<0.05	13.8	0.702	0.51	3.8	114	0.9
BB38194		245	<0.002	0.05	0.26	1	6.2	141	1.04	<0.05	7	0.858	0.61	3.5	194	7.1
BB38195		103	<0.002	0.1	0.56	1	2.2	415	0.61	0.15	11.5	0.2	0.59	7.3	42	1
BB38196		148.5	<0.002	0.18	0.74	1	5.4	73.8	0.96	0.16	17.6	0.2	1	17.2	62	2.9
BB38197		200	<0.002	0.14	0.93	1	8.1	87.3	1.68	0.25	44.5	0.229	1.36	28.2	47	2.7
BB38198		246	<0.002	0.07	0.62	1	11.3	71.7	1.78	0.09	27.6	0.227	1.15	12	52	4
BB38199		122.5	<0.002	0.08	0.34	2	7.5	73.4	2.26	<0.05	37.5	0.216	0.64	13	29	1.3
BB38200		157	<0.002	0.06	0.45	2	12.3	85.3	4.3	0.05	60.9	0.338	0.83	11.8	40	1.8
BB38201		70.9	<0.002	0.02	0.64	1	4.9	122.5	1.21	<0.05	16.8	0.412	0.37	3	90	1.5
BB38202		108.5	<0.002	0.15	0.92	1	4	85.5	1	<0.05	20.5	0.367	0.31	3.6	86	1.6
BB38203		74.6	<0.002	0.01	0.65	1	6.6	125.5	1.49	<0.05	20.2	0.501	0.37	3.5	108	2.7
BB38204		88.2	<0.002	0.02	0.41	1	8.7	104	1.6	<0.05	19.5	0.627	0.37	3.1	112	2.7
BB38205		76.4	<0.002	0.03	0.46	1	6.8	94	1.66	<0.05	20.3	0.545	0.29	3.5	91	2.3
BB38206		71.8	<0.002	0.02	0.43	1	6.2	103	1.54	<0.05	18.2	0.527	0.34	3.4	90	1.9
BB38207		73.2	<0.002	0.01	0.57	1	5.4	126	1.42	<0.05	18.6	0.491	0.4	3	93	18.4
BB38208		80.3	<0.002	0.03	0.48	1	7	100.5	1.54	<0.05	18.4	0.541	0.33	3.3	93	2.1
BB38209		95.2	<0.002	0.03	0.46	2	12.5	97.3	2.05	<0.05	30.4	0.617	0.43	4.8	110	3.2
BB38210		63.8	<0.002	0.03	0.56	1	5.8	108	1.42	<0.05	20.3	0.471	0.31	3.4	91	2.3
BB38211		69.6	<0.002	0.07	0.4	1	5.8	101.5	1.5	<0.05	20.7	0.44	0.27	3.9	83	1.6
BB38212		72.8	<0.002	0.02	0.5	1	5.6	111	1.42	<0.05	19.7	0.539	0.38	3.4	114	1.7
BB38213		75.3	<0.002	0.01	0.58	1	5.4	128	1.4	<0.05	20.3	0.537	0.39	3.4	112	2.7
BB38214		63.8	<0.002	0.02	0.38	1	5.2	96.4	1.41	<0.05	22.8	0.513	0.32	3.6	90	1.7
BB38215		83.4	<0.002	0.03	0.36	1	5.9	78.2	1.4	<0.05	22.4	0.345	0.28	3.7	62	1.6
BB38216		67.6	<0.002	0.01	0.71	1	3.9	112.5	1.2	<0.05	16.2	0.401	0.34	2.7	86	1.6
BB38217		77.9	<0.002	0.06	0.43	1	4.8	76.6	1.37	<0.05	19.6	0.353	0.25	3.9	63	1.2
BB38218		89	<0.002	0.02	0.34	1	5.2	92.7	1.41	<0.05	16.8	0.527	0.35	3.2	84	1.6
BB38219		76.6	<0.002	0.06	0.57	1	4.6	93.7	1.32	<0.05	18.2	0.417	0.36	3.4	87	1.4
BB38220		64.5	<0.002	0.01	0.55	1	3.6	109	1.22	<0.05	16.6	0.403	0.3	3	74	1.2
BB38221		68.7	<0.002	0.01	0.52	1	4.2	111	1.26	<0.05	16	0.392	0.3	3.2	73	1.2
BB38222		74.3	<0.002	0.03	0.45	1	5.6	79.6	1.37	<0.05	17.5	0.365	0.28	3.5	73	1.4
BB38223		76.2	<0.002	0.03	0.59	1	4.4	108	1.27	<0.05	16.6	0.395	0.34	3.2	87	1.5
BB38224		86.2	<0.002	0.05	0.52	1	4.5	84.6	1.34	<0.05	16.5	0.367	0.32	3.3	73	1.5
BB38225		73.7	<0.002	0.03	0.54	1	4.8	99.4	1.32	<0.05	19.4	0.435	0.36	3.1	92	1.6
BB38226		82.3	<0.002	0.02	0.61	1	4.6	108.5	1.34	<0.05	20.8	0.466	0.35	3.2	96	1.7
BB38227		78.5	<0.002	0.01	0.47	1	5.2	93.5	1.44	<0.05	19.6	0.47	0.36	3.3	85	1.6
BB38228		97.4	<0.002	0.05	0.64	1	5.2	83.4	1.27	<0.05	21.4	0.374	0.36	3.2	91	1.5
BB38229		80.8	<0.002	0.02	0.49	1	5.2	91.9	1.46	<0.05	18.6	0.5	0.35	3.4	91	1.8
BB38230		76.4	<0.002	0.02	0.43	1	5.5	92.2	1.34	<0.05	19.4	0.499	0.36	3.3	97	1.6

Comments: REE's may not be totally soluble in MS61 method.



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CERTIFICATE OF ANALYSIS VA04039301

Sample Description	Method Analyte Units LOR	ME-MS61	ME-MS61	ME-MS61
		Y	Zn	Zr
		ppm 0.1	ppm 2	ppm 0.5
BB38191		9.8	57	118.5
BB38192		19.6	79	21.1
BB38193		29.8	97	60.9
BB38194		31.6	138	25
BB38195		8.2	74	92.5
BB38196		11.7	53	29.3
BB38197		17.2	46	43.3
BB38198		13.8	55	35.8
BB38199		14.6	35	24
BB38200		19.4	46	38.7
BB38201		19.3	61	90.6
BB38202		15.9	48	81.2
BB38203		25.8	64	96.2
BB38204		27.4	71	81.3
BB38205		19.7	50	111.5
BB38206		21.4	64	122
BB38207		23	66	94.7
BB38208		20.4	48	105
BB38209		32.1	60	98.8
BB38210		18.9	61	104
BB38211		18.2	33	120
BB38212		23	68	103
BB38213		25.7	70	96
BB38214		23.8	56	113.5
BB38215		14.7	41	139.5
BB38216		16.4	59	105
BB38217		18.3	50	163
BB38218		18	71	123.5
BB38219		15	39	140
BB38220		20.8	47	117
BB38221		19.7	48	124.5
BB38222		15.6	45	158
BB38223		17.2	57	105.5
BB38224		11.6	35	153
BB38225		17.1	64	122.5
BB38226		18.1	66	141.5
BB38227		20.7	66	142
BB38228		15.7	56	113.5
BB38229		21.6	68	140
BB38230		21.1	69	111.5

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CERTIFICATE OF ANALYSIS VA04039301

Sample Description	Method Analyte Units LOR	WEI-21 Recvd Wt. kg 0.02	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01
BB38231		0.34	<0.01	6.83	3.2	1290	2.68	0.29	0.81	0.12	89.8	10.2	45	3.84	11.8	3.63
BB38232		0.34	<0.01	6.47	3.6	1200	2.6	0.32	0.85	0.11	80.1	9.3	42	4.06	11.4	3.61
BB38233		0.38	<0.01	6.89	4	1260	2.54	0.71	0.92	0.12	76.7	9.5	46	4.22	11.4	3.78
BB38234		0.40	0.05	6.52	3.2	1100	2.54	0.27	0.74	0.12	86.7	8.3	40	3.22	8.7	3.04
BB38235		0.40	0.03	6.5	3.7	980	2.97	0.37	0.78	0.12	81.9	7.1	40	4.22	10	3.35
BB38236		0.36	0.07	6.74	2.4	1070	2.92	0.38	0.85	0.11	85.3	10.2	45	10.95	13.7	4.16
BB38237		0.32	<0.01	6.9	3.1	1020	2.8	0.29	0.87	0.08	95.1	10.4	45	8.45	11.9	3.86
BB38238		0.30	0.08	6.94	1.8	1120	3.03	0.45	0.92	0.1	79	8.7	38	7.64	16.9	3.95
BB38239		0.24	0.07	6.57	4.4	730	3.47	0.52	1.13	0.15	85.1	7.6	51	6.31	9.6	3.15
BB38240		0.18	0.04	6.02	3.2	720	3	0.76	1.01	0.18	68.3	5.3	56	6.99	6.3	2.39
BB38241		0.20	0.09	6.24	4	720	2.97	0.51	0.96	0.14	73.9	6.6	40	6.28	12.2	3.08
BB38242		0.22	0.06	6.54	2.7	870	2.97	0.48	1.13	0.15	80.4	7.2	42	6.85	13	3.06
BB38243		0.26	0.08	6.99	2.7	860	3.07	0.79	1.27	0.12	77.3	8.7	47	6.61	12.8	3.56
BB38244		0.22	0.11	6.62	2.8	780	2.87	0.53	0.91	0.07	79.4	5.1	40	8.02	9.1	2.43
BB38245		0.24	0.08	7.45	3.3	850	3.11	0.58	1.27	0.16	86.2	10.5	49	8	16.2	4.08
BB38246		0.28	0.02	7.36	1.8	1060	3.24	0.32	1.27	0.08	74.4	9.1	35	5.38	10.5	3.64
BB38247		0.24	0.08	6.46	3.3	770	2.95	0.67	0.85	0.08	87.2	6.4	41	7.73	12.5	3.21
BB38248		0.26	0.03	6.77	3.9	810	2.94	0.5	1.09	0.09	92.8	6.6	49	7.23	8.5	2.95
BB38249		0.16	0.33	5.44	1.2	710	3.18	0.15	0.97	0.14	53.8	4.4	19	7.9	17.5	1.76
BB38250		0.24	0.05	7.8	2.4	530	4.37	0.18	1.35	0.13	65.7	21.3	79	14.1	30.5	6.06
BB38251		0.26	<0.01	7.78	1	600	2.52	0.2	1.05	0.05	109.5	8.4	26	6.28	8.9	3.18
BB38252		0.22	0.05	7.78	4.5	800	3.4	0.55	1.13	0.1	94.4	10.2	42	7.01	23.2	4.56
BB38253		0.30	0.05	7.7	3.6	790	3.38	0.54	1.16	0.11	103	9.9	39	8.2	19.2	4.32
BB38254		0.14	0.22	6.86	8.2	710	3.34	5.92	0.97	0.5	97.3	8.7	72	10.4	15.8	3.65
BB38255		0.18	0.2	6.54	8.1	700	3.12	5.28	1.09	0.45	115	8.1	68	8.79	14.1	3.52
BB38256		0.24	0.07	6.25	2.8	780	2.88	0.55	1.25	0.13	76.9	6.1	94	5.4	7.3	2.58
BB38257		0.18	0.11	6.86	2.2	890	2.95	0.54	1.03	0.63	86.2	8.4	48	5.82	14.2	3.07
BB38258		0.12	0.08	6.96	0.7	720	1.17	0.13	1.97	0.19	33.6	6.4	7	1.25	16.8	2.02
BB38259		0.22	0.11	7.15	1.8	760	1.88	0.29	1.81	0.14	53.7	8	36	3.4	14.9	2.43
BB38260		0.16	0.18	7	4	860	2.67	0.55	1.24	0.32	88.7	9.1	66	6.75	12	4.02
BB38261		0.16	0.11	7.79	2.3	880	1.51	0.23	1.78	0.21	47.8	6.3	13	2.6	18	2.16
BB38262		0.18	0.08	8.48	1.8	860	1.32	0.14	2.46	0.08	40.8	7	7	1.4	19.1	2.44
BB38263		0.20	0.07	7.9	1.5	780	1.23	0.14	2.21	0.07	34.8	6.1	7	1.36	15.2	1.98
BB38264		0.26	<0.01	7.11	3.4	770	3.17	1.05	1.25	0.26	82	10.3	67	6.98	11.2	4.66
BB38265		0.22	0.05	6.88	3.6	840	3.24	0.53	1.13	0.13	79.9	9.5	73	6.07	7.2	4
BB38266		0.26	0.04	6.61	1.6	720	3.02	0.5	1.19	0.15	76.1	8	59	6.93	8.5	3.22
BB38267		0.20	0.06	6.51	2.3	950	3.14	0.63	1.22	0.27	87.4	8.6	102	11.15	7.1	3.11
BB38268		0.20	0.09	7.25	3.3	860	3.19	0.62	1.67	0.25	85.1	10.2	99	8.25	8.9	3.88
BB38269		0.20	0.03	6.86	1.6	860	2.69	0.52	1.22	0.22	75.1	6.7	78	5.54	6.3	2.84
BB38270		0.28	0.05	6.84	2.7	930	2.98	0.59	1.09	0.16	81.1	7.7	55	6.15	5.7	3.65

Comments: REE's may not be totally soluble in MS61 method.



