

September 23rd 1957

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MEMORANDUM: To Roderick Macrae

Re: Geochemical Survey - Jake Group - Yukon Territory

I am not too impressed with the geochemical anomalies obtained on the Jake group. I note from the work done by Papezik that he has marked the outlines of broad anomalies. However, a further analyses of these anomalies themselves, would indicate that they are not too important.

Geochemical anomalies must be graded according to the following factors:

- (1) background range, (2) threshold, (3) contrast, (4) homogeneity.

BACKGROUND RANGE

The geochemical data obtained in areas where the soil equilibrium has not been upset by metal dispersions from an underlying ore deposit, usually falls statistically within a well defined range for the broad area in question. For the Jake group it would appear to be a total metal content in p.p.m. of 75. The soil overlying the Vangorda deposit was in the same order, as was also the Gal survey.

THRESHOLD

It is usually possible to select a limiting cut off or threshold value below which the variations represent only normal background effects and above which they have significance in terms of possible ore. The value of this threshold may require a careful appraisal of all geochemical data in the area. No hard and fast rules can be established as to what threshold value is likely to be in any given area, because it will depend on local geochemical factors which are different for different areas. However, it is usually possible to select the threshold contours suitable for the area in question by careful appraisal of the geochemical data from that area. It would appear that for an anomaly to be significant it should reach 5 times background count. We originally thought that twice background count was significant and this may be the case if homogeneity is present. However, if it was not, then the twice background count may be isolated erratics which have no significance. I think it is safer for interpretive purposes on this job to take 5 times the background count, as is indicated by the Vangorda area survey. This being the case, there is really no significant geochemical anomaly on the Jake and Gal

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When compared with those obtained on the downstream side of the Vangorda ore body.

CONTRAST

Contrast may be expressed as a ratio either of maximum to threshold, maximum to background, or threshold to background depending on which figure appears to be the most significant. Because of its characteristic response to factors causing enrichment and impoverishment, each element will normally show a different and characteristic degree of contrast with its background. In the case of the Vangorda survey, the contrast would be expressed as 5 times the threshold. Any contrast of this nature would be treated as an anomaly caused by underlying mineralization. If the threshold on the Gal group was taken as one hundred then there are no really significant contrasts of the nature of those obtained in the Vangorda area. This also applies to the Jake claims, although some isolated ones reached 400 or 4 times background. This does not appear to obtain over most of the area however.

HOMOGENEITY

This is a measure of the smoothness or absence of strong local variations in the distribution of the heavy metal content. When smooth geochemical profiles or contours can be drawn, the anomaly could be considered homogeneous. Anomalies within which values vary erratically through a wide range within short distances, may be considered relatively inhomogeneous. The Vangorda Geochemical survey showed a homogeneous anomaly over a length of 3,000 feet and a width of approximately 800 feet on the downslope side of the Vangorda ore body. Sampling points there were taken at regular intervals 200 feet apart, while those on the Jake group were taken 300 feet apart. Thus, with a similar sampling interval, there should be no apparent difference in the homogeneity of the anomaly on the Jake claims as compared with that of the Vangorda claims. However, it would appear that the Jake anomalies are not homogeneous as compared with the Vangorda ones. This is another factor against the results showing a uniform anomaly caused by underlying sulphides.

When the above factors are taken into consideration, it would appear that the geochemical anomaly on the Gal and Jake groups are not significant of a large underlying

base metal body.

It is noted on the Jake geochemical survey, that the topographical details are not shown. This would be helpful in deciding which is downslope from the anomalies obtained. It could be marked on the final map in a general sort of way.

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