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APPENDIX 1

U/Pb Analyis of Zircons Recovered from Felsic Tuff Unit (^{PGf}) of Gataga Volcanics

TABLE 7

Fraction[1]	Wt	U	Pb*[2]	^{206}Pb[3]	Pb[4]	^{208}Pb[5]	Isotopic ratios (±1)[6]			Apparent ages (±2
	mg	ppm	ppm	^{204}Pb	pg	%	$^{206}Pb/^{238}U$	$^{207}Pb/^{235}U$	$^{207}Pb/^{206}Pb$	$^{206}Pb/^{238}U$
FFE-95-1-5: Felsic volcaniclastic, unit ^{PGf}										
A	0.036	91	11	1387	16	14.8	0.11044(0.10)	0.9507(0.26)	0.06243(0.18)	675.3
B	0.036	89	11	514	44	15.6	0.10861(0.13)	0.9345(0.41)	0.06240(0.32)	664.7
C	0.032	87	10	786	25	14.6	0.11007(0.12)	0.9463(0.33)	0.06236(0.25)	673.1
D	0.025	126	15	163	151	16.4	0.11109(0.28)	0.9563(1.1)	0.06243(0.93)	679.1
E	0.046	130	14	881	44	15.4	0.10200(0.11)	0.8747(0.30)	0.06219(0.21)	626.1

[1]All zircon fractions except those listed as T1, T2, etc. which are titanite. Most zircon fractions are air abraded (exceptions noted in text).

[2]Radiogenic Pb

[3]Measured ratio corrected for spike and Pb fractionation of 0.0043/amu± 20% (Daly collector) and 0.0012/amu ± 7%(Faraday collector).

[4]Total common Pb in analysis based on blank isotopic composition

[5]Radiogenic Pb

[6]Corrected for blank Pb, U and common Pb. Common Pb corrections based on Stacey and Kramers (1975) model at the age of the rock or the $^{207}Pb/^{206}Pb$ age of the fraction. Error for $^{206}Pb/^{238}U$ ages not listed. See concordia plots in Figure 12 for magnitude of these errors.

Data is plotted in Figure 12.

Pb Isotopic Analysis of Galena from a Showing in the Gataga Area; Sample FFe95-27-7

This is modified from a report prepared by Janet E. Gabites; Geochronology Laboratory, Department of Geological Sciences, U.B.C.

The results of lead isotopic analysis of galena from a showing in slate from the Gataga area are reported below, and plotted on Figures 33a and b. The galena was collected from within a vein or stockwork system crosscutting the immediate hostrocks. Original mapping suggested that the hostrocks are part of the Devonian Earn Group. The alternative interpretation is that they belong to the Kechika Group, which is Cambro-Ordovician.

The analysis of sample FFe95-27-7 has been plotted against the shale curve of Godwin and Sinclair (1982). This model curve is a reference for the growth of lead in upper continental and upper crustal environments in the Canadian Cordillera, defined using data from stratiform deposits in British Columbia and Yukon Territory (Godwin et al., 1988).

The $^{206}Pb/^{204}Pb$ v. $^{207}Pb/^{204}Pb$ isotopic ratios plot below the shale curve, near the Silurian-Devonian boundary. In comparison with the data that were used to define the shale curve (Godwin and Sinclair, 1982), this sample plots between the clusters of galena of Devonian and Silurian ages from the Selwyn Basin area. The relationship is clearer in Figure 33b, the $^{207}Pb/^{206}Pb$ v. $^{208}Pb/^{206}Pb$ plot. The small peak of

^{204}Pb is not used in the isotopic ratios in this plot, thus removing a major source of analytical error. Sample FFe95-27-7 plots on the curve, in the Late Silurian.

Thus the isotopic signature of galena in this showing is consistent with mineralization being of Silurian age. The lead has a continental source consistent with other shale-hosted deposits in the Canadian Cordillera.

Analytical Techniques

Small clean cubes of galena were hand picked, washed, and dissolved in dilute hydrochloric acid. Approximately 10-25 ng of the lead in chloride form was loaded on a rhenium filament and isotopic compositions were determined using a modified VG54R thermal ionization mass spectrometer. The measured ratios were corrected for instrumental mass fractionation of 0.12% per mass unit, based on repeated measurements of the N.B.S. SRM 981 Standard Isotopic Reference Material. Errors reported in Table 8 were obtained by propagating all mass fractionation and analytical errors through the calculation.

Table 8

Sample Number	$^{206}Pb/^{204}Pb$	$^{206}Pb/^{204}Pb$ % error	$^{207}Pb/^{204}Pb$	$^{207}Pb/^{204}Pb$ % error	$^{208}Pb/^{204}Pb$	$^{208}Pb/^{204}Pb$ % error	$^{207}Pb/^{206}Pb$	$^{207}Pb/^{206}Pb$ % error	^{208}b	
FFe95-27-7	18.658	0.033	15.651	0.022	38.741	0.064	0.838837	0.024	2.076376	

Data plotted on Figure 33.