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CERTIFICATE OF ANALYSIS VA04039301

Sample Description	Method Analyte Units LOR	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
		Ga	Ge	Hf	In	K	La	Li	Mg	Mn	Mo	Na	Nb	Ni	P
		ppm 0.05	ppm 0.05	ppm 0.1	ppm 0.005	% 0.01	ppm 0.5	ppm 0.2	% 0.01	ppm 5	ppm 0.05	% 0.01	ppm 0.1	ppm 0.2	ppm 10
BB38231		18.55	0.12	4.2	0.081	2.02	43.5	22.2	1.3	514	0.81	1.68	19.5	18.2	670
BB38232		18.6	0.1	4.2	0.072	1.67	37.6	21.7	1.14	503	0.87	1.79	19	16.6	820
BB38233		19.15	0.1	4.5	0.076	1.58	38.2	24.6	1.19	483	0.9	1.87	20	18.4	710
BB38234		18.05	0.1	5.7	0.073	1.83	41.3	22.5	1.06	418	0.81	1.88	19.2	16.8	570
BB38235		18.65	0.11	5	0.066	1.62	38.7	22.2	0.89	414	1.21	1.95	18.4	15.4	960
BB38236		21.5	0.12	3.7	0.087	1.6	38	28.4	1.3	573	0.87	1.98	22.4	16.8	940
BB38237		20.4	0.12	5.5	0.081	1.66	47.9	32	1.24	494	0.76	2.04	22.7	18	660
BB38238		21.8	0.11	4.8	0.085	1.54	36.7	21.4	1.1	554	1.03	2.53	25.7	13	840
BB38239		19.6	0.12	3.4	0.063	1.8	42	43.5	0.8	467	1.23	1.84	22.6	17.4	670
BB38240		19.05	0.09	3.3	0.048	1.9	33.4	31.4	0.57	395	1.36	1.68	20.2	14.2	820
BB38241		18.75	0.11	3	0.084	1.7	35.9	33.2	0.76	403	1.93	1.74	20.7	13.6	730
BB38242		19.35	0.12	4.3	0.068	1.64	38.3	25.6	0.79	469	1.52	1.93	23.4	13.5	930
BB38243		20.4	0.1	3.8	0.073	1.62	36.8	33.7	1.03	507	1.31	2.09	22.6	15.8	1140
BB38244		19.55	0.1	4.3	0.056	1.62	40.5	25.6	0.56	393	1.76	1.97	24.3	10.9	1070
BB38245		21.3	0.12	3.7	0.093	1.81	41.5	42.1	1.14	590	1.82	1.99	25.6	16.9	890
BB38246		20.4	0.11	4.7	0.081	1.45	38.1	49.6	1.14	524	0.8	2.43	25.1	13.8	820
BB38247		22.3	0.12	3.1	0.079	1.59	43.7	29.7	0.59	547	3.49	1.63	23	11.7	1380
BB38248		21.5	0.12	3.9	0.066	1.8	45.7	32.5	0.75	427	1.37	1.83	24.4	14	410
BB38249		14.3	0.09	3.4	0.036	1.32	30.9	25.2	0.37	464	1.87	1.32	10.8	6.3	4630
BB38250		22.3	0.09	2.6	0.099	0.95	12	66.4	2	822	0.92	2.18	18.4	30.6	1690
BB38251		24.7	0.12	3.2	0.059	0.96	52	23.6	1.16	470	0.88	3.95	25.9	10.4	330
BB38252		23	0.12	3.7	0.093	1.74	47.3	46.4	1.15	599	2.74	2.01	26.7	15	650
BB38253		24	0.11	3.1	0.099	1.75	52.2	48.5	1.24	571	2.15	2.1	27.2	13.6	850
BB38254		21.9	0.12	2.6	0.057	1.9	48.6	58.4	0.89	435	3.84	1.18	23.7	21.2	680
BB38255		19.75	0.13	3.6	0.047	1.85	57.7	50.1	0.83	453	3.5	1.27	23.9	19.4	700
BB38256		17.45	0.08	3.4	0.039	1.82	38.7	21.9	0.68	444	1.52	1.81	21.3	19.4	430
BB38257		21.3	0.1	4.8	0.051	1.62	41.3	18.4	0.69	1360	1.28	2.09	21.2	15.3	1340
BB38258		16.3	0.06	5.6	<0.005	1.86	17.7	17.4	0.67	369	1.4	2.33	5.7	5.3	500
BB38259		18.7	0.07	5.2	0.025	2.01	27.2	25	0.81	541	1.52	2.25	11.4	12.8	810
BB38260		22.4	0.09	4.6	0.068	1.77	44.8	28.6	0.97	662	1.48	1.73	25.3	17.8	780
BB38261		18.8	0.05	5.9	0.012	2.14	26	23	0.63	447	1.82	2.41	8.5	6.5	350
BB38262		18	0.05	5.9	0.007	2.09	20.7	19.8	0.81	466	1.53	2.83	6	5.4	770
BB38263		18.2	0.06	5.9	0.009	2.07	18.4	19.2	0.72	381	1.62	2.67	6	4.9	430
BB38264		23.2	0.09	4.1	0.079	1.73	40.3	40.4	1.25	569	1.45	1.9	25.8	21.4	690
BB38265		21.8	0.11	4.6	0.073	2.13	39.8	35.1	1.12	495	1.26	1.68	23.3	22.8	580
BB38266		20.2	0.1	3.2	0.059	1.88	38.7	26.6	0.96	555	0.95	2.12	24.1	15.6	530
BB38267		19.95	0.12	2.6	0.045	2.3	44.8	44.5	0.93	469	0.92	1.36	18.9	34.3	760
BB38268		22.3	0.12	3.4	0.053	2.12	43.4	44.9	1.12	600	1.2	1.51	23	29.2	880
BB38269		19.55	0.1	4.4	0.05	1.92	37.5	24	0.86	477	1	2.05	20.7	18	760
BB38270		20.7	0.1	3.1	0.067	1.96	40.3	35.3	0.95	431	0.88	1.74	19.7	17.2	660

Comments: REE's may not be totally soluble in MS61 method.



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 C/O ARCHER, CATHRO & ASSOCIATES (1981)
 LIMITED
 1016-510 W HASTINGS ST
 VANCOUVER BC V6B 1L8

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 Date: 10-JUL-2004
 Account: EMP

Project: Sparkle

CERTIFICATE OF ANALYSIS VA04039301

Method Analyte Units LOR	ME-MS61 Rb ppm 0.1	ME-MS61 Re ppm 0.002	ME-MS61 S % 0.01	ME-MS61 Sb ppm 0.05	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.2	ME-MS61 Tl % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1	ME-MS61 W ppm 0.1
Sample Description															
BB38231	79.2	<0.002	0.01	0.48	1	5	102	1.3	<0.05	18.2	0.495	0.38	2.9	92	3.6
BB38232	69.1	<0.002	0.01	0.46	1	4.7	96.5	1.32	<0.05	18	0.5	0.34	2.9	93	1.6
BB38233	66.5	<0.002	0.02	0.55	1	4.9	112.5	1.4	<0.05	17.4	0.536	0.36	3	103	1.4
BB38234	74.8	<0.002	0.01	0.51	1	5	102	1.36	<0.05	19.4	0.468	0.34	3.3	87	1.5
BB38235	78	<0.002	0.03	0.49	1	4.8	95.1	1.38	<0.05	19.1	0.456	0.32	3.1	85	1.4
BB38236	79.9	<0.002	0.03	0.35	1	7.2	101	1.5	<0.05	19.4	0.565	0.32	3	107	1.8
BB38237	67.6	<0.002	0.01	0.44	1	5.9	101.5	1.54	<0.05	20.2	0.562	0.36	3.3	101	1.9
BB38238	77.5	<0.002	0.04	0.34	1	7.4	97.8	1.7	<0.05	19.6	0.668	0.31	3.9	106	1.7
BB38239	106.5	<0.002	0.03	0.43	1	6.1	132.5	2.09	<0.05	20.7	0.559	0.47	3.2	87	2.1
BB38240	108	<0.002	0.04	0.44	1	6.7	134.5	1.64	<0.05	16.7	0.496	0.56	2.9	81	3.6
BB38241	87.3	<0.002	0.06	0.45	1	7.1	116	1.58	<0.05	17.8	0.505	0.43	3.1	86	2.2
BB38242	101	<0.002	0.04	0.5	1	7.4	125.5	1.74	<0.05	19.4	0.583	0.39	3.8	102	2.9
BB38243	84.3	<0.002	0.05	0.44	1	7.9	127.5	1.68	<0.05	18	0.574	0.35	3.1	105	2.6
BB38244	118.5	<0.002	0.04	0.62	1	6.9	115.5	1.85	<0.05	19	0.55	0.43	3.1	102	3.1
BB38245	89.3	0.002	0.05	0.42	1	8.1	116	1.84	0.08	21.8	0.625	0.43	3.8	110	2.9
BB38246	58.7	<0.002	0.02	0.23	1	7	106	1.72	<0.05	18.9	0.616	0.26	3.1	97	12.7
BB38247	91.5	<0.002	0.04	0.49	1	8.1	105.5	1.74	0.08	20.9	0.549	0.46	3.9	110	3.1
BB38248	109	<0.002	0.02	0.58	1	7.1	132.5	1.85	<0.05	19.3	0.581	0.45	3.1	102	2.7
BB38249	73.7	<0.002	0.19	0.36	1	5.5	216	1.32	<0.05	13	0.221	0.32	7.1	51	2.1
BB38250	60.1	<0.002	0.04	0.12	1	5.2	97.1	1.24	<0.05	11.5	0.609	0.24	2.5	190	14
BB38251	44	<0.002	0.01	0.12	1	5.5	78	2.02	<0.05	30.1	0.565	0.16	3.5	84	2.5
BB38252	83.6	<0.002	0.04	0.43	1	8.6	102.5	1.9	0.08	25.2	0.66	0.46	3.9	99	3.3
BB38253	87.7	<0.002	0.04	0.34	1	8.8	96.5	1.88	<0.05	25.6	0.641	0.39	3.5	102	8.3
BB38254	143	<0.002	0.03	0.76	1	8	120.5	2.01	0.11	22.2	0.476	0.81	4.8	113	2.5
BB38255	125	<0.002	0.02	0.81	1	7.2	126.5	2.03	0.1	25.7	0.544	0.7	4.9	113	2.3
BB38256	98.4	<0.002	0.02	0.47	1	5.9	138	1.66	<0.05	16.1	0.604	0.46	2.7	95	1.8
BB38257	101	<0.002	0.05	0.48	1	6.4	142	1.54	<0.05	20.1	0.472	0.38	3.6	90	1.7
BB38258	48	<0.002	0.03	0.44	1	0.9	555	0.47	<0.05	6.5	0.272	0.23	2	53	0.5
BB38259	72.4	<0.002	0.03	0.45	1	2.7	447	0.92	<0.05	10.7	0.369	0.34	2.7	67	5.1
BB38260	102.5	<0.002	0.03	0.62	1	6.3	149.5	1.78	<0.05	17.5	0.699	0.47	3.1	131	2.4
BB38261	66	<0.002	0.01	0.54	1	1.6	530	0.65	<0.05	8.6	0.29	0.34	2.4	56	0.9
BB38262	51.8	<0.002	0.02	0.46	1	0.9	696	0.49	<0.05	6.7	0.297	0.27	2.1	58	0.6
BB38263	51.4	<0.002	0.02	0.47	1	1	652	0.48	<0.05	6.2	0.275	0.24	2.1	49	0.5
BB38264	103.5	<0.002	0.02	0.46	1	7.6	119	1.8	<0.05	19.4	0.662	0.49	3.2	106	2.4
BB38265	123	<0.002	0.01	0.46	1	6.4	143.5	2.06	<0.05	16.7	0.586	0.52	2.9	96	2.2
BB38266	136	<0.002	0.02	0.24	1	6.8	117	2.3	<0.05	16.7	0.682	0.41	2.7	81	1.7
BB38267	234	<0.002	0.04	0.6	1	5.9	155	1.48	<0.05	18.1	0.458	0.69	2.7	90	3.1
BB38268	170	<0.002	0.02	0.52	1	6	275	1.78	<0.05	17.1	0.565	0.59	2.9	99	3.8
BB38269	126	<0.002	0.01	0.41	1	5.7	149.5	1.58	<0.05	16.7	0.526	0.45	2.8	79	1.6
BB38270	115	<0.002	0.01	0.35	1	6	122.5	1.46	<0.05	16.2	0.497	0.5	2.6	94	1.7

Comments: REE's may not be totally soluble in MS61 method.

