

## GRADE AND TONNAGE MODEL OF CHUGACH-TYPE LOW-SULFIDE Au-QUARTZ VEINS

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COMMENTS Vein deposits in the Chugach National Forest, Alaska, have gross deposit characteristics that are consistent with the descriptive model for low-sulfide Au-quartz veins (Berger, 1986c). However, grade and tonnage data collected from these deposits during the preparation of the quantitative mineral resource assessment of undiscovered mineral deposits in the Chugach National Forest showed that the typical deposit has about half the tonnages and half the Au grades as those for low-sulfide Au-quartz veins elsewhere (Bliss, 1986). An important regional aspect of these deposits appears to be the absence of association with batholithic-scale intrusive bodies, as is commonly found with low-sulfide Au-quartz vein deposits elsewhere. These low-sulfide Au-quartz veins are a subtype, here referred to as "Chugach-type low-sulfide Au-quartz veins." They are located along faults and joints without a "consistent association with igneous activity" (Goldfarb and others, 1986). Major regional faults with mineralization are absent in the Chugach National Forest; such faults are important sites of mineralization for these low-sulfide Au-quartz vein deposits elsewhere. Fluid inclusion data for this area suggest that these deposits were deposited by low-salinity fluids generated by low-grade metamorphism (Goldfarb and others, 1986). The host rocks in the Chugach National Forest are metamorphosed to medium greenschist facies. A distinctive local characteristic of these deposits is that they exhibit much less wall-rock alteration (Goldfarb and others, 1986) than low-sulfide Au-quartz veins elsewhere (Berger, 1986c).

Data for Chugach-type low-sulfide Au-quartz veins are from deposits in or adjacent to the Chugach National Forest and may bias the grade and tonnage model in ways not identified. Deposit definition was made using the same spatial rules concerning proximity of workings as in the model for low-sulfide Au-quartz veins (that is, properties within one mi of each other are aggregated) (Bliss, 1986). Data sources are from Jansons and others (1984) and the U.S. Geological Survey computerized data base on mineralized occurrences, prospects, and mines (the Minerals Resources Data System (MRDS)). In some cases, an estimate of tonnage was made using the technique developed by Bliss (1988). Significant correlation is present between Ag and Au grades ( $n=21$ ,  $r=0.77$ ); this is also the case for low-sulfide Au-quartz vein deposits (Bliss, 1986). More Ag grades were found in Chugach-type low sulfide Au-quartz vein deposits (70 percent) than in low sulfide Au-quartz vein deposits (10 percent) (Bliss, 1986). When Ag grades are reported for Chugach-type low-sulfide Au-quartz vein deposits, it is typically from 6 to 40 percent of Au grade compared with 11 to 89 percent for low-sulfide Au-quartz vein deposits. The data giving the ratio of Ag to Au grades between the main deposit type and the subtype are not significantly different at the 5 percent level (Mann-Whitney U Test). See appendix B for locality abbreviations. See introduction for explanation of the grade and tonnage model as shown in figures 29–31.

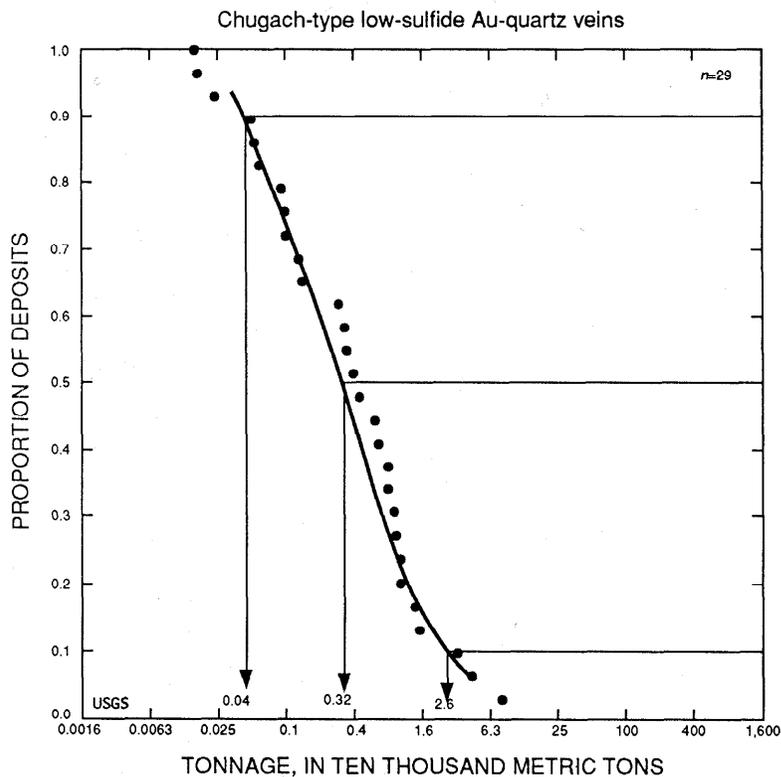


Figure 29. Tonnages of Chugach-type low-sulfide Au-quartz vein deposits.

