

VANCOUVER

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Conclusions reached after a statistical study of Chappelle Drill Hole Data, using Variograms, November 1978.

A. Horizontal Variograms (E-W)

It is clear that the horizontal range of influence of each drill hole is $125' \pm 10'$. This is very important in drilling programme design. For example, holes could be spaced 200' apart or even 250' apart and would test the area in between conclusively, on an exploration basis. For development, drill holes should be on 50' (not 25') sections.

B. Vertical Variograms (on dip of vein)

As anticipated there are insufficient pairs of samples, (especially under 75' apart) to reach a valid conclusion as to range of influence. However, based on the variograms and on the contoured sections of grades and thickness, the vertical range of influence is about $75' \pm 10'$. This means that for exploration drilling on cross sections the intersections should be spaced not more than 150' apart, preferably 130'.

C. The sizes of the polygonal blocks used for the original ore reserve estimation are all valid because not one hole's range of influence exceeds 125' in assigning areas of influence to DDH's or underground sampling.

D. From the contoured sections for thickness and gold and silver accumulations it is clear that:

- (i) There are very important normal faults offsetting the ore blocks. These faults dip NE.
- (ii) There is a general rake of the ore zone at about 20° to the southwest.
- (iii) The pattern of ore at the NE end of the zone is somewhat confused but thrust faulting with a possible horizontal component is indicated.

- (iv) Exploration should be directed southwestward.
- (v) There is a slight indication of two high grade ore "nodes" below the adit level as shown on the panels. These indications are from drift sampling. These could be checked by short drill holes from underground.
- E. The coefficient of correlation between gold and silver grades is quite high, indicating a close and good correlation of gold and silver assays. The coefficient is 0.8271. A coefficient of correlation of 1 indicates perfect correlation.
- F. Using the theorem of central limit, the average grade of the ore blocks is 0.830 Au oz/t and 16.24 Ag oz/t. The range of grade at 95% level of confidence is ± 0.1638 Au oz/t and ± 6.00 oz/t Ag.
- G. At \$200.00 (U.S.) oz/t for gold and \$5.25 (U.S.) oz/t for silver; at 10% dilution and 85% recovery the ore is worth \$157.33/t. After dilution there are about 60,000 tons at the above grade giving a gross value of \$9.4 million (Can).
- H. Block 3 was kriged using the writer's 3 point system.
- | | Au | Ag |
|---------------------------------|-------------|----------------|
| Block 3 grade (former estimate) | 0.142 | 3.97 |
| Block 3 grade (3 pt kriged) = | 0.297 \pm | 0.0960 Au oz/t |
| = | 5.45 \pm | 3.33 Ag oz/t |
- Confidence level is about 95%.
- The 3 point kriging system can give a good global reserve estimate with confidence levels and should be done. The 3 pt kriging system is better than estimates using the theorem of central tendency.
- I. A clear relationship between thickness and grade is indicated; the thicker the vein, the higher the grade. This suggests tensional control.