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1016-510 W HASTINGS ST

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CERTIFICATE OF ANALYSIS VA04039301

Sample Description	Method Analyte Units LOR	ME-MS61	ME-MS61	ME-MS61
		Y	Zn	Zr
		ppm 0.1	ppm 2	ppm 0.5
BB38231		22.2	71	98.5
BB38232		22.6	68	98.7
BB38233		21.3	70	105
BB38234		19.4	60	126.5
BB38235		19.1	59	113.5
BB38236		24.3	76	85.2
BB38237		24.4	66	128
BB38238		26.6	70	112
BB38239		20.4	63	76.4
BB38240		16.5	46	74.6
BB38241		18.8	87	67.4
BB38242		23.7	73	93.9
BB38243		22.1	61	84.5
BB38244		17	47	96.4
BB38245		23.9	95	79.8
BB38246		26	60	107
BB38247		18.9	59	68
BB38248		19.7	55	87.1
BB38249		17	41	77
BB38250		30.1	119	60.1
BB38251		22.7	59	64
BB38252		25.4	76	77.6
BB38253		26.9	73	62.6
BB38254		19.5	70	52.3
BB38255		24	66	70.1
BB38256		19.1	44	73.2
BB38257		20.8	62	110
BB38258		8	56	129
BB38259		13.2	59	117
BB38260		22.8	68	102
BB38261		10.2	56	140
BB38262		9.2	53	135.5
BB38263		8.4	50	137
BB38264		25.9	89	91.4
BB38265		22.1	65	102.5
BB38266		22.4	65	68.9
BB38267		17.5	77	56.7
BB38268		23.8	105	72.5
BB38269		19.3	79	96.7
BB38270		20.8	70	69.9

Comments: REE's may not be totally soluble in MS61 method.



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CERTIFICATE OF ANALYSIS VA04039301

Sample Description	Method Analyte Units LOR	WEI-21	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
		Recvd Wt.	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe
		kg 0.02	ppm 0.01	% 0.01	ppm 0.2	ppm 10	ppm 0.05	ppm 0.01	% 0.01	ppm 0.02	ppm 0.01	ppm 0.1	ppm 1	ppm 0.05	ppm 0.2	% 0.01
BB38271		0.32	0.11	6.83	3.4	780	3.2	0.58	1.18	0.12	73.1	9.5	96	6.71	12.2	3.78
BB38272		0.26	0.11	7.2	1.8	840	2.05	0.25	1.77	0.08	51.5	8	20	5.83	15.2	2.62
BB38273		0.34	0.06	7.05	3.2	930	2.96	0.42	1.15	0.13	80.4	10.6	53	4.7	9.1	4.08
BB38274		0.28	0.08	6.69	1.7	680	2.99	0.35	1.47	0.16	59.9	7.3	46	4.15	11.6	2.73
BB38275		0.32	0.04	6.95	2.8	720	3.21	0.68	1.21	0.29	69	8.5	78	7.56	12.4	3.86
BB38276		0.30	0.12	6.03	3.8	730	2.26	0.66	0.77	0.14	65.4	6.9	48	8.73	13.8	2.81
BB38277		0.32	0.1	6.66	1.4	820	2.92	0.43	1.42	0.25	73.5	11.3	65	6.06	9.8	3.48
BB38278		0.34	0.25	6.45	3.4	650	3.12	0.55	1.07	0.27	69.9	9.4	60	4.37	16.4	3.52
BB38279		0.38	0.07	6.2	2.5	890	2.89	0.66	1.1	0.4	77.6	9.4	199	8.3	9.7	2.88
BB38280		0.40	0.06	6.96	1.6	880	3.01	0.64	1.23	0.38	88.5	8.8	43	6.09	9	3.29
BB38281		0.20	0.7	7.32	7.9	850	3.81	1.35	0.59	0.81	82.7	28.9	63	9.95	32.5	5.39
BB38282		0.30	0.12	6.98	4.5	740	3.29	0.75	1.12	0.18	87.7	10.1	78	7.19	13.8	4.48
BB38283		0.34	0.04	6.74	4	720	3.15	0.49	1.15	0.18	63	9.1	70	5.63	10.3	3.54
BB38284		0.30	0.14	7.17	2.2	410	3.44	0.82	2.63	0.24	60.2	17.3	62	10.85	21.4	6
BB38285		0.28	0.06	7.68	3.5	350	3.98	1.36	3.03	0.2	48.3	21.4	70	15.5	20.9	7.19
BB38286		0.14	0.05	7.36	0.4	730	1.37	0.22	0.55	0.07	98.8	2.4	9	1.74	3.5	1.34
BB38287		0.18	0.16	6.36	1.1	1160	1.78	0.54	1.91	0.5	57.3	19.1	15	3.46	15.4	2.66
BB38288		0.18	0.39	7.02	2.3	530	4.22	1.1	1.2	0.22	84.9	29.3	75	20.6	49.8	6.84
BB38289		0.26	0.13	7.63	2	850	1.45	0.36	1.85	0.1	52.7	6.7	11	3.06	22.3	2.07
BB38290		0.16	0.25	5.66	2.1	510	2.59	0.33	1.4	0.23	92.8	12	62	7.57	29.4	4.49
BB38291		0.22	0.17	6.47	3.5	660	3.01	1.24	1.77	0.35	69.6	15.4	59	16.4	24.5	5.21
BB38292		0.12	0.16	6.36	0.9	740	1.36	0.16	1.5	0.17	37.5	4.8	7	1.77	17.9	1.7
BB38293		0.20	0.14	6.68	1.3	570	2.38	0.83	2.15	0.17	62.1	14	56	8.2	22.1	5.07
BB38294		0.14	0.16	7.44	2.9	640	3.08	0.71	1.74	0.19	70.9	19.8	63	20.7	41.7	5.75
BB38295		0.18	0.16	6.76	1.3	810	1.9	0.35	1.6	0.11	47	9.7	34	7.19	16.9	3.12
BB38296		0.18	0.11	7.61	1.5	790	1.22	0.13	2.18	0.09	35.8	7.3	8	1.46	17.5	2.22
BB38297		0.32	0.16	7.01	1.1	420	2.62	0.3	2.79	0.26	72.4	19	84	6.57	28.8	6.3
BB38298		0.24	0.19	7	3.1	740	2.81	0.46	1.9	0.24	79.6	17	88	9.54	32.8	5.21
BB38299		0.20	0.16	6.61	2.7	780	2.4	0.47	1.34	0.18	71.4	11.2	66	9.94	30.4	4.02
BB38300		0.30	0.19	7.57	1.9	660	3.59	1.11	2.3	0.32	78.7	19.2	74	15.65	51.2	6.96
BB38301		0.12	0.17	6.56	1.2	730	1.4	0.17	1.44	0.1	43.5	4.8	13	2.92	22.3	1.79
BB38302		0.20	0.11	7.52	1.7	900	1.33	0.14	1.67	0.08	38.8	4.7	3	1.53	22.8	1.56
BB38303		0.26	0.16	6.89	1.2	330	4.4	0.55	4.65	1.24	56.3	32.1	164	3.61	56.8	9.05
BB38304		0.22	0.16	7.99	1.4	860	1.31	0.13	2.23	0.07	44.8	7	8	1.58	21.4	2.18
BB38305		0.18	0.1	7.19	1.5	820	1.17	0.11	1.75	0.06	38.1	4.7	4	1.21	19	1.56
BB38306		0.22	0.15	7.36	3.9	560	2.99	0.91	1.96	0.2	69.3	13.4	48	10.95	25.3	5.28
BB38307		0.20	0.18	7.7	7.6	520	3.78	3.1	2.48	0.25	82.3	18.8	62	15.75	26.4	6.8
BB38308		0.18	0.33	6.91	1.3	590	2.55	0.73	2.47	0.36	99.4	20.6	53	11.65	14.6	7.01
BB38309		0.28	0.31	6.56	3	590	3.39	0.76	1.77	0.2	88.6	13	45	11.35	31.2	4.9
BB38310		0.16	0.23	6.23	1.2	690	1.82	0.19	1.44	0.11	66.8	5	11	2.35	22.8	1.82

Comments: REE's may not be totally soluble in MS61 method.



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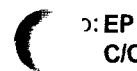
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Method Analyte Units LOR	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005	ME-MS61 K % 0.01	ME-MS61 La ppm 0.5	ME-MS61 Li ppm 0.2	ME-MS61 Mg % 0.01	ME-MS61 Mn ppm 5	ME-MS61 Mo ppm 0.05	ME-MS61 Na % 0.01	ME-MS61 Nb ppm 0.1	ME-MS61 Ni ppm 0.2	ME-MS61 P ppm 10	ME-MS61 Pb ppm 0.5
Sample Description															
BB38271	19.2	0.1	3.2	0.06	1.86	37	41	1.03	665	1.38	1.49	19.4	26.7	1160	20
BB38272	17.5	0.08	5.1	0.031	1.64	25.6	35	0.87	474	1.57	2.35	9.9	9.3	900	10.2
BB38273	21.3	0.1	4.8	0.08	1.78	39.3	31.4	1.34	566	1.27	1.97	22.1	17.4	610	10.8
BB38274	17.9	0.09	4.4	0.041	1.52	30.2	24.3	0.84	427	1.16	2.12	15.7	15.4	1340	13.6
BB38275	20.4	0.09	3.9	0.062	1.7	32.8	35.7	1.04	562	1.21	2.02	26.4	22.8	910	14
BB38276	17.7	0.09	2.9	0.043	1.42	32.3	26.3	0.62	607	2.28	1.27	13.2	15.5	2170	20.4
BB38277	19.1	0.09	3.8	0.063	1.52	33.6	25.6	1.12	1490	1.34	2	24	17.6	880	11.7
BB38278	17.1	0.1	3.5	0.059	1.3	33.4	31.2	0.93	595	1.72	1.57	17.8	26.1	1940	16.2
BB38279	17.7	0.12	2.6	0.042	1.94	38.2	34.5	1.22	731	1.5	1.2	15.6	63.1	1110	19.2
BB38280	21.4	0.11	4.6	0.07	1.7	43.3	26.6	0.87	835	1.35	2.23	27.9	13.9	720	12.7
BB38281	24.3	0.13	2.9	0.089	1.6	38.1	47.6	0.99	1025	2.9	1.06	20.1	33.7	1510	43.1
BB38282	20.4	0.12	3.7	0.071	1.76	42	42.4	1.02	775	2.09	1.71	28.4	21.9	630	17.7
BB38283	18.15	0.1	2.8	0.06	1.7	29.4	37.5	1.03	484	1.42	1.89	17.5	20.4	560	15.1
BB38284	21.2	0.11	1.7	0.097	1.44	27.7	47.7	1.92	940	3.82	1.87	25.1	20.1	1240	8.9
BB38285	26	0.14	1	0.108	1.24	21.2	53.2	2.3	970	1.86	2.14	26.2	22.8	1580	9.1
BB38286	21.4	0.09	1.7	0.04	0.96	47.2	10	0.4	540	8.1	5	21.3	2.2	390	5.7
BB38287	15.55	0.07	4.3	0.03	1.76	21	17.8	0.72	7230	4.11	1.95	8.3	5.3	1340	11.4
BB38288	26.7	0.13	1.5	0.081	1.92	41.7	108.5	1.63	1750	5.7	0.99	18.2	27.3	2140	12.4
BB38289	20.5	0.07	3.8	0.025	2.1	23.6	26.3	0.63	579	1.9	2.56	6.9	6	820	9.7
BB38290	18.1	0.12	1.1	0.07	1.28	52.8	41.1	1.26	638	1.49	1.05	17.4	21.6	2010	9.6
BB38291	23.6	0.11	1.8	0.073	1.54	30	31.5	1.2	1665	2.14	1.49	22.4	16.2	3140	12
BB38292	16.25	0.05	3.3	0.02	1.75	17.9	18.2	0.43	454	1.71	2.15	4.9	3.7	1350	8.9
BB38293	22.8	0.11	1.7	0.073	1.72	24.2	29.9	1.39	1490	1.51	1.77	21.6	16.3	2370	8.8
BB38294	26	0.13	1.8	0.084	1.81	31.7	90.4	1.62	1075	2.55	1.89	20.1	24.2	1580	12.4
BB38295	21.8	0.07	2.8	0.044	1.84	19	24.4	0.85	1165	1.86	1.97	15.6	8.8	1530	9.6
BB38296	20.3	0.07	3.6	0.021	2	16.6	18.6	0.75	512	1.62	2.66	5.5	5.6	750	8
BB38297	23.6	0.13	1	0.103	1.44	28.3	47	2.18	1025	1.48	1.81	24.7	28.2	1780	8.8
BB38298	23.7	0.14	1.7	0.079	2	40.3	57.6	1.74	854	1.79	1.42	21.7	32.8	1580	17
BB38299	22.3	0.12	2.2	0.06	1.94	37.5	50.3	1.09	734	2.5	1.4	17.6	22.4	1880	17.2
BB38300	33	0.15	1.6	0.108	2.62	30.6	64.9	2.06	1185	2.05	1.44	28.5	22.8	1740	12
BB38301	17.95	0.07	3.3	0.022	1.78	21.8	18.4	0.46	442	1.9	2.07	6.4	5.1	1920	8.4
BB38302	20	0.07	4.2	0.014	2.23	19.2	20.4	0.43	511	1.93	2.69	5.4	2.5	560	8.7
BB38303	27	0.16	0.7	0.113	1.28	22.3	22.9	3.35	1615	1.34	1.36	18.5	44.9	680	10.4
BB38304	21.2	0.09	3.9	0.023	2.12	21.5	21.1	0.77	429	1.86	2.8	6.2	5.6	810	8.5
BB38305	18.6	0.07	3.7	0.016	2.05	18.2	19.4	0.5	358	1.66	2.61	5.2	3.1	460	7.9
BB38306	25.8	0.13	1.8	0.089	1.38	32.4	40.7	1.49	848	2.17	2.06	22.5	15.4	1660	10.5
BB38307	30.9	0.16	1.4	0.11	1.64	32	40.7	1.91	1020	2.19	2.02	31.2	18.8	1060	13.1
BB38308	30.6	0.17	1.1	0.097	1.64	46.3	27.8	1.96	1465	2.67	1.69	36.4	19.4	1320	8.5
BB38309	21.9	0.15	1.7	0.073	1.32	50.1	41.7	1.4	755	2.6	1.61	17.4	15.8	2250	8.7
BB38310	16.85	0.1	3	0.024	1.6	41	19	0.5	311	1.91	1.93	5.7	6.2	1760	7.9