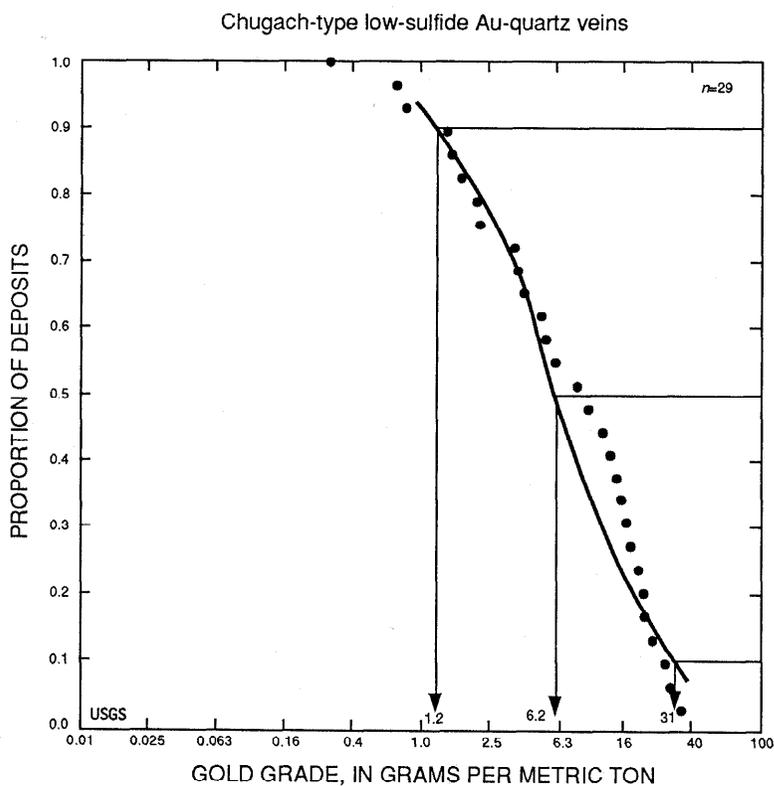


Figure 30. Gold grades of Chugach-type low-sulfide Au-quartz vein deposits.

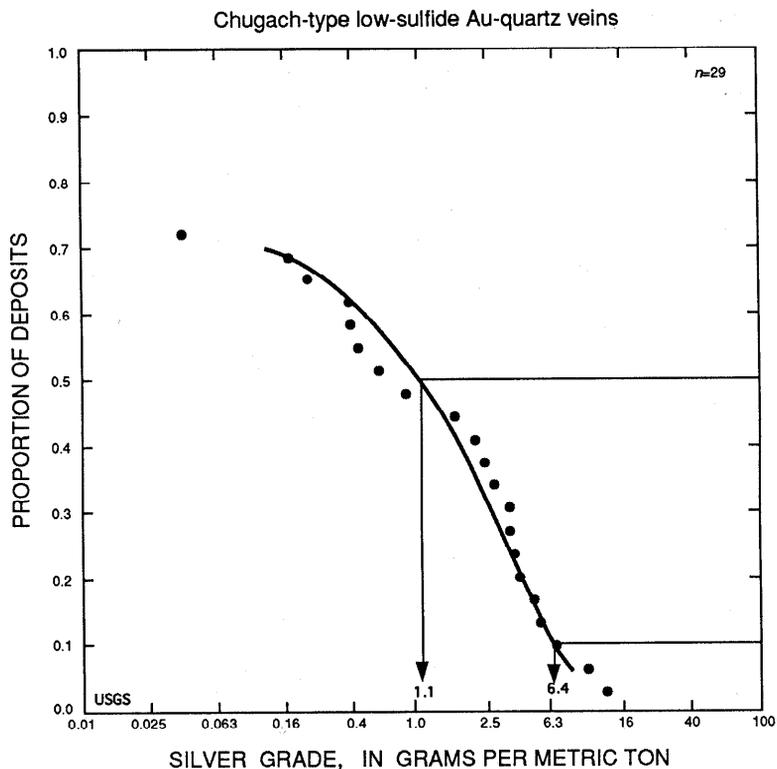


Figure 31. Silver grades of Chugach-type low-sulfide Au-quartz vein deposits.

<u>Name</u>	<u>DEPOSITS</u>	<u>Country</u>	<u>Name</u>	<u>DEPOSITS</u>	<u>Country</u>
Alaska Homestake		USAK	Imperial		USAK
Cameron-Johnson		USAK	Kana		USAK
Cliff-Sealy		USAK	Kenai Lu		USAK
Crown Point-Fall Creek		USAK	Little Giant		USAK
Cube		USAK	Mayfield		USAK
Donohue		USAK	McMillan		USAK
Downing		USAK	Mineral King		USAK
Gold King		USAK	Monarch-Bahrenburg		USAK
Granite Lake (1)		USAK	Nearhouse		USAK
Granite Lake (2)		USAK	Primrose		USAK
Granite-Snowball		USAK	Ramsay-Rutherford		USAK
Heaston-James		USAK	Rough & Tough		USAK
Hercules-Big Four		USAK	Seward Bonanza		USAK
Hirshey-Carlson		USAK	Tomboy-Lansing		USAK
Hirshey-Lucky		USAK			