

THE UNIVERSITY OF BRITISH COLUMBIA  
Department of Geological Sciences  
Vancouver, B.C. V6T 2B4  
December 19, 1990

Mr. Wayne Roberts  
Welcome North Mines Ltd.  
1500-675 West Hastings Street  
Vancouver, B.C. V6B 1N2

Dear Mr. Roberts:

RE: GALENA LEAD ISOTOPE ANALYSES MAPLE LEAF SHOWING,  
NORTHWESTERN BRITISH COLUMBIA

Data for the galena lead isotope analysis from the Maple Leaf showing is in Table 1. They are plotted in Figures 1 to 3.

All analyses were performed in the Geochronology Laboratory of The University of British Columbia by Anne Pickering under my direction. Procedures used are as described in Godwin et al., 1988, with the exception that samples were normalized to the National Bureau of Standards sample NBS981 with values taken to be  $^{206}\text{Pb}/^{204}\text{Pb} = 16.004$ ,  $^{207}\text{Pb}/^{204}\text{Pb} = 15.390$ ,  $^{208}\text{Pb}/^{204}\text{Pb} = 35.651$ ,  $^{207}\text{Pb}/^{206}\text{Pb} = 0.961635$ ,  $^{208}\text{Pb}/^{206}\text{Pb} = 2.22763$  and  $^{204}\text{Pb}/^{207}\text{Pb} = 0.64977$ . The objective of this study was to finger print the lead isotopes from the galena in order to see if the geological origin of the Maple Leaf showing could be determined.

The galena lead isotope data for the Maple Leaf showing plots in Figures 1 to 3 at the edge of the cluster. These analyses are from dominantly Hazelton Group hosted deposits. (A late Triassic age for some of these deposits cannot be discounted.) Many of the deposits in the Jurassic cluster are of major significance. This includes: Dolly Varden, Premier, Kerr, and most importantly, Eskay Creek. The averages for the Jurassic deposits, including Eskay Creek, are in Table 1. Results for Maple Leaf deposit is plotted as a star in the figures. The average for Eskay Creek is plotted as an asterisk.

Galena lead isotopes from the Maple Leaf showing are very similar to those associated with Jurassic deposits such as Eskay Creek. These deposits have been more productive historically and are currently of greater exploration interest than Tertiary deposits. (The Tertiary deposits, Table 1, are plotted as triangles in Figs. 1 to 3.) This implies that the deposit, if stratiform or syngenetic, is hosted by equivalents to the Hazelton Group. If the deposit is in a markedly older terrane it could have been generated by Jurassic plutons.

Thank you for submitting the sample.

Respectfully



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The University of British Columbia  
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#### REFERENCE

- Godwin, Colin I., Gabites, Janet E., Andrew, Anne, 1988.  
LEADTABLE: A Galena Lead Isotope Data Base for the  
Canadian Cordillera, With a Guide to its Use by  
Explorationists. British Columbia Ministry of Energy  
Mines and Petroleum Resource, Geological Survey Paper  
1988-4, 250p.

## DECLARATION OF DR. COLIN I GODWIN, P.ENG.(B.C.)

I, Colin I. Godwin of 3010 Aries Place, Burnaby, B.C., Canada V3J 7E9, declare:

- (1) I am a Geological Engineer, residing at the above address.
- (2) I am a graduate of Geological Engineering from The University of British Columbia, in 1962 with a Bachelor of Applied Science (BASC) degree and in 1975 with a doctorate (PhD) degree.
- (3) I am a registered member of the Association of Professional Engineers of British Columbia.
- (4) I have practiced my profession since graduation in 1962 and have held permanent positions with:  
The Geological Survey of Canada  
Atlas Explorations Ltd.,  
Dynasty Explorations Ltd., and  
The University of British Columbia.
- 5) I am a Professor in the Department of Geological Sciences, The University of British Columbia, where I teach courses on mineral deposit geology, and specialize in the study of mineral deposits, metallogeny and lead isotopes.
- (6) I am a Fellow of The Geological Association of Canada, a Member of the Society of Economic Geologists, and a Member of the Canadian Institute of Mining and Metallurgy.
- (7) I am a director of New Camp Resources Ltd., but this has not influenced this report in any way other than in the collection of sample material for analysis.
- (8) This report is based on the examination of and interpretation of data from hand specimens, and a field visit of three days in August 1990.
- (9) I consent to the use of this report in any appropriate way.