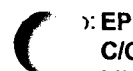
Comments: REE's may not be totally soluble in MS61 method.



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Method Analyte Units LOR	ME-MS61 Rb ppm 0.1	ME-MS61 Re ppm 0.002	ME-MS61 S % 0.01	ME-MS61 Sb ppm 0.05	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.2	ME-MS61 Tl % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1	ME-MS61 W ppm 0.1
Sample Description															
BB38271	111	<0.002	0.05	0.46	1	5.4	162.5	1.44	<0.05	18	0.523	0.53	3.9	89	4.1
BB38272	57.5	<0.002	0.04	0.39	1	2.2	464	0.8	<0.05	10	0.304	0.31	2.9	58	0.8
BB38273	93.7	<0.002	0.01	0.46	1	5.9	168.5	1.51	<0.05	15.6	0.613	0.39	3	108	1.5
BB38274	68.4	<0.002	0.05	0.35	1	4.5	286	1.22	<0.05	13.2	0.476	0.34	2.8	79	1.4
BB38275	112	<0.002	0.04	0.47	1	6.8	132.5	1.95	<0.05	17.3	0.614	0.44	2.9	101	2.1
BB38276	111.5	<0.002	0.09	0.63	1	4.1	151.5	0.94	<0.05	17.8	0.349	0.46	4.2	95	1.5
BB38277	102	<0.002	0.05	0.4	1	6.3	147.5	1.72	<0.05	14.7	0.645	0.38	3.1	92	1.5
BB38278	67.2	<0.002	0.06	0.42	1	4.5	143	1.36	<0.05	16.8	0.485	0.34	4.4	81	1.8
BB38279	140	<0.002	0.04	0.54	1	5.2	164	1.2	<0.05	13.9	0.389	0.6	3	90	1.5
BB38280	118.5	<0.002	0.02	0.39	1	7.6	129	1.98	<0.05	19.4	0.703	0.44	3.3	89	1.8
BB38281	129.5	<0.002	0.06	0.83	1	5.9	83.9	1.46	<0.05	20	0.491	0.63	4.5	133	3.1
BB38282	113	<0.002	0.03	0.5	1	6.9	116.5	2.04	<0.05	19.8	0.916	0.5	3.3	111	2.8
BB38283	100	<0.002	0.02	0.39	1	5.3	119	1.24	<0.05	13.6	0.488	0.43	2.6	93	1.5
BB38284	101.5	<0.002	0.06	0.32	1	7.1	126	1.7	<0.05	11.8	0.961	0.42	2.1	171	3.8
BB38285	93.4	<0.002	0.03	0.26	1	7.6	166.5	1.64	<0.05	8.8	1.1	0.38	1.8	250	1.3
BB38286	26.4	<0.002	0.02	0.18	1	8.1	76	1.74	<0.05	27.5	0.27	0.12	3.3	32	1.2
BB38287	63.8	<0.002	0.08	0.49	1	4.7	405	0.63	<0.05	7.6	0.34	0.61	3	72	2.2
BB38288	161	<0.002	0.15	0.5	1	7.3	133.5	1.27	<0.05	14.6	0.749	1.16	11.6	184	1.8
BB38289	50.2	<0.002	0.04	0.53	1	1.4	541	0.51	<0.05	6.3	0.26	0.32	3.4	49	1
BB38290	76.2	<0.002	0.13	0.38	2	4.4	99.5	1.12	<0.05	9.4	0.577	0.35	4.3	119	1.3
BB38291	124.5	<0.002	0.11	0.56	1	7.8	169	1.53	<0.05	11.5	0.815	0.49	3.8	175	3.7
BB38292	38.3	<0.002	0.1	0.5	1	0.9	439	0.39	<0.05	5.7	0.178	0.24	3.8	33	1.9
BB38293	95.1	0.002	0.07	0.37	1	6.8	207	1.4	<0.05	8.6	0.837	0.37	2.1	146	2.2
BB38294	118	<0.002	0.07	0.37	1	6	207	1.31	<0.05	11.8	0.666	0.57	6	140	7
BB38295	72.8	0.002	0.06	0.59	1	5.7	298	1.11	<0.05	8.1	0.486	0.36	2.2	102	1.4
BB38296	40	<0.002	0.03	0.49	<1	1	616	0.41	<0.05	5.2	0.279	0.25	1.9	58	0.5
BB38297	73.8	<0.002	0.06	0.21	2	5.4	135.5	1.57	<0.05	9.9	0.907	0.33	2.3	178	1
BB38298	110	<0.002	0.08	0.41	1	5.9	163	1.46	<0.05	10.2	0.735	0.54	3.3	153	1.9
BB38299	109	<0.002	0.1	0.48	1	5	213	1.23	<0.05	10.2	0.534	0.56	3.6	114	1.9
BB38300	167	<0.002	0.09	0.32	2	10.2	142.5	1.85	<0.05	11.6	1.12	0.7	2.8	222	2.9
BB38301	51.2	<0.002	0.11	0.52	1	1.3	412	0.52	<0.05	6.6	0.218	0.29	3.7	42	0.9
BB38302	52.7	<0.002	0.03	0.5	<1	0.8	545	0.4	<0.05	5.6	0.18	0.31	2.2	28	0.6
BB38303	57.7	<0.002	0.05	0.23	2	3.4	147.5	1.1	<0.05	3.1	1.275	0.26	1.2	390	0.6
BB38304	45	0.002	0.03	0.5	<1	1	634	0.45	<0.05	6.1	0.27	0.27	2.4	52	0.6
BB38305	41.1	<0.002	0.03	0.47	<1	0.8	555	0.38	<0.05	5	0.185	0.26	1.9	31	0.5
BB38306	78.1	0.002	0.07	0.42	1	8	178	1.53	0.05	14.6	0.72	0.35	2.4	156	3.3
BB38307	110.5	<0.002	0.05	0.38	2	11.7	140.5	2.14	0.06	12.4	1.17	0.47	2.5	226	3.3
BB38308	272	<0.002	0.06	0.36	2	7.9	138.5	2.2	<0.05	8.5	1.355	0.51	1.9	220	3
BB38309	80.6	<0.002	0.14	0.31	2	6.5	192.5	1.19	<0.05	15.6	0.63	0.35	6.1	137	2.1
BB38310	39	<0.002	0.12	0.46	1	1.5	404	0.42	<0.05	7.1	0.209	0.23	5.1	42	0.7

Comments: REE's may not be totally soluble in MS61 method.



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CERTIFICATE OF ANALYSIS VA04039301

Sample Description	Method Analyte Units LOR	ME-MS61	ME-MS61	ME-MS61
		Y	Zn	Zr
		ppm 0.1	ppm 2	ppm 0.5
BB38271		22.8	73	71
BB38272		13.7	45	117
BB38273		20.7	65	112.5
BB38274		16.2	57	97.4
BB38275		23.1	79	87.6
BB38276		13.5	61	67.2
BB38277		24.5	67	85.3
BB38278		20.4	60	80.1
BB38279		18.4	71	59.1
BB38280		23.4	89	105
BB38281		19.4	144	66.4
BB38282		23.2	80	82.4
BB38283		19.7	72	62.9
BB38284		40	94	34.6
BB38285		49	114	15.5
BB38286		12.1	25	36.7
BB38287		15	67	100.5
BB38288		27.1	108	55.4
BB38289		11.6	52	152.5
BB38290		32.3	94	39.5
BB38291		29.8	92	65.5
BB38292		8.2	40	134
BB38293		31.1	104	62.4
BB38294		24.7	114	73.1
BB38295		13.6	65	111.5
BB38296		8.1	51	142
BB38297		47.3	122	30.9
BB38298		30.9	139	61.1
BB38299		22.7	92	87
BB38300		46.7	146	56.9
BB38301		11	43	134
BB38302		7.5	47	169.5
BB38303		43.2	192	15
BB38304		10	51	157
BB38305		8	45	154
BB38306		27.8	89	59.2
BB38307		48	108	44.6
BB38308		65.5	128	33.9
BB38309		38.3	83	54.5
BB38310		14.4	40	125

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Method Analyte Units LOR	WEI-21 Recvd Wt. kg 0.02	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01
Sample Description															
BB38311	0.14	0.12	7.26	1.8	900	1.3	0.12	1.72	0.12	37.4	4.1	3	1.26	19.5	1.52
BB38312	0.20	0.12	6.44	1	620	1.47	0.19	1.72	0.21	40	7.1	16	3.52	13.6	2.36
BB38313	0.22	0.24	6.21	2.7	470	3.17	1.44	1.66	0.33	57.3	12.4	44	10.9	22	5.1
BB38314	0.16	0.12	7.25	0.9	690	1.72	0.2	2.22	0.14	39	10.6	20	3.11	17.6	3.48
BB38315	0.20	0.17	7.33	1.8	570	3.55	0.71	2.06	0.19	58.5	12.4	50	13.05	19.4	4.99
BB38316	0.18	0.2	8.04	1.7	670	3.38	0.64	1.6	0.18	92.8	12.3	41	23.6	20.2	4.86
BB38317	0.22	0.12	6.95	1.7	690	1.69	0.42	1.97	0.15	41	7.3	21	3.71	18.7	2.96
BB38318	0.14	0.16	6.8	1.6	810	1.37	0.18	1.68	0.34	40.7	10	6	1.76	18.4	1.73
BB38319	0.18	0.14	7.68	1.6	830	1.31	0.18	1.95	0.08	38.2	5.9	7	1.71	25	1.91
BB38320	0.24	0.17	7.19	0.8	300	2.81	0.23	3	0.14	61.6	22.6	62	5.38	12.8	7.65
BB38321	0.22	0.23	6.64	3.9	430	4.04	1.81	2.36	0.25	64	16.6	54	17.85	26.7	6.2
BB38322	0.24	0.16	7.47	1.5	800	1.31	0.17	1.96	0.1	39.7	6.8	9	1.82	21.6	2.18
BB38323	0.20	0.15	7.16	1.4	410	3.04	0.55	3.38	0.18	51.8	20.5	51	10.85	20.3	7.71
BB38324	0.24	0.04	5.85	2.5	540	2.89	0.52	1.76	0.2	48.6	11.9	55	7.2	17.4	3.95
BB38325	0.12	0.18	6.19	0.8	730	1.32	0.19	1.76	0.18	44.6	10	29	2.54	21.2	2.01
BB38326	0.02	0.12	6.9	0.2	720	2.48	0.15	0.79	0.07	146.5	14	15	3.66	14.4	1.73
BB38327	0.20	0.14	6.69	1.3	620	1.42	0.3	1.81	0.09	45.5	8.4	24	3.61	25.9	3.18
BB38328	0.18	0.09	7.49	2	790	1.29	0.14	1.88	0.07	37.7	6.7	7	1.7	21.1	1.91

Comments: REE's may not be totally soluble in MS61 method.



