

26,712

ASSESSMENT REPORT

on the

SANTA MARIA PROPERTY

SM 1 - 6 MINERAL CLAIMS

MOOSESKIN JOHNNY LAKE AREA

OMINECA MINING DIVISION, B.C.

NTS:	0931/06w
Latitude:	54°28'00"N
Longitude:	127°22'09"W
Owner:	W.R. Gilmour
Operator:	Discovery Consultants
Author:	T.H. Carpenter, P.Geol.
Date:	September 26, 2001

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## SUMMARY

The Santa Maria property is described as a subvolcanic copper-silver-gold deposit contained within mineralized rhyolite sills of supposed late Cretaceous to Eocene age which had intruded volcanic rocks of Jurassic age. However, age dating carried out in 2001 on rocks collected in 2000 indicates that the rhyolite sills are contemporaneous with the enclosing rocks, being also Jurassic in age.

The Santa Maria occurrence is located 37 kilometres south-southwest of Smithers and 1.2 kilometres west of Mooseskin Johnny Lake. .

Exploration work has been carried out on the property since 1916. Mineralization comprises chalcopyrite, chalcocite, bornite, tetrahedrite, malachite, azurite and pyrite.

In 2000 a program of rock sampling was carried out on the property.

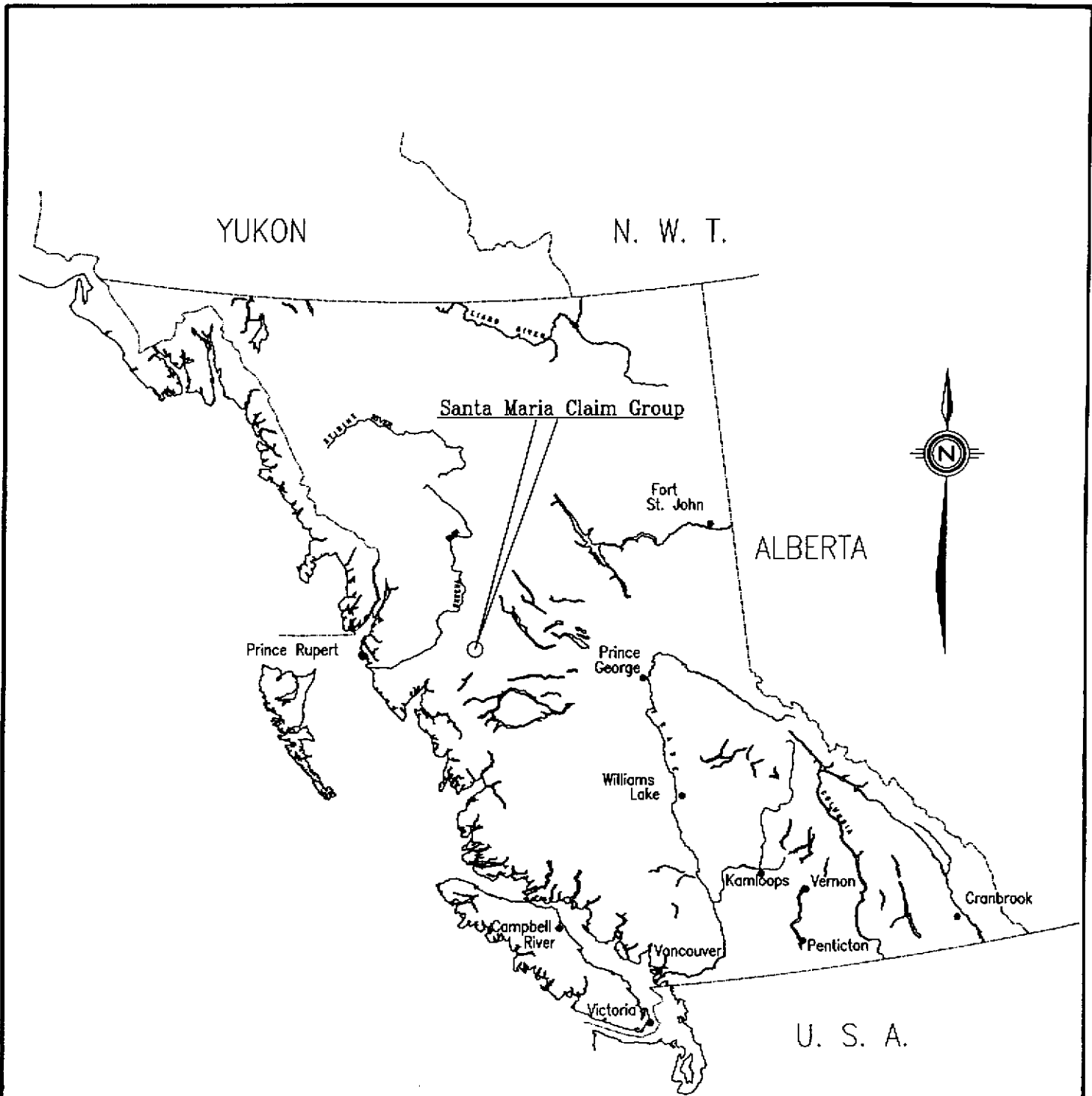
## **LOCATION AND ACCESS**

The Santa Maria property is centred at latitude 54° 28'00" north and longitude 127°22'09" west, 37 kilometres south-southwest of Smithers (Figure 1).

Access to the property can be gained by helicopter from Smithers. A road to the property was built in the 1970s for about 17 km south along Howson Creek from a point about 22.5 km west of Telkwa along the Telkwa River road. This road is presently overgrown in part and would need clearing and upgrading to allow vehicular access to the property.

## **TOPOGRAPHY**

The property is contained within the Telkwa Range of the Hazelton Mountains at an elevation of approximately 4000'. The property is near treeline on a north-northeasterly trending ridge between the headwaters of Howson Creek to the west and Mooseskin Johnny Lake to the east.



