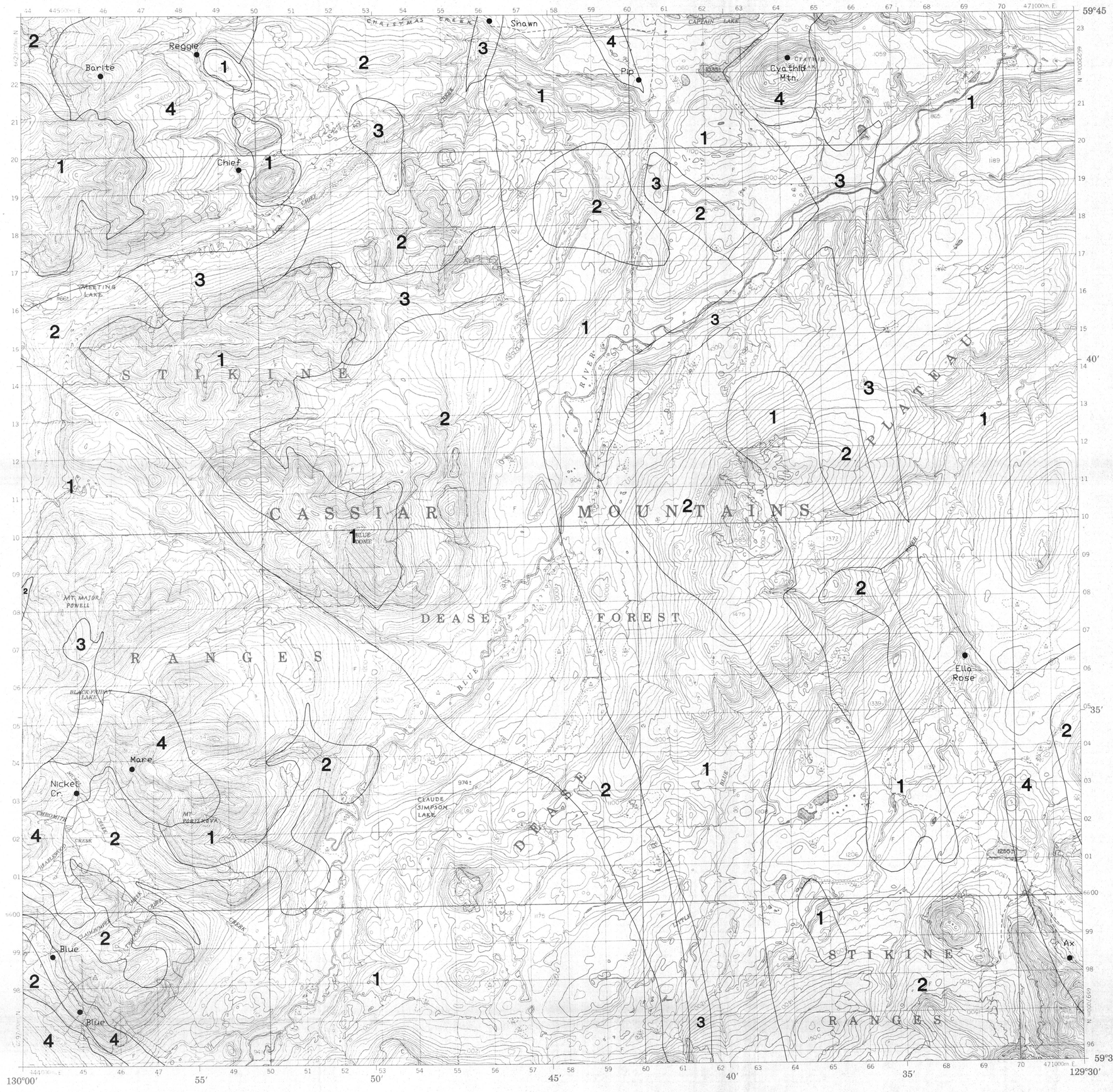


BC Ministry of Energy, Mines and Petroleum Resources

Geological Survey Branch

MINERAL POTENTIAL MAP 1992-11

MINERAL POTENTIAL ESTIMATE BLUE RIVER MAP AREA

NTS 104P/12

BY J. L. NELSON

Scale 1:50 000

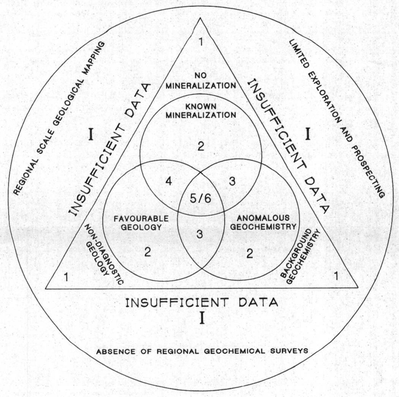
0 1 2 3 4 5 kilometres

INTRODUCTION

The Blue River map area contains, according to present knowledge, no mineral deposits of significant tonnage. However the exploration potential of some domains within it is rated as medium, because they meet geological criteria associated with major deposits in nearby and adjoining map areas, such as the McDame asbestos mine in 104P/05 and the Midway silver-lead-sinc manto deposit in 104O/16.

This area is roadless. It has been prospected for sedimentary exhalitive deposits, silver-lead-zinc veins, and other targets.