DATED AT BURNABY, B.C. this 10th day of December 1990.



Colin I. Godwin, PhD, PEng(BC)  
December 19, 1990

Figure 1:  $^{207}\text{Pb}/^{204}\text{Pb}$  versus  $^{206}\text{Pb}/^{204}\text{Pb}$  plot of data from the Stewart - Iskut area. Jurassic lead is plotted as circles; Tertiary lead is shown as triangles. The Maple Leaf showing is plotted as a star and is in the Jurassic cluster. The Eskay Creek deposit is shown as an asterisk.

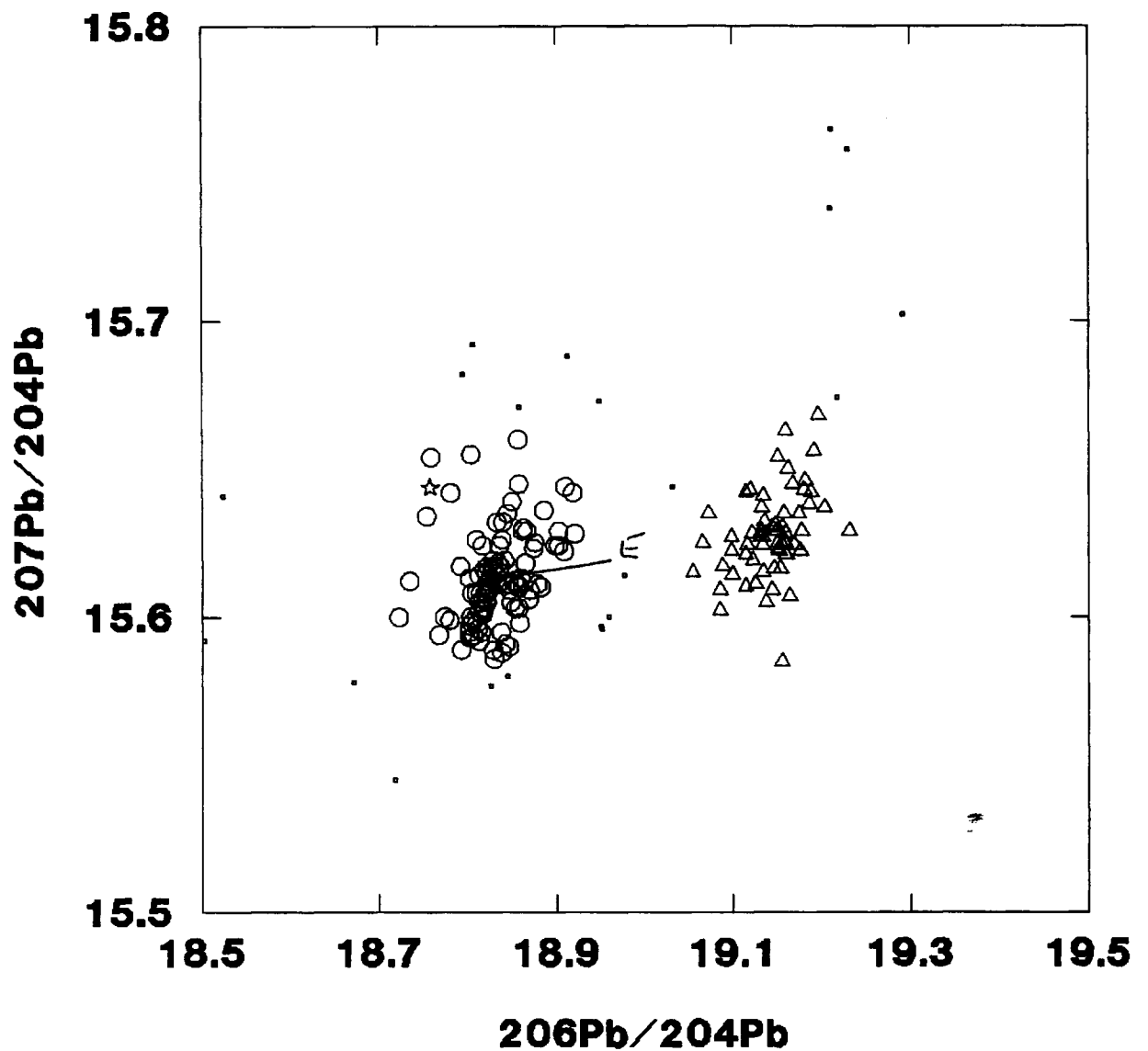


Figure 2:  $^{208}\text{Pb}/^{204}\text{Pb}$  versus  $^{206}\text{Pb}/^{204}\text{Pb}$  plot of data from the Stewart - Iskut area. Jurassic lead is plotted as circles; Tertiary lead is shown as triangles. The Maple Leaf showing is plotted as a star and is in the Jurassic cluster. The Eskay Creek deposit is shown as an asterisk.