**DISCOVERY** Consultants

PEREGRINE SYNDICATE

Santa Maria Claim Group

LOCATION MAP

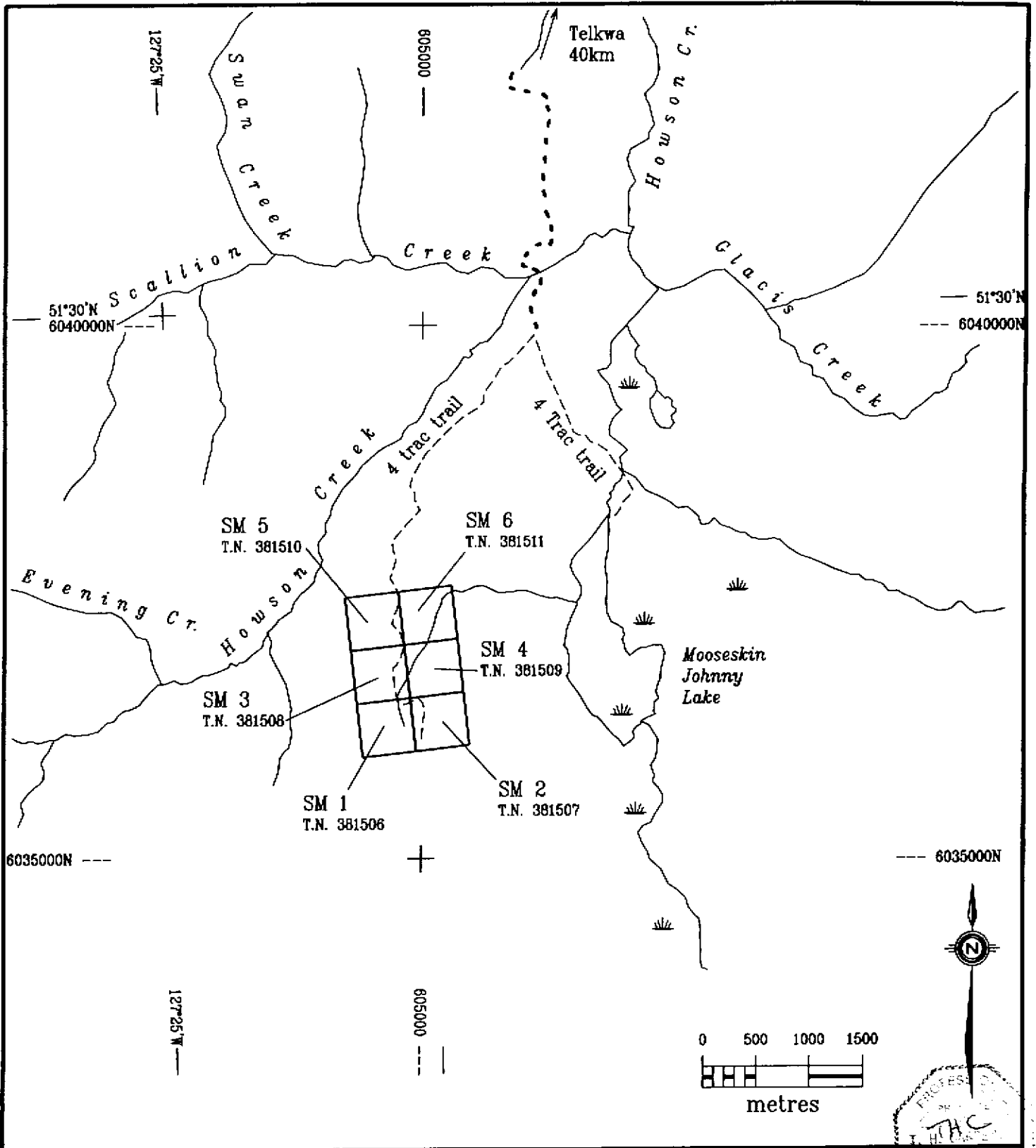
## PROPERTY

The Santa Maria property (Figure 2) comprises six two-post claims designated SM1 to SM6, located by Richard G. Mitchell on October 05, 2000 and recorded in Vernon, B.C. on October 23, 2000.

<u>Claim Name</u>	<u>Record No.</u>	<u>Owner of Record</u>	<u>Anniversary Date</u> *
SM1	381506	W.R. Gilmour	October 5, 2005
SM2	381507	W.R. Gilmour	October 5, 2005
SM3	381508	W.R. Gilmour	October 5, 2005
SM4	381509	W.R. Gilmour	October 5, 2005
SM5	381510	W.R. Gilmour	October 5, 2005
SM6	381511	W.R. Gilmour	October 5, 2005

The claims are held by W.R. Gilmour in trust for the Peregrine Syndicate.

\* Pending acceptance of this report.



**DISCOVERY** Consultants

PEREGRINE SYNDICATE

S.M. Claims

Claim Location Map

## HISTORY

The Santa Maria property was first staked in 1916 and a shipment of 1000 tons was reported. In 1917 a shaft was sunk on the main vein to a depth of 120 feet and 300 feet of drifting was carried out on two levels.

In 1966 Norcan Mines Ltd. carried out exploration over a large area including the Santa Maria property. Work included mapping, EM, SP and IP surveys, an EM airborne survey, soil sampling, road building, trenching and 5,350 feet of diamond drilling in ten holes.

In 1967 and 1968 Bethex Explorations Ltd. carried out exploration on the property that included 11,200 feet of trenching and 922 feet of drilling in two holes.

No further work was reported on the property until 1970 when Pathfinder Resources completed a seven hole, 1,243 foot diamond drill program.