CLASSIFICATION OF MINERAL POTENTIAL



QUALITATIVE DESCRIPTIONS OF MINERAL POTENTIAL CLASSIFICATIONS

Class	Mineral Potential	Description
6	Very High	Known deposits with identified resources in the ground. Favourable supporting data from all three sources; high degree of confidence in designation. Continued exploration highly probable; potential for mine developement is high.
5	High	Known occurrences in highly favourable metallogenic environment. Supporting data from all three sources; high degree of confidence in designation. Future exploration highly probable.
4	Moderate	Known or indicated mineral resources in favourable geological environment. Supporting data from these two sources specifically; moderate degree of confidence in designation. Future exploration to be expected.
3	Moderate	Favourable geological and geochemical environment, but significant mineral occurrences lacking. Supportive data from these two sources; moderate degree of confidence in designation. Future exploration likely, particularly if near areas of higher potential.
2	Moderate to Low	Supporting data from one of three sources, usually geological or geochemical; areas generally lack sufficient prospecting to identify mineralization. Moderate to low degree of confidence in designation. Reconnaissance exploration to be expected. Good potential for upgrading of classification.
1	Low	Current data is non-diagnostic for favourable metallogenic environment. Moderate to high degree of confidence in designation. Little likelihood of future exploration for deposit types considered.
I	Indeterminate	Current data is either outdated or insufficiently detailed for a reasoned determination of mineral potential. High degree of confidence in designation. Future exploration to be expected in parts of the area.

TABLE 1: MINERAL DEPOSIT MODELS CONSIDERED IN CONSTRUCTION OF THIS MAP

DEPOSIT TYPE	COMMODITIES/ INDICATORS	GEOLOGICAL INDICATORS	EXAMPLE
Asbestos	asbestos (no geochemical indicators)	serpentine multiphase structural history outer contact aureole?	McDame mine 16 million tonnes 5.6% fibre
Gold-quartz veins	Au, Ag, Pb, Zn, Cu; As, Sb	basalt-serpentine hosts carbonate alteration, listwanite probably cryptic contact aureole	Erickson mine 500,000 tonnes 15.6 g/tonne Au 11.3 g/tonne Ag
Silver-lead-zinc Mantos	Ag, Pb, Ag, Cu, Au?; F, Sn, Sb	limestone hosts high-angle faults small felsic fluorine-enriched intrusions	Midway (104)/16) 1.2 million tonnes 410 g/tonne Ag 9.6% Zn, 7% Pb
Sedex massive sulphide	Zn, Pb, Ag, Cu; Ba	basinal shales and siltstones of Earn Group, some in unit IMs of Sylvestor allochthon Growth faults; association with sedex barite deposits	Stronsay (94F) 40 million tonnes 7.8% Zn, 2.2% Pb 47 g/tonne Ag
Sedex barite	barite; Zn, Pb	basinal shales and siltstones of Earn Group; some in unit IMs of Sylvestor allochthon	Ewen barite 104)/16 181,000 tonnes
Porphyries (Molybdenum)	Mo, Cu; F, U	small relatively young intrusions within and east of eastern side of Cassiar batholith	Storie Moly 104P/04 45 million tonnes 0.14% Mo
Skarns	W, Mo, Cu; F, U	carbonate hosts; in contact aureoles of small, relatively young intrusions at and east of eastern margin of Cassiar batholith	Kuhn 409,000 tonnes 0.48% W, 0.134% Mo
Polymetallic veins	Ag, Pb, Zn, Cu; Au	carbonate and other hosts near intrusions; faults Similar atting to mantos but characteristically smaller deposits	Joe Reed vein (104P/06) 40,000 tonnes 220 g/tonne Ag 5.5% Pb, 4% Zn
Copper-gold stockworks	Cu, Au, Ag	variety of hosts (unit IMs, IIIPPHv of Sylvester allochthon); alteration haloes	Mare (104P/12) no reserves
Chromite	Cr, Pt, Au	Dunite cumulates in Sylvester allochthon	traces in 104P/12
Cyprus-type volcanogenic massive sulphides	Cu, Zn, Ag, Au	Volcanic suites of Sylvester allochthon with stratiform sulphides or rhodonite	Lang Creek (104P/04) 27,000 tonnes 1.52% Cu, 0.9% Zn
Placer gold	Au	Known placer creeks	
Geochemical anomalies	Uranium	Cassiar batholith (southwest corner of map)	
(no geologic support)	other elements	scattered	

DEFINITION OF ANOMALOUS VALUES

Regional Geochemical Survey data is available for the area for Zn, Pb, Cu, Ag, Mo, W, Ni, Co, U, and F and U in waters. These samples were not analysed for Au, As or Sb. Anomalous threshold values were established statistically by using the PROBPLOT program (Stanley, 1987). Anomalous thresholds are either a) the lower (2%) threshold for the first identifiably distinct population at or above the 95th percentile or b) the average of this lower threshold with the upper threshold for the next lower population; whichever option is most geologically reasonable. Element anomalies were used to increase the potential for deposit types in their area if and only if those elements were shown under "COMMODITIES/INDICATORS" for that deposit type; for instance a fluorine anomaly would be used to increase an area designated for manto potential from 2 to 3; but it would not affect asbestos potential.

ANOMALOUS THRESHOLDS

Zn	160 ppm
Cu	80 ppm
Pb	33 ppm
Ag	0.3 ppm
Mo	8 ppm
W	7 ppm
U	22 ppm
F-water	200 ppm

EXPLANATION OF SYMBOLS

- Mine
- Deposit with major reserves
- Deposit with minor reserves
- Showing

REFERENCES

Nelson, J.L., Bradford, J.A., Green, K.C. and Marsden, H. (1988a): Geology and patterns of mineralization, Blue Dome map area (104P/12). *B. C. Ministry of Energy, Mines and Petroleum Resources*, Geological Fieldwork 1987, Paper 1988-1, pp. 233-243.

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Stanley, C.R. (1987): PROBPLOT: An Interactive Program to Fit Mixtures of Normal (and Log-Normal) Distributions with Maximum Likelihood Optimization Procedures; Association of Exploration Geochemists Special Volume 14.