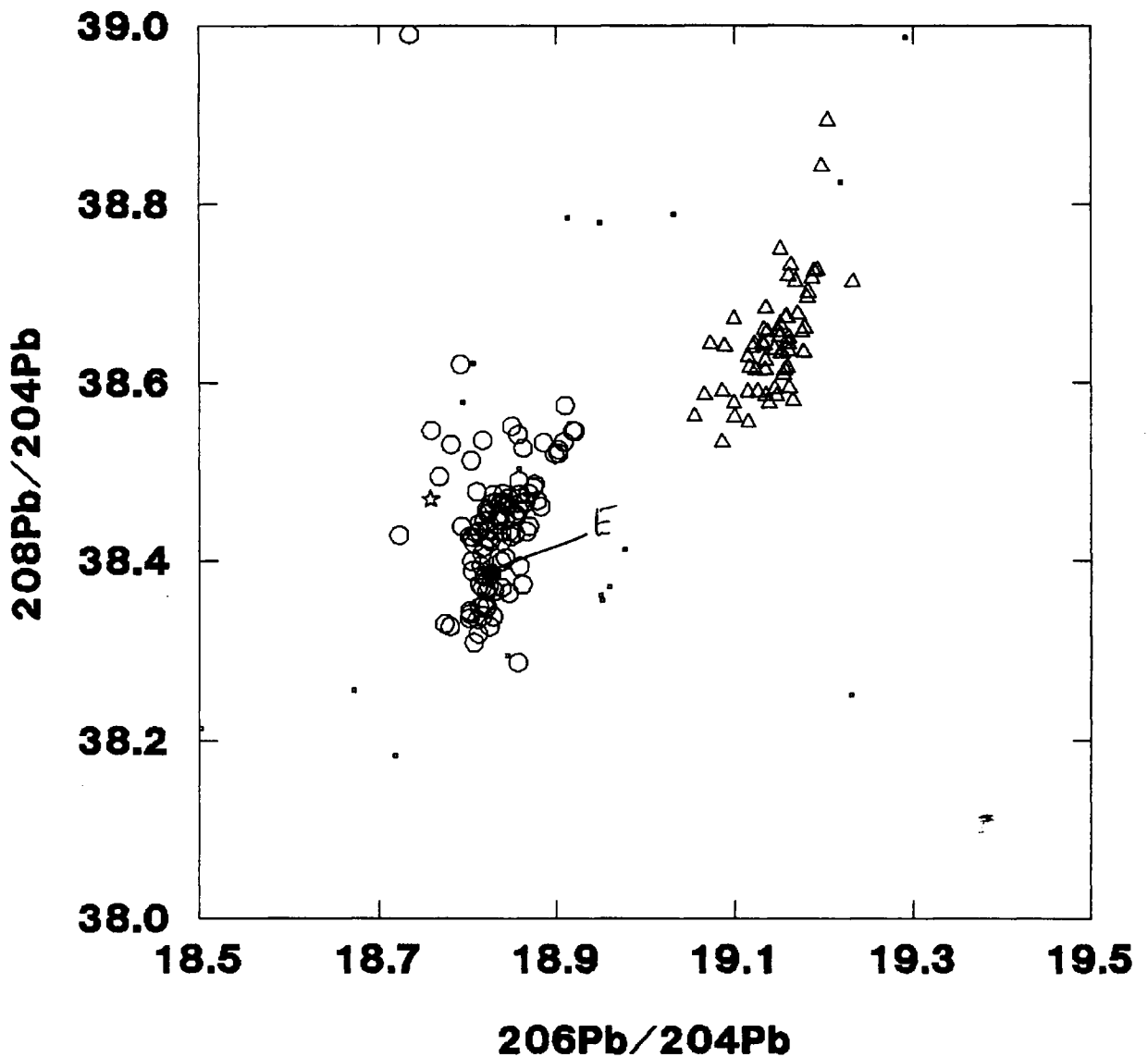


Figure 3:  $^{208}\text{Pb}/^{206}\text{Pb}$  versus  $^{207}\text{Pb}/^{206}\text{Pb}$  plot of data from the Stewart - Iskut area. Jurassic lead is plotted as circles; Tertiary lead is shown as triangles. The Maple Leaf showing is plotted as a star and is in the Jurassic cluster. The Eskay Creek deposit is shown as an asterisk.