The property was staked by the Peregrine Syndicate in 2000.



## GENERAL GEOLOGY

The Santa Maria property is underlain by west dipping Lower Jurassic Hazelton Group volcanics consisting mainly of lapilli tuff and volcanic breccia. The Hazelton volcanics were reported as being intruded by a younger composite quartz porphyry/aplite/felsite sill or dyke.

Mineralization on the property comprises two main mineralized structures at the contacts of the rhyolitic unit. These zones have been referred to as the Santa Maria or the Footwall vein and the S.H. or Hanging Wall vein. The vein system strikes 330 degrees and dips moderately to steeply southwest. The vein systems have a surface width of 76 to 91 metres. The mineralization consists of chalcocite, bornite, tetrahedrite, malachite, azurite and pyrite. Other veins or mineralized fracture zones are also present. On a local scale the mineralization occurs within quartz veins and variably silicified, composite fracture-breccia zones.

Strong propylitic alteration and minor silicification occur adjacent to the fracture zones.

Alteration products consist of epidote, calcite, sericite, zoisite and prehnite.

## WORK COMPLETED

In 2000 a work program carried out on the Santa Maria included a sampling of the felsic rocks to determine an age date for these rocks. Available information of the geology of the area states that the felsic rocks were believed to have intruded the Hazelton volcanic rocks. The Hazelton rocks are generally considered to be Lower Jurassic in age while the felsic rocks were assigned an age of Late Cretaceous to Eocene.