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CERTIFICATE OF ANALYSIS VA04039301

Sample Description	Method Analyte Units LOR	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
		Ga	Ge	Hf	In	K	La	Li	Mg	Mn	Mo	Na	Nb	Ni	P
		ppm 0.05	ppm 0.05	ppm 0.1	ppm 0.005	% 0.01	ppm 0.5	ppm 0.2	% 0.01	ppm 5	ppm 0.05	% 0.01	ppm 0.1	ppm 0.2	ppm 10
BB38311		18.4	0.07	4	0.014	2.21	18.6	20.8	0.44	357	1.83	2.71	5.1	2.7	510
BB38312		19.1	0.08	2.8	0.028	1.43	17.7	17.4	0.72	616	1.78	2.35	9.5	7.9	1700
BB38313		22.7	0.12	1.3	0.084	1.14	22.9	33.4	1.33	665	1.54	1.77	22.2	15.4	1340
BB38314		21.2	0.09	3.1	0.041	1.66	17.5	19.5	1.05	655	2.03	2.57	12	7.4	1110
BB38315		28.2	0.13	1.7	0.078	1.48	23.6	26.5	1.4	795	2.32	2.42	31.4	15.6	340
BB38316		32.3	0.15	2.3	0.087	1.9	39.5	57.5	1.77	1040	2.36	2.57	28.9	13.6	470
BB38317		21.1	0.1	3	0.039	1.74	19	20.9	0.83	689	3.29	2.3	11.2	6.3	1360
BB38318		18.2	0.08	3.8	0.018	2	18.3	19.8	0.5	1690	3.33	2.46	5.3	3.9	1120
BB38319		20.4	0.08	4	0.02	2.1	18.4	20.9	0.64	393	1.88	2.75	5.9	4.9	710
BB38320		27.3	0.16	1	0.117	1.08	23.7	35.7	2.57	1030	1.49	1.98	34	18.4	1860
BB38321		26	0.16	1.3	0.094	1.2	34	34.9	1.7	1015	2.21	1.87	26.8	17.2	1990
BB38322		20.2	0.1	3.7	0.021	2	19.2	20.2	0.68	401	1.72	2.6	6	5.5	820
BB38323		27.2	0.14	1	0.104	1.2	20.7	25.9	2.31	1585	3.64	2.11	25.8	20.4	610
BB38324		20.7	0.23	1.9	0.084	1.24	24.7	18.7	1.04	887	1.98	1.5	22.7	13.8	1770
BB38325		15.4	0.15	3.6	0.026	1.79	23.8	18	0.73	1100	1.94	2	6.6	9.5	1720
BB38326		23.1	0.34	3	0.068	1.94	70.9	16.2	0.54	908	2.45	1.89	14	4.2	1440
BB38327		19.25	0.19	3.1	0.042	1.6	22.7	17.8	0.79	490	1.88	1.94	12.4	7.9	1360
BB38328		18.15	0.14	4.4	0.026	2.11	19.9	20	0.65	403	1.68	2.55	6.5	4.7	690

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Sample Description	Method Analyte Units LOR	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
		Rb	Re	S	Sb	Se	Sn	Sr	Ta	Te	Th	Ti	Ti	U	V	W
		ppm 0.1	ppm 0.002	% 0.01	ppm 0.05	ppm 1	ppm 0.2	ppm 0.2	ppm 0.05	ppm 0.05	ppm 0.2	% 0.005	ppm 0.02	ppm 0.1	ppm 1	ppm 0.1
BB38311		44.6	<0.002	0.05	0.52	<1	0.8	547	0.4	<0.05	5.5	0.182	0.26	2.5	29	0.6
BB38312		39.4	<0.002	0.07	0.4	1	3	398	0.73	<0.05	7	0.332	0.22	1.9	70	0.9
BB38313		84	<0.002	0.08	0.27	1	7.5	106	1.49	0.07	11	0.725	0.33	2	140	2.7
BB38314		58.2	<0.002	0.05	0.4	1	2.9	356	0.9	<0.05	7.8	0.472	0.22	1.9	112	0.8
BB38315		101.5	<0.002	0.03	0.3	1	11.5	141	2.23	0.05	11	1.09	0.36	2.1	178	5
BB38316		144	<0.002	0.03	0.16	1	12.4	89.7	2.02	<0.05	19.6	0.831	0.5	2.7	158	3.8
BB38317		51	<0.002	0.06	0.46	1	2.5	422	0.8	<0.05	7	0.462	0.29	4.7	109	0.9
BB38318		41.8	<0.002	0.08	0.46	<1	0.8	513	0.39	<0.05	6	0.202	0.37	4.4	38	0.6
BB38319		51.3	<0.002	0.04	0.47	<1	1.1	596	0.43	<0.05	5.8	0.234	0.27	2.5	43	0.6
BB38320		52.5	<0.002	0.04	0.2	2	6.2	128	1.97	<0.05	6.8	1.285	0.31	1.6	231	0.6
BB38321		110.5	<0.002	0.08	0.31	2	9.9	140	1.85	0.05	8.9	1.05	0.41	2.6	202	2.4
BB38322		42.6	<0.002	0.04	0.44	<1	1.1	570	0.44	<0.05	5.5	0.281	0.25	2.3	55	0.6
BB38323		64.8	<0.002	0.02	0.38	1	9	180.5	1.8	<0.05	7.7	0.974	0.27	1.4	200	1.9
BB38324		65	<0.002	0.06	0.55	2	7.4	167	1.49	0.05	9.4	0.741	0.43	2.3	149	8.6
BB38325		47.7	0.002	0.11	0.44	2	1.1	399	0.5	<0.05	5.8	0.258	0.24	2.8	51	0.6
BB38326		51.7	0.002	0.1	0.26	2	5.9	141	1.08	<0.05	28.3	0.271	0.3	6.5	61	3.2
BB38327		45.3	<0.002	0.06	0.43	2	2.3	390	0.87	<0.05	6.6	0.539	0.28	2.5	95	0.8
BB38328		52.3	0.002	0.03	0.49	2	1	587	0.5	<0.05	5.9	0.283	0.28	2.9	49	0.6

Comments: REE's may not be totally soluble in MS61 method.



ALS Chemex

EXCELLENCE IN ANALYTICAL CHEMISTRY

ALS Canada Ltd.

212 Brooksbank Avenue

North Vancouver BC V7J 2C1 Canada

Phone: 604 984 0221 Fax: 604 984 0218



EP

C/O ARCHER, CATHRO & ASSOCIATES (1981)

LIMITED

1016-510 W HASTINGS ST

VANCOUVER BC V6B 1L8

Project: Sparkle

Page: 6 - D
Total Pages: 6 (A - D)
Date: 10-JUL-2004
Account: EMP

CERTIFICATE OF ANALYSIS VA04039301

Sample Description	Method Analyte Units LOR	ME-MS61	ME-MS61	ME-MS61
		Y	Zn	Zr
		ppm 0.1	ppm 2	ppm 0.5
BB38311		7.1	46	165
BB38312		10.4	69	114.5
BB38313		26.1	86	40.3
BB38314		16	69	120
BB38315		27.9	91	62.4
BB38316		26.1	97	68.6
BB38317		14.8	63	122.5
BB38318		7.9	48	153.5
BB38319		8.7	47	159.5
BB38320		60.3	87	33.2
BB38321		48	92	37.8
BB38322		9.7	49	153
BB38323		41.5	71	29.5
BB38324		26.6	65	50.7
BB38325		14.5	44	106
BB38326		23.8	26	73.1
BB38327		18.8	50	88.4
BB38328		9.8	50	133.5

Comments: REE's may not be totally soluble in MS61 method.



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EXCELLENCE IN ANALYTICAL CHEMISTRY

ALS Canada Ltd.

212 Brooksbank Avenue

North Vancouver BC V7J 2C1 Canada

Phone: 604 984 0221 Fax: 604 984 0218

To: EP

C/O ARCHER, CATHRO & ASSOCIATES (1981)

LIMITED

1016-510 W HASTINGS ST

VANCOUVER BC V6B 1L8

Finalized

Page: 1

Date: 18-SEP-2004

Account: EMP

CERTIFICATE VA04059904

Project: Sparkle

P.O. No.:

This report is for 1 Rock sample submitted to our lab in Vancouver, BC, Canada on 1-SEP-2004.

The following have access to data associated with this certificate:

AL ARCHER
JOAN MARIACHER

ROB CARNE
VANCOUVER OFFICE

DOUG EATON
BILL WENGZYNOWSKI

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
PUL-31	Pulverize split to 85% <75 um
SPL-21	Split sample - riffle splitter
CRU-31	Fine crushing - 70% <2mm
LOG-22	Sample login - Rcd w/o BarCode

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION
ME-MS61	47 element four acid ICP-MS

To: EP

C/O ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

1016-510 W HASTINGS ST

VANCOUVER BC V6B 1L8

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.

Signature:



ALS Chemex

EXCELLENCE IN ANALYTICAL CHEMISTRY

ALS Canada Ltd.
212 Brooksbank Avenue
North Vancouver BC V7J 2C1 Canada
Phone: 604 984 0221 Fax: 604 984 0218

to: EP

C/O ARCHER, CATHRO & ASSOCIATES (1981)
LIMITED
1016-510 W HASTINGS ST
VANCOUVER BC V6B 1L8

Project: Sparkle

Page: 2 - A
Total Pages: 2 (A - D)
Finalized Date: 18-SEP-2004
Account: EMP

CERTIFICATE OF ANALYSIS VA04059904

Sample Description	Method Analyte Units LOR	WEI-21	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
		Recvd Wt.	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe
		kg	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%
		0.02	0.01	0.01	0.2	10	0.05	0.01	0.01	0.02	0.01	0.1	1	0.05	0.2	0.01
SPK-1		2.44	0.29	7.78	1.3	90	8.73	7.94	0.1	<0.02	2.67	0.6	174	17.85	4.8	0.63

Comments: REE's may not be totally soluble in MS61 method.



ALS Chemex

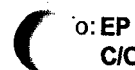
EXCELLENCE IN ANALYTICAL CHEMISTRY

ALS Canada Ltd.

212 Brooksbank Avenue

North Vancouver BC V7J 2C1 Canada

Phone: 604 984 0221 Fax: 604 984 0218



o: EP

C/O ARCHER, CATHRO & ASSOCIATES (1981)

LIMITED

1016-510 W HASTINGS ST

VANCOUVER BC V6B 1L8

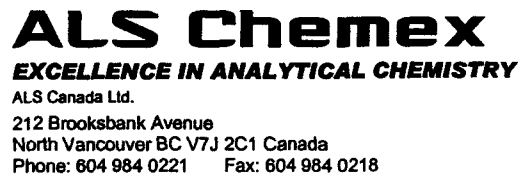
Project: Sparkle

Page: 2 - B
Total Pages: 2 (A - D)
Finalized Date: 18-SEP-2004
Account: EMP

CERTIFICATE OF ANALYSIS VA04059904

Sample Description	Method Analyte Units LOR	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
		Ga	Ge	Hf	In	K	La	Li	Mg	Mn	Mo	Na	Nb	Ni	P	Pb
		ppm 0.05	ppm 0.05	ppm 0.1	ppm 0.005	% 0.01	ppm 0.5	ppm 0.2	% 0.01	ppm 5	ppm 0.05	% 0.01	ppm 0.1	ppm 0.2	ppm 10	ppm 0.5
SPK-1		52.3	0.06	3.8	0.035	3.89	1.2	62.9	0.1	77	0.58	1.64	107	2.5	160	26.6

Comments: REE's may not be totally soluble in MS61 method.