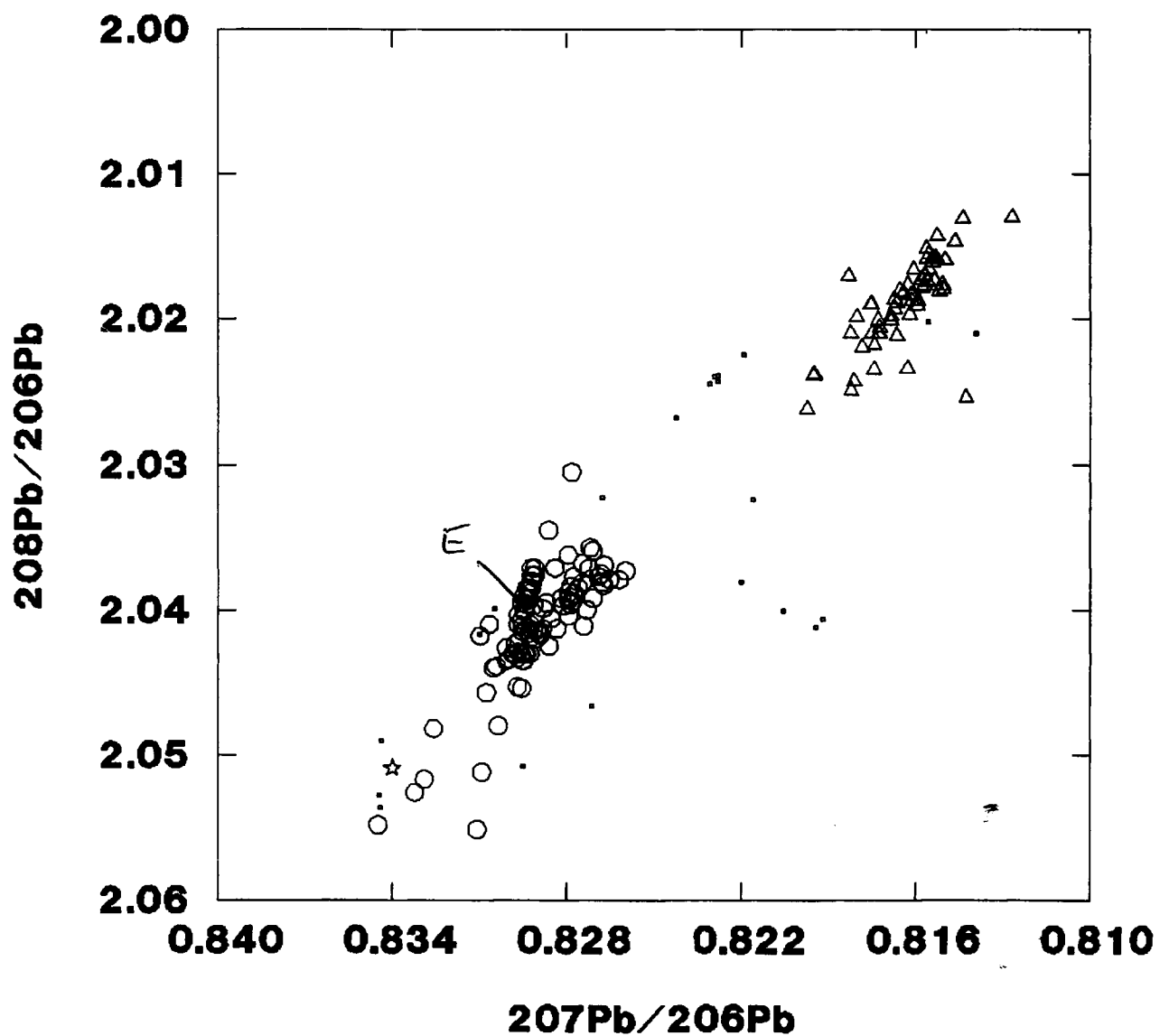


TABLE 1. Galena lead isotopes associated with the Maple Leaf showing, northwestern British Columbia.

All analyses have been normalized to the National Bureau of Standard sample NBS981 with accepted values (absolute error) of:  
 $^{206}\text{Pb}/^{204}\text{Pb} = 16.004$  (0.006);  $^{207}\text{Pb}/^{204}\text{Pb} = 15.390$  (0.007);  $^{208}\text{Pb}/^{204}\text{Pb} = 35.651$  (0.017),  $^{207}\text{Pb}/^{206}\text{Pb} = 0.961635$  (0.000567);  
 $^{208}\text{Pb}/^{206}\text{Pb} = 2.227631$  (0.001351).

LAB NUMBER <sup>1</sup>	DEPOSIT NAME	LAT.N	LONG.W	$^{206}\text{Pb}/^{204}\text{Pb}(\text{er}\%)$	$^{207}\text{Pb}/^{204}\text{Pb}(\text{er}\%)$	$^{208}\text{Pb}/^{204}\text{Pb}(\text{er}\%)$	$^{207}\text{Pb}/^{206}\text{Pb}(\text{er}\%)$	$^{208}\text{Pb}/^{206}\text{Pb}(\text{er}\%)$
<u>MAPLE LEAF<sup>1</sup></u>								
31039-001	MAPLE	58.93	133.79	18.757(0.02)	15.644 (0.02)	38.469 (0.02)	0.83402 (0.00)	2.0509 (0.01)
<u>ESKAY CREEK<sup>2</sup>: AVERAGE [N=15]</u>								
30772-AVG	ESKAY	56.64	130.44	18.823	15.613	38.389	0.82949	2.0395
<u>JURASSIC<sup>1</sup>: AVERAGE</u>								
MAINLY HAZELTON GROUP				18.82	15.61	38.41	0.8290	2.040
<u>TERTIARY<sup>2</sup>: AVERAGE</u>								
TERTIARY PLUTONOGENIC				19.15	15.64	38.68	0.8150	2.018

<sup>1</sup> Jurassic cluster may include some Triassic points. Data are plotted as circles on Figures 1 to 3. Maple Leaf is plotted as a star. Eskay Creek average is plotted as an asterisk.

<sup>2</sup> Tertiary cluster is plotted as Triangles on Figures 1 to 3.