Two five gallon pails of Santa Maria rhyolite were collected and submitted for U-Pb age dating to Dr. Larry Heaman at the University of Alberta in Edmonton, Alberta. At the U. of A. three zircon fractions were produced from the crushed rhyolite from which an age date of 170 million years was derived. This date corresponds to the Middle Jurassic and infers that the Hazelton volcanics and the felsic rocks are roughly contemporaneous in age. A complete report on the age determination is contained in Appendix A.

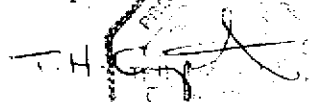
## CONCLUSIONS AND RECOMMENDATIONS

The determination of a Jurassic age for the felsic rocks on the Santa Maria property has important exploration implications. The Jurassic age for the felsic rocks indicates a correlation between the rhyolitic rocks and the Hazelton volcanics suggesting the presence of a submarine bimodal volcanic suite in the area.

This type of bimodal volcanic suite comprises a favourable environment for a Kuroko type VMS deposit. This type of deposit usually contains one or more lenses of massive pyrite, sphalerite, galena and chalcopyrite commonly within felsic volcanic rocks in a calc-alkaline bimodal arc succession. The lenses may be zoned with a Cu-rich base and a Pb-Zn-rich top. Low grade stockwork zones commonly underlie the lenses.

Kuroko sulphide deposits are major producers of Cu, Zn, Ag, Au and Pb in Canada. The high grade and commonly high precious metal content of these deposits make them attractive exploration deposits.

Respectfully submitted,

  
T.H. Carpenter, P. Geo.

Vernon, BC

November 7, 2001

## **BIBLIOGRAPHY**

British Columbia Ministry of Energy, Mines and Petroleum Resources – Annual Reports.

1916 - p. 91, 125      1966 - p. 92  
1917 - p. 118, 447    1967 - pp. 91-97  
1918 - p. 117        1968 - p. 127

British Columbia Ministry of Energy, Mines and Petroleum Resources – Assessment Reports  
#919, #3485 and #20601

Geological Survey of Canada Bulletin 270

Lefebure, D.V. and Ray, G.E., Editors(1995), Selected British Columbia Mineral Deposit Profiles. Open File 1995-20

## STATEMENT OF COSTS

1. Professional Services

T.H.Carpenter (P.Geo.)			
Report Writing & Data Interpretation			
1.5 days @\$400/day	\$ 600.00		
R.A. Tilsley (Geologist)			
Prospecting & rock sampling (Oct 4, 5 & 9)			
2.0 days @\$400/day	800.00		
	-----		\$ 1,400.00

2. Personnel

R. Mitchell			
Rock Sampling (Oct 4, 5 & 9)			
2.0 days @\$299.78/day	599.56		
Drafting	313.02		
Secretarial	160.00		
	-----		1,072.58

3. Expenses

Communications	4.25		
Office	82.40		
Analysis - age dating	1,800.00		
Equipment Rental	36.00		
Field Supplies	31.89		
Lodging & Meals	273.23		
	-----		2,227.77

*Exploration Expenditure:*                    \$ 4,700.35

4. Transportation

a) Helicopter	\$ 476.35	-->	476.35
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or    50% of exploration expenditure:                    2,350.18

b) Truck	721km @30¢/km	\$ 216.30		
	usage charge 1day @\$40/day	40.00		
	gas	70.06		
		-----		
		326.36	-->	326.36

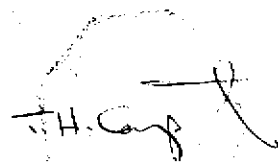
or    20% of exploration expenditure:                    940.07

*Total Assessment Work:*                    \$ 5,503.06

## STATEMENT OF QUALIFICATIONS

I, THOMAS H. CARPENTER of 3902 14<sup>th</sup> Street, Vernon, B.C., V1T 3V2, DO HEREBY CERTIFY that:

1. I am a consulting geologist in mineral exploration with Discovery Consultants, Vernon, B.C.
2. I have been practicing my profession since graduation.
3. I am a 1971 graduate of the Memorial University of Newfoundland with a Bachelor of Science degree in geology.
4. I am a Professional Geoscientist with the Association of Professional Engineers and Geoscientists of British Columbia.
5. This report is based upon knowledge of the Santa Maria property gained from a review of earlier work and supervision of the present program.



T.H. Carpenter, P. Geo.