**C/O ARCHER, CATHRO & ASSOCIATES (1981)
LIMITED
1016-510 W HASTINGS ST
VANCOUVER BC V6B 1L8**

Page: 2 - C
Total Pages: 2 (A - D)
Finalized Date: 18-SEP-2004
Account: EMP

Sample Description	Method Analyte Units LOR	ME-MS61 Rb ppm 0.1	ME-MS61 Re ppm 0.002	ME-MS61 S % 0.01	ME-MS61 Sb ppm 0.05	ME-MS61 Se ppm 1	ME-MS61 Sn ppm 0.2	ME-MS61 Sr ppm 0.2	ME-MS61 Ta ppm 0.05	ME-MS61 Te ppm 0.05	ME-MS61 Th ppm 0.2	ME-MS61 Tl % 0.005	ME-MS61 Tl ppm 0.02	ME-MS61 U ppm 0.1	ME-MS61 V ppm 1	ME-MS61 W ppm 0.1
SPK-1		>500	0.003	0.01	0.13	<1	41.9	13.3	32.2	0.1	1.9	0.036	2.23	2.6	6	4.4

Comments: REE's may not be totally soluble in MS61 method.



ALS Chemex

EXCELLENCE IN ANALYTICAL CHEMISTRY

ALS Canada Ltd.

212 Brooksbank Avenue

North Vancouver BC V7J 2C1 Canada

Phone: 604 984 0221 Fax: 604 984 0218

to: EP

C/O ARCHER, CATHRO & ASSOCIATES (1981)

LIMITED

1016-510 W HASTINGS ST

VANCOUVER BC V6B 1L8

Project: Sparkle

Page: 2 - D

Total # Pages: 2 (A - D)

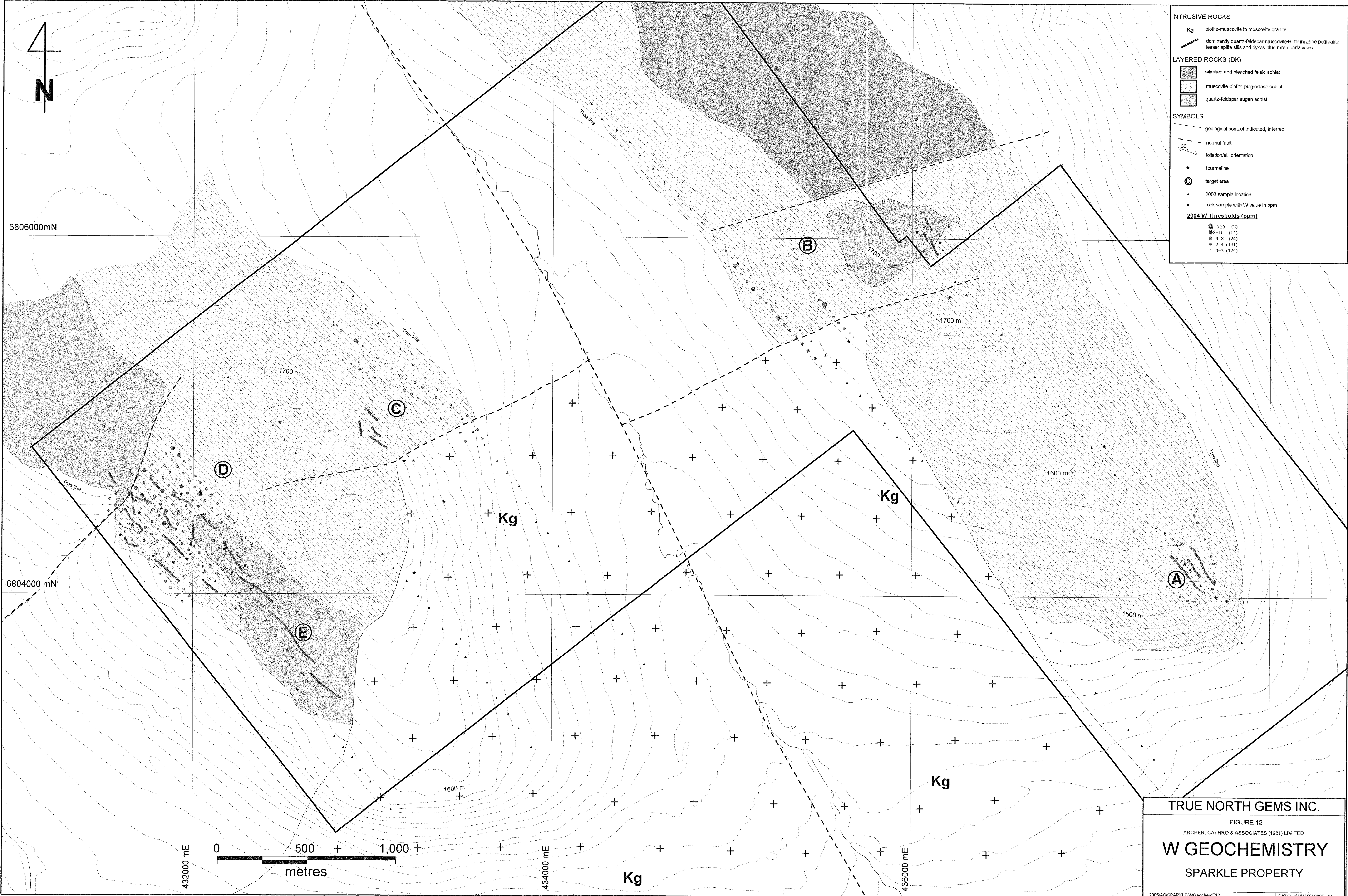
Finalized Date: 18-SEP-2004

Account: EMP

CERTIFICATE OF ANALYSIS VA04059904

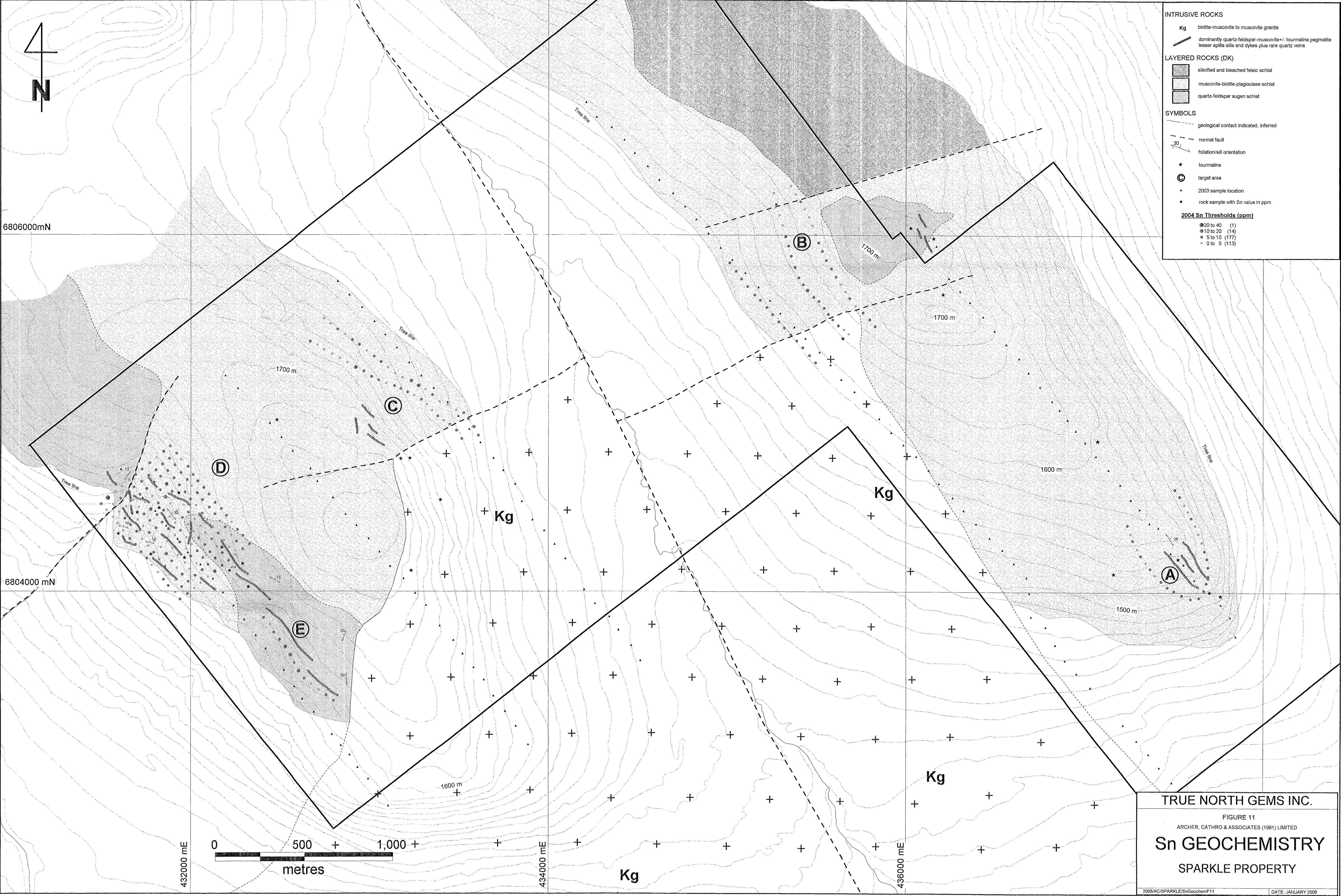
Sample Description	Method	ME-MS61	ME-MS61	ME-MS61
	Analyte	Y	Zn	Zr
	Units	ppm	ppm	ppm
	LOR	0.1	2	0.5
SPK-1		1.7	13	32.1

Comments: REE's may not be totally soluble in MS61 method.



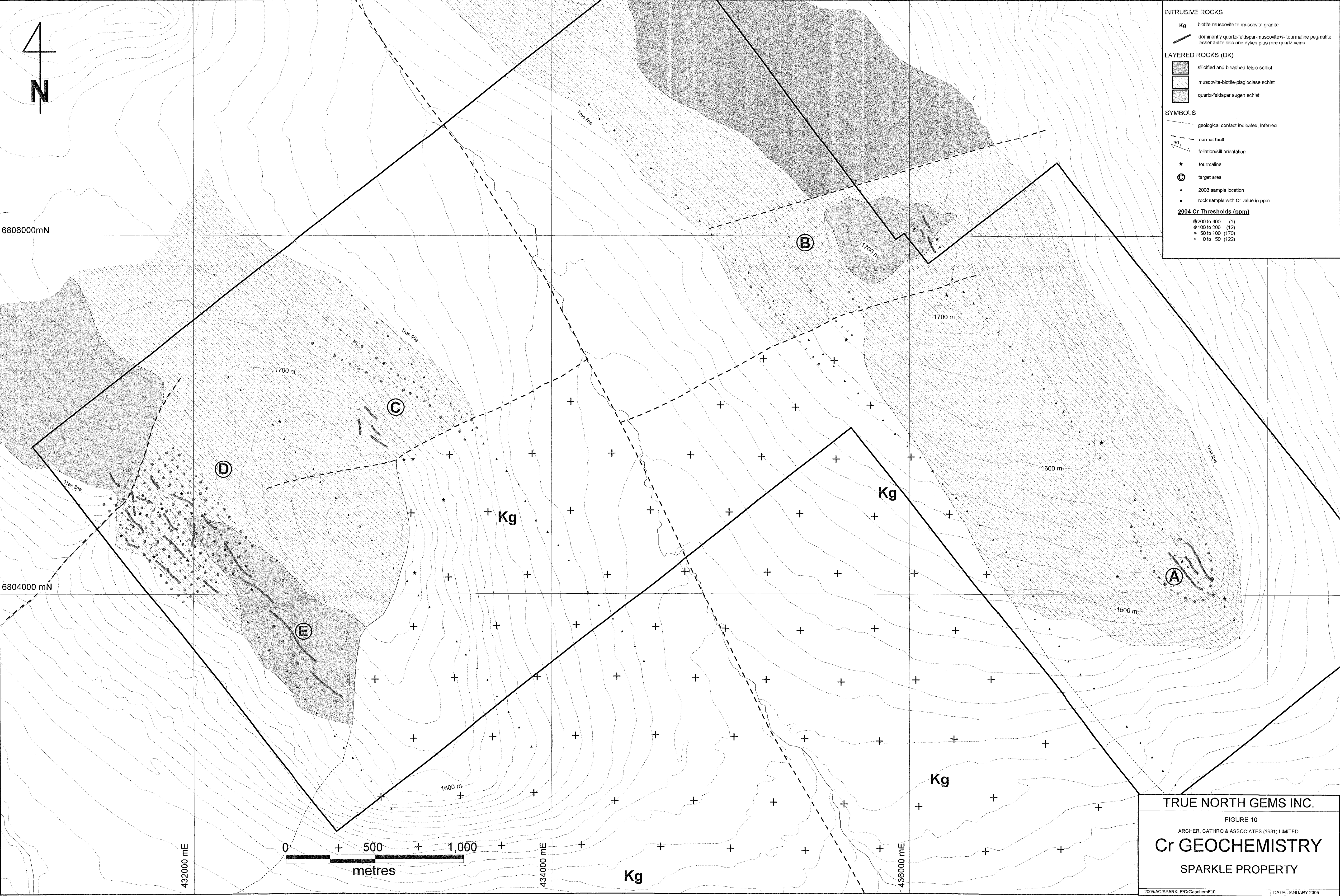
094533

YUKON ENERGY, MINES
& RESOURCES LIBRARY
2005/AC/SPARKLE/WGeochem/F12
WHITEHORSE, YUKON, Y1A 2C6

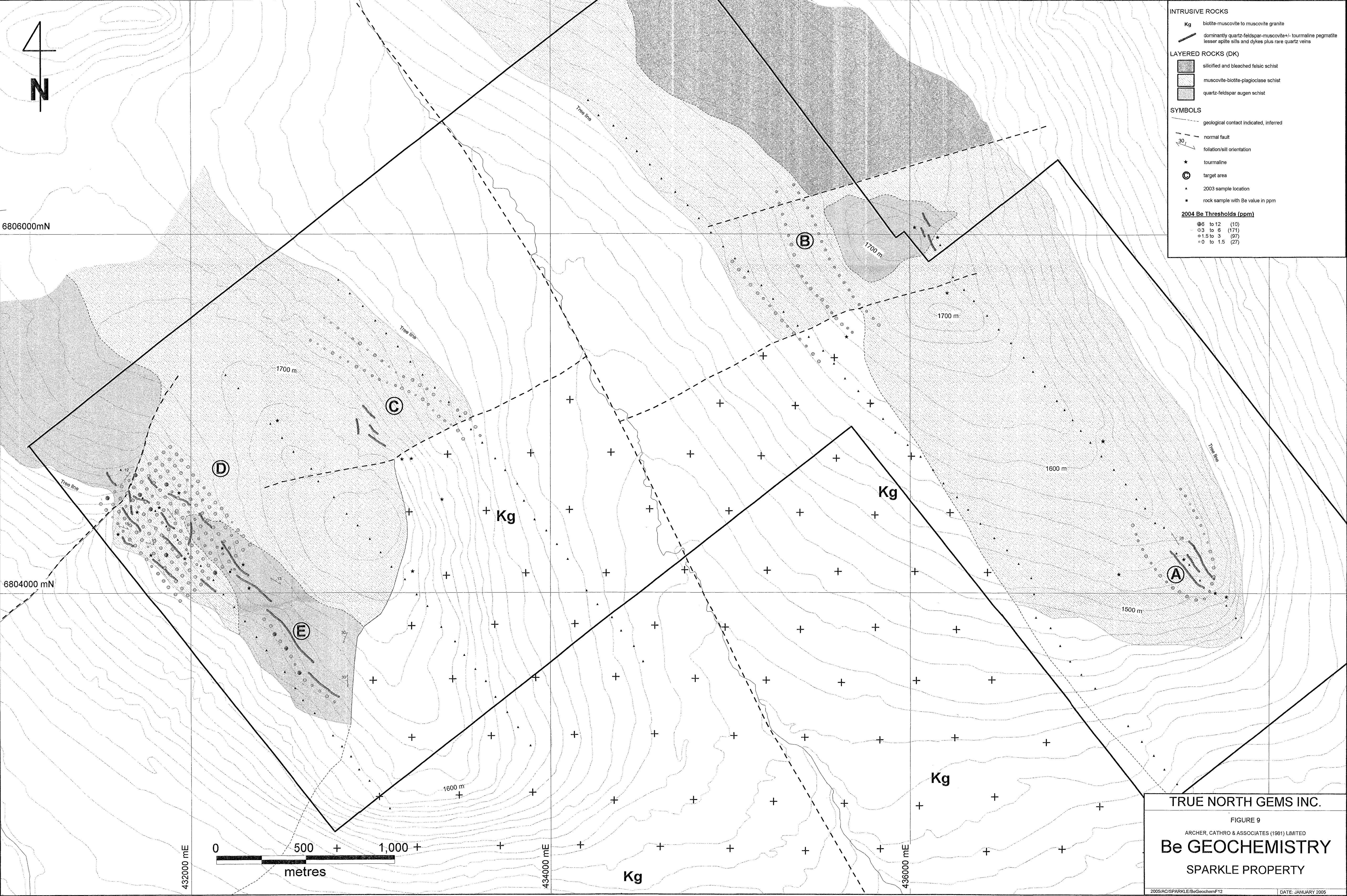


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TRUE NORTH GEMS INC.

FIGURE 9

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

Be GEOCHEMISTRY

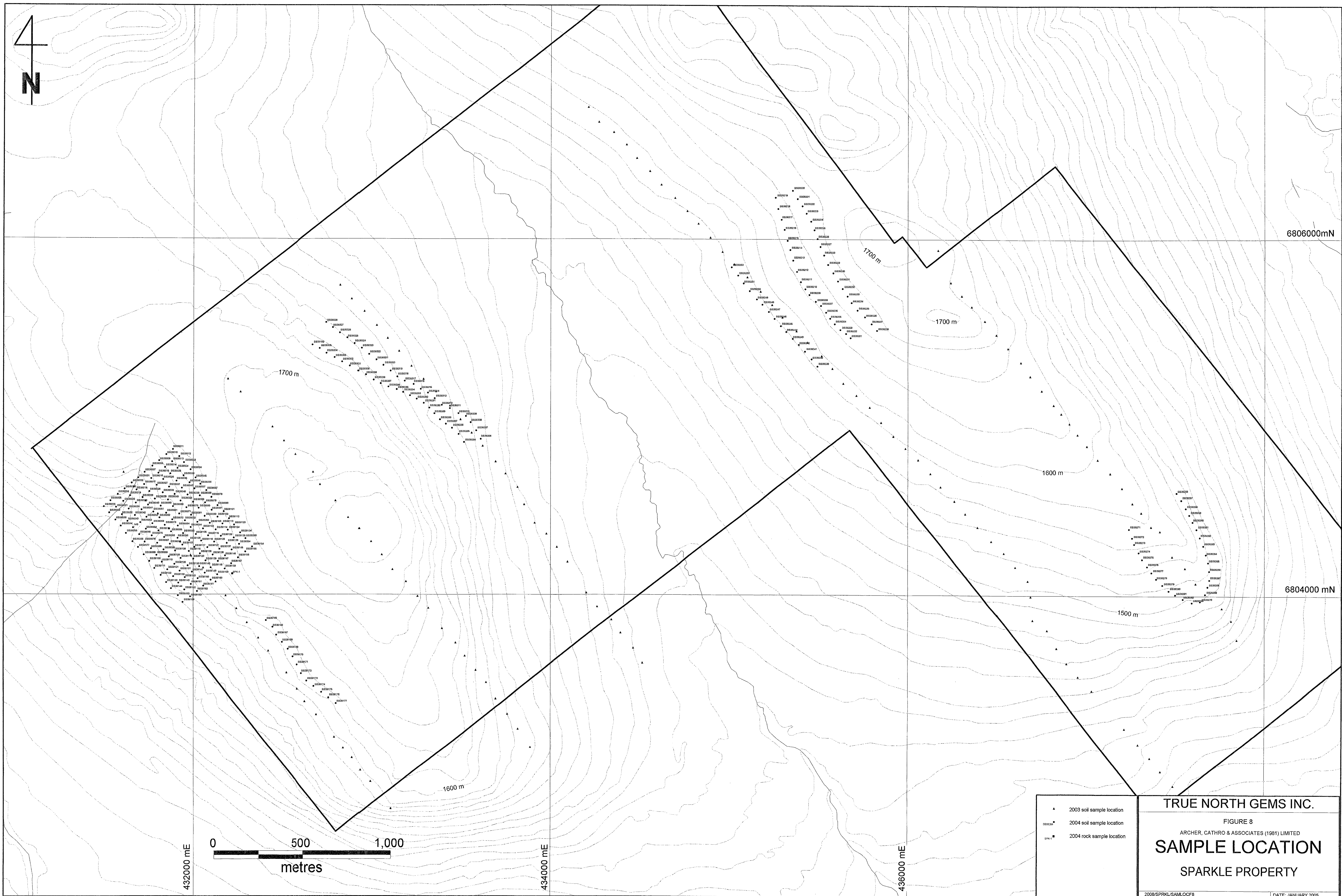
SPARKLE PROPERTY

2005/AC/SPARKLE/BeGeochemF12

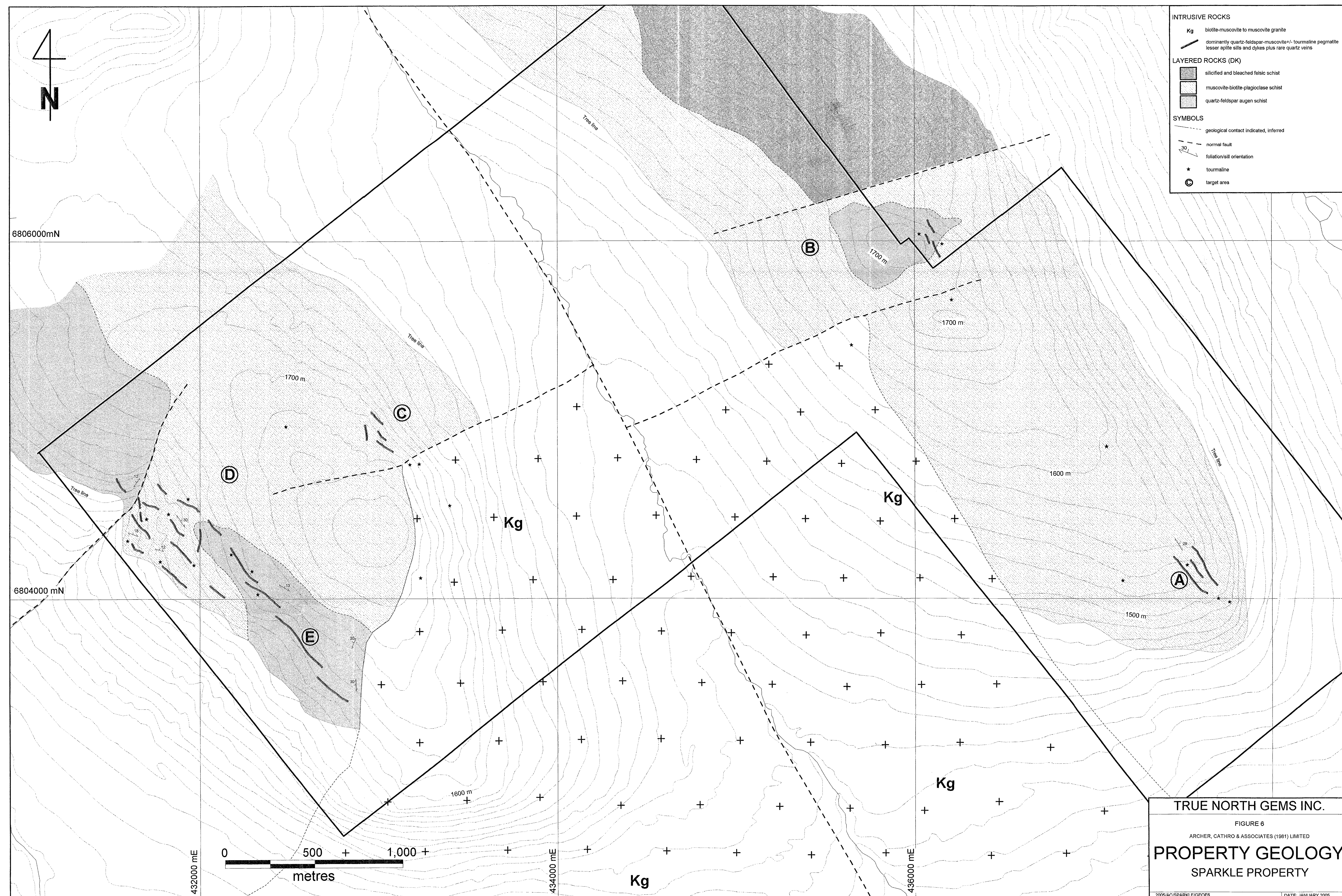
DATE: JANUARY 2005

094533

YUKON ENERGY MINES
& RESOURCES LIBRARY
PO BOX 2700
WHITEHORSE YUKON Y1A 2G8



094533



Q225711

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED
1016 – 510 West Hastings Street
Vancouver, B.C. V6B 1L8

Telephone: 604-688-2568

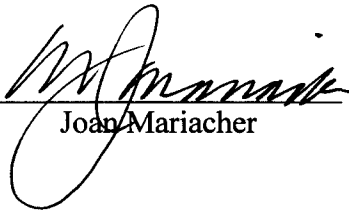
Fax: 604-688-2578



AFFIDAVIT

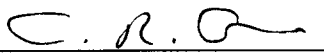
I, Joan Mariacher, of Vancouver, B.C. make oath and say:

That to the best of my knowledge the attached Statement of
Expenditures for exploration work on the Sparkle 1-86
mineral claims on Claim Sheet 105G/8 is accurate.