Vernon, B.C.  
November 7, 2001

## **APPENDIX A**

**Report on the U-Pb age results for Santa Maria Rhyolite Sample SM01-1**

## Report on the U-Pb age results for Santa Maria Rhyolite Sample SM01-1

Two pails of Santa Maria rhyolite were submitted by Tom Carpenter of Discovery Consultants for U-Pb geochronology on May 30, 2001. The sample was pulverized using a jaw crusher and Bico disk mill. Zircon was isolated using a series of mineral separation steps including a Wilfley Table, Frantz isodynamic separator and heavy liquids. Stringent cleaning procedures were employed at all stages to reduce as much as possible the chance for laboratory contamination. The zircon grains were individually selected using a binocular microscope and only the best quality grains were chosen (i.e. generally only those grains that are devoid of fractures, inclusions and turbidity). Three small multi-grain fractions were selected for analysis (Table 1). They were weighed with an ultra-microbalance, cleaned and dissolved in a mixture of acids (HF and HNO<sub>3</sub>). Uranium and lead were purified using anion exchange chromatography. The isotopic composition of U and Pb were determined on a VG354 thermal ionization mass spectrometer operating in single collector mode.

A modest amount of dominantly colourless to light tan zircon was recovered from this rock. The zircon grains tend to be dominated by a single population of small, euhedral to subhedral prisms. Many of the crystals have multiple fractures and numerous fragments of zircon are present. A large proportion of the grains contain mineral inclusions and occasionally zones of alteration. Visible core-overgrowth relationships were not observed. An occasional pink to light brown prism were noted and may represent xenocrysts.

The U-Pb results for three zircon fractions are presented in Table 1. The errors listed in this table are quoted at 1 sigma. Zircon in this sample contains moderate uranium concentrations (479-599 ppm) and Th/U ratios in the range 0.41-0.45, which is typical of zircon crystallizing directly from a felsic magma. All three fractions are displayed on a Concordia diagram in Figure 1. Fraction #1 is concordant (closed system) and has a <sup>207</sup>Pb/<sup>206</sup>Pb age of 178.7 Ma. This could be the best estimate for the crystallization age of primary zircon in the sample. Fractions #2 and #3 are slightly discordant, however a reference discordia line constructed to pass through them yields a lower intercept age of 170±2 Ma and an upper intercept age of 2107 Ma (age of inheritance?). With the existing data it is difficult to know whether the 178.5 Ma date obtained for the concordant analysis #1 or the lower intercept age of 170±2 Ma is the best estimate of zircon crystallization. The latter age of 170 Ma is preferred here. In either case, the age of the Santa Maria rhyolite is Jurassic and not Tertiary.

September 7, 2001.



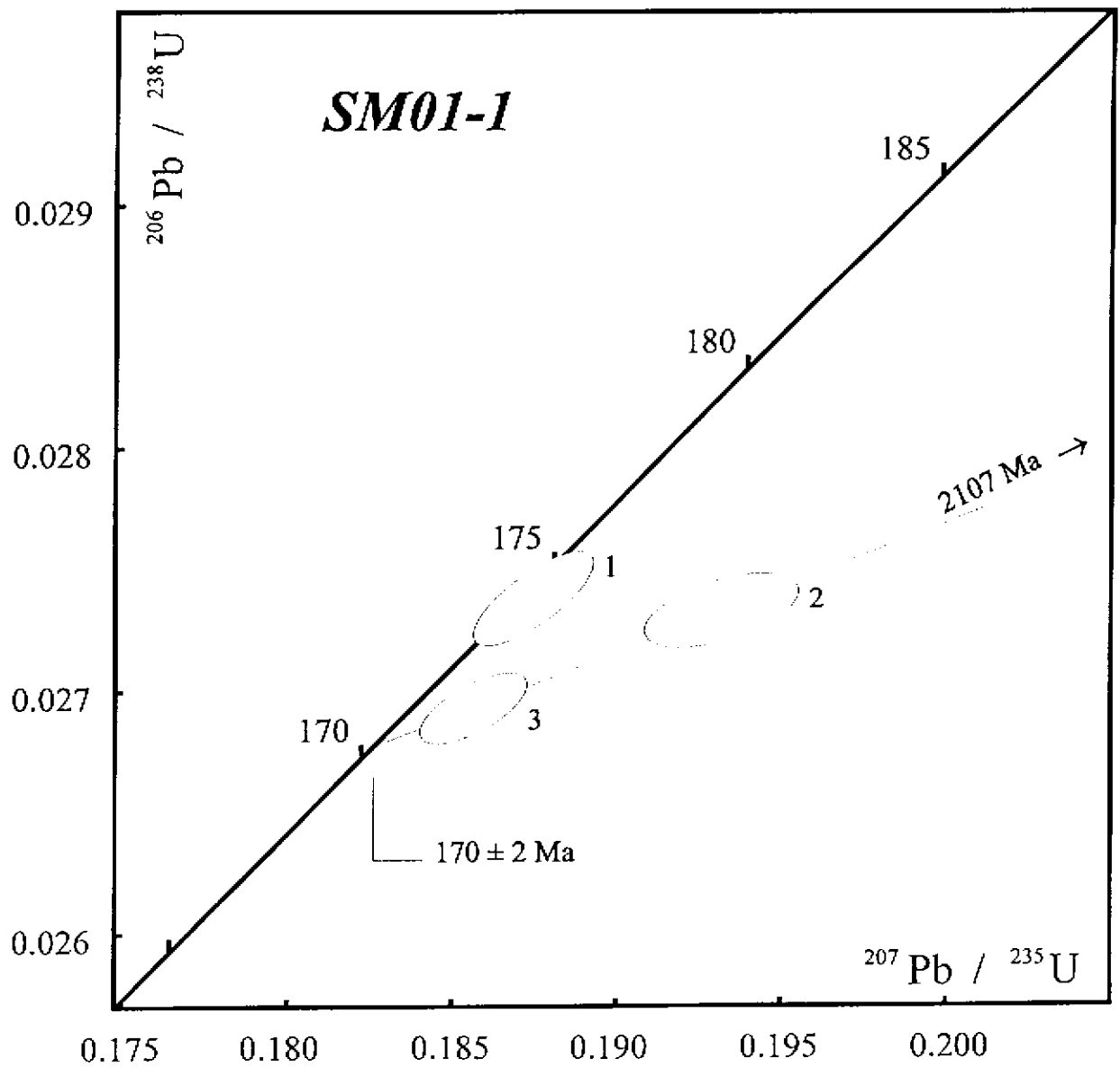


Table 1. U-Pb Results for Santa Marie Rhyolite Sample SM01-1, BC

Description*	Weight ( $\mu\text{g}$ )	U (ppm)	Th (ppm)	Pb (ppm)	Th/U	TCPb (pg)	$^{206}\text{Pb}/$ $^{204}\text{Pb}$	$^{206}\text{Pb}/$ $^{238}\text{U}$	$^{207}\text{Pb}/$ $^{235}\text{U}$	Model Ages (Ma)				%Disc
										$^{207}\text{Pb}/$ $^{206}\text{Pb}$	$^{206}\text{Pb}/$ $^{238}\text{U}$	$^{207}\text{Pb}/$ $^{235}\text{U}$	$^{207}\text{Pb}/$ $^{206}\text{Pb}$	
<i>SM01-1</i>														
1 z, 3rd best lt tan pr parts incl alts (18)	45	599	267	18	0.45	66	719	0.02738 $\pm$ 8	0.1875 $\pm$ 8	0.0497 $\pm$ 1	174.2 $\pm$ 0.5	174.5 $\pm$ 0.6	178.7 $\pm$ 5.9	2.6
2 z, 2nd best col res pr xs cracks incl 2M (25)	41	493	202	15	0.41	44	797	0.02733 $\pm$ 6	0.1932 $\pm$ 10	0.0513 $\pm$ 2	173.8 $\pm$ 0.4	179.3 $\pm$ 0.8	252.8 $\pm$ 9.7	31.7
3 z, best col frags tiny/incl 2M (17)	21	479	200	14	0.42	23	738	0.02693 $\pm$ 6	0.1856 $\pm$ 7	0.0500 $\pm$ 1	171.3 $\pm$ 0.4	172.9 $\pm$ 0.6	194.9 $\pm$ 6.1	12.3

\* col: colourless eq: equant euh: euhedral fac: faceted frags: fragments incl: inclusion lg: large M: magnetic fraction MIH: Methylene-iodide heavy fraction  
 NM: non-magnetic fraction pr: prisms/prismatic res: resorbed s: slightly trans: transparent v: very xs: excess z: zircon (x#): mineral count

All errors reported at 1 sigma.