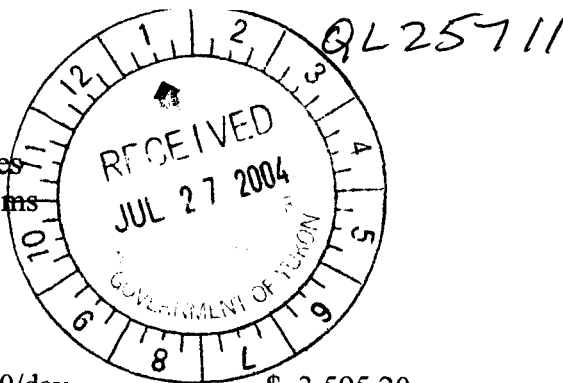

Joan Mariacher

Sworn before me at Vancouver, B.C.

this 23rd day of July, 2004


Notary Public, Yukon Territory

Statement of Expenditures
Sparkle 1-86 Mineral Claims
July 21, 2004



Labour

B. Wengzynowski – geologist – 6 days January to May at \$560/day	\$ 3,595.20
G. Downs – field assistant – 18 hours January to May at \$40/hr	770.40
June 7 to 20 – 14 days at \$320/day	4,793.60
M. Dumala – geologist – 16 hours January to May at \$42/hr	719.04
H. Neufeld – geologist – June 8 to 20 – 13 days at \$352/day	4,896.32
A. Brand – field assistant – June 8 to 20 – 13 days at \$256/day	3,560.96
I. Korkh – field assistant – June 8 to 20 – 13 days at \$224/day	3,115.84
	21,451.36

Expenses

Field room and board – 53 days at \$125/day	7,088.75
ALS Chemex	6,380.76
Kluane Airways	4,343.13
Alkan Air	1,284.00
TND Hotel	466.35
Maps and printing	440.86
	20,003.85
	<u>\$41,455.21</u>

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

In Account With

Project *EMERALD PROJECT*

Date *JANUARY 31, 2004*



LABOUR

Field

D. EATON - 4 Hrs AT 70/HR
B. WENZELKOWSKI - 62 1/4 Hrs AT 70/HR

280.00
4375.00

G. DOWNS - 20 Hrs AT 36/HR
M. DUMALA - 22 Hrs AT 36/HR

720.00
792.00

Accounting and Expediting J. Mariacher- *22 3/4 hrs at \$58/hr*

1319.50 *7469.00*

OTHER SERVICES

Room and Board in Whitehorse *days at \$90 / day*

Field equipment from AC stock

Printing *13.25 + 13.00 + 27.00 + 7.00 + 4.00 + 9.00* Photocopies *959 @ .15 = 143.85*

300.80 *300.80*

Rentals from AC *33.80 + 15.60 + 33.80*

EXPENSES

Petty Cash *15.30 CY + 1.00 200T FI*

16.30

Telephone *4.47 + 5.06*

9.53

PRO RATA 2003 BANK SERVICE CHARGE

607.07

LAND USE SHARK

250.00

CORRECT ROUNDOFF FEE FOR BILL W.

(186.92)

B. WENZELKOWSKI

03

12.62

CORPORATE COURIERS

4.30

712.90

Management 6% on Expenses
on Field A/C

42.77

42.77

8525.47

GST (R100247667) 7% on *8525.47*

596.78

9122.25

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

In Account With

Project EMERALD PROJECT

Date FEBRUARY 29, 2004

LABOUR

Field

D. EATON - 4 hrs AT 70/HR

280.00

B. WENZYNOWSKI - 105 HQ AT 70/42

7350.00

G. DOWNS - 78³⁴ RA AT 40/M

3150.00

M. DOMACA - 65 HRS AT 42/HR

2730.00

Accounting and Expediting J. Mariacher-

15 1/4 hrs at \$58/hr

884.50

14394.50

OTHER SERVICES

Room and Board in Whitehorse

days at \$90 / day

File equipment from AC stock

Printing	77.25
----------	-------

Photocopies 11 @.15 = 1.65-

79.40

79.40

Rentals from AC

EXPENSES

Petty Cash

Telephone 0.63

0.63

Govt of Yukon MARI

U/

163.00

163.63

Management	6% on Expenses
	on Field A/C

982

①

9.82

14647.25

GST (R100247667) 7% on 14 647.35

1025.31

15672.66

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

In Account With

Project *EMERALD PROJECT*
 Date *MARCH 1-31, 2004*

LABOUR

Field	D. EATON - 33 Hrs AT 70/Hr	2310.00	
	B. WENGZYNOWSKI - 3 Hrs AT 70/Hr	210.00	
	M. GUMALA - 73 Hrs AT 42/Hr	3066.00	
	G. DOWNS - 18 Hrs AT 40/Hr	720.00	

Accounting and Expediting	J. Mariacher-	5 1/4 hrs at \$58/hr	<u>304.50</u>	6610.50
---------------------------	---------------	----------------------	---------------	---------

OTHER SERVICES

Room and Board in Whitehorse	days at \$90 / day			
Equipment from AC stock				
Printing	91.15	Photocopies 16 @ .15 = 2.40	<u>93.55</u>	93.55
Rentals from AC				

EXPENSES

Petty Cash				
Telephone				
CORPORATE COUNSELLOR			<u>2.15</u>	2.15

Management 6% on Expenses on Field A/C		0.13	<u>0</u>	0.13
GST (R100247667) 7% on 6706.33				469.44
				7175.77



ALS Chemex

EXCELLENCE IN ANALYTICAL CHEMISTRY

ALS Canada Ltd.

212 Brooksbank Avenue

North Vancouver BC V7J 2C1 Canada

Phone: 604 984 0221 Fax: 604 984 0218

To: EP
C/O ARCHER, CATHRO & ASSOCIATES (1981)
LIMITED
1016-510 W HASTINGS ST
VANCOUVER BC V6B 1L8

Page 1 of 1

INVOICE NUMBER 1108620

BILLING INFORMATION

Certificate: **VA04039300**

Account: **EMP**

Date : **10-JUL-2004**

Project: Sparkle

P.O. No.:

Quote:

Terms: **Due on Receipt**

C1

Comments:

ANALYSED FOR				UNIT	
QUANTITY	CODE	-	DESCRIPTION	PRICE	TOTAL
1	BAT-01		Administration Fee	22.50	22.50
150	PREP-41		Dry, Sieve (180 um) Soil	0.94	141.00
33.86	PREP-41		Weight Charge (kg) - Dry, Sieve (180 um) Soil	1.31	44.36
150	ME-MS61		47 element four acid ICP-MS	14.06	2,109.00
150	GEO-4A01		Four Acid Dig - ME-MS61	2.81	421.50

SUBTOTAL (CAD) \$ 2,738.36

GST R100938885 \$ 191.69

TOTAL PAYABLE (CAD) \$ 2,930.05

To: EP
ATTN: ACCOUNTS PAYABLE
C/O ARCHER, CATHRO & ASSOCIATES (1981)
LIMITED
1016-510 W HASTINGS ST
VANCOUVER BC V6B 1L8

Please Remit Payments To :

ALS Chemex

212 Brooksbank Avenue

North Vancouver BC V7J 2C1

926711



ALS Chemex

EXCELLENCE IN ANALYTICAL CHEMISTRY

ALS Canada Ltd.
212 Brooksbank Avenue
North Vancouver BC V7J 2C1 Canada
Phone: 604 984 0221 Fax: 604 984 0218

To: EP
C/O ARCHER, CATHRO & ASSOCIATES (1981)
LIMITED
1016-510 W HASTINGS ST
VANCOUVER BC V6B 1L8

INVOICE NUMBER 1108629

BILLING INFORMATION

Certificate: **VA04039301**
Account: **EMP**
Date : **10-JUL-2004**
Project: Sparkle
P.O. No.:
Quote:
Terms: **Due on Receipt**

C1

Comments:

ANALYSED FOR			UNIT	
QUANTITY	CODE	DESCRIPTION	PRICE	TOTAL
178	PREP-41	Dry, Sieve (180 um) Soil	0.94	167.32
41.82	PREP-41	Weight Charge (kg) - Dry, Sieve (180 um) Soil	1.31	54.78
178	ME-MS61	47 element four acid ICP-MS	14.06	2,502.68
178	GEO-4A01	Four Acid Dig - ME-MS61	2.81	500.18

SUBTOTAL (CAD) \$ 3,224.96

GST R100938885 \$ 225.75

TOTAL PAYABLE (CAD) \$ 3,450.71

To: EP
ATTN: ACCOUNTS PAYABLE
C/O ARCHER, CATHRO & ASSOCIATES (1981)
LIMITED
1016-510 W HASTINGS ST
VANCOUVER BC V6B 1L8

Please Remit Payments To :

ALS Chemex
212 Brooksbank Avenue
North Vancouver BC V7J 2C1

9425711

9225711

KLUANE AIRWAYS LTD.

BOX 31489
WHITEHORSE, YUKON Y1A 6K8

ARCHER CATHRO
CHARTERER

0611104				
INVOICE DATE				
H500		FIVEA		
AIRCRAFT TYPE		REGISTRATION		

No 5226

BILLING ADDRESS

PHONE: _____

FROM	MILES	HOURS	REMARKS/PASSENGER/CARGO
FIN			
TO SPARKLE			2 Pass & 9000
FIN			
SPARKLE			5/11/9
FIN			
SPARKLE			5/11/9
FIN			
SPARKLE			2 Pass & 9000
FIN			

SPECIAL INSTRUCTIONS	2.7 @ 900 PER HOUR	2430
	@ PER MILE	
	WAITING TIME @ / HR	
	FUEL 270 @ .90 / GAL.	24300
	PILOT'S EXPENSES	
	OTHER	
	SUB-TOTAL	267300
	GST	187.11
	2% PER MONTH CHARGES ON ACCOUNTS OVER 30 DAYS	TOTAL 2860.11

CHARTERER'S SIGNATURE
[Signature]
PILOT'S SIGNATURE
[Signature]

WHITE - OFFICE
YELLOW - OFFICE COPY RECORD
PINK - CUSTOMER COPY
GOLD - BASE COPY (Stays in book.)

WILLOW PRINTERS LTD.

9225711

KLUANE AIRWAYS LTD.

BOX 31489
WHITEHORSE, YUKON Y1A 6K8

Rueker Cathao
CHARTERER

061904			
INVOICE DATE			
F45A		H500	
AIRCRAFT TYPE		REGISTRATION	

Nº 5227

BILLING ADDRESS

PHONE: _____

FROM	MILES	HOURS	REMARKS/PASSENGER/CARGO
CAMP #1			
TO			2 NET
CAMP #2		1.4	2 INSIDE
(SPARKLE TO SHINE)			

SPECIAL INSTRUCTIONS	1.4 @ 900 PER HOUR	12600
	@ PER MILE	
SPARKLE TO SHINE (UP)	WAITING TIME @ / HR	
	FUEL 1.4 @ 100 x .90 GAL.	12600
	PILOT'S EXPENSES	
	OTHER	
	SUB-TOTAL	13860
CHARTERER'S SIGNATURE	GST	9700
<i>W. P. P.</i>	2% PER MONTH CHARGES ON ACCOUNTS OVER 30 DAYS	TOTAL \$ 148302
PILOT'S SIGNATURE	WHITE - OFFICE YELLOW - OFFICE COPY RECORD PINK - CUSTOMER COPY GOLD - BASE COPY (Stays in book.)	

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JUNE 19, 2004

[illegible]**CONTRACT #**

Serial No. 618041130

PILOT(S): SMITH

****2% PER MONTH (24% PER ANNUM) CHARGED ON ACCOUNTS OVER 30 DAYS**