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Report for Kerr Addison Mines Ltd. on the Gravity and Electromagnetic Surveys (as of Oct. 1965) over the Swim Lakes "A" group of claims in the Yukon Territories

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Background:

A helicopter borne nuclear precession magnetometer survey detected several zones of magnetic anomalies in the Swim Lake area. These zones were checked for conductivity by reconnaissance ground EM surveys. On the "A" group of claims a large and strong conductor was discovered. A hole drilled near the centre of this conductor cored graphitic material throughout its length.

zones were also ground checked by mag & SP surveys with information results. PMK

Since the Vangorda Creek deposit 5 miles distant is associated with a graphitic formation it was decided to run a gravity survey over the conductive area to determine if massive sulphides were present. This initial survey in 1964 produced a sharp 1.40 milligal anomaly on the north west flank of the conductor. Subsequent drilling of this anomaly in the summer and fall of 1965 intersected massive sulphides carrying lead, zinc and silver values.

after the 1964 gravity survey but before the 1965 drilling + 1965 gravity survey

A rough tonnage calculation at this time assuming an ore density of 4.0 and a host rock density of 2.8 arrived at a figure of 40 million tons of massive sulphides.

The gravity survey was then extended in 1965 both to the east and west and several fill-in lines were traversed. It is on the basis of this additional work that the gravity data has been reassessed.

NB: ink notations by PMK, Nov. 3/65.

Interpretation

With the increased survey coverage a more accurate regional gravity contour map could be drawn. Under normal circumstances this regional map would represent major geological structures and would be completely independent of terrain effects. In this case however it is obvious that the "regional effect" is related to the contour map of the topography. This is caused by inadequate terrain correction factors being applied to the gravity readings. In this survey this cannot be helped since the terrain is extremely rugged and the survey area covers only a small portion of the vertical relief. This new "regional map" is still very limited in accuracy and is perhaps more conservative than the previous rough interpretation. This change considerably reduces the estimated tonnage of the main deposit.

After a "regional effect" has been established it is subtracted from the measured gravitational field and the resultant difference is known as the "residual gravitational field". This residual field represents the "excess tonnage" of material in the rocks below. One only has to assume a density contrast (in this case 4.0 for ore and 2.8 for host rock) to convert this excess tonnage into actual tonnage. This calculation is thus completely independent of assumptions as to shape, width, length, depth of burial, etc. From this residual map the following conclusions and calculations have been made.

The main ore zone lies on the northern contact of the graphitic formation. Between lines 49 West and 77 West it contains a minimum of 20 million tons of massive sulphides. It appears that the ore zone is still open to the south-west. This reduction by 1/2 of the original estimate is partially due to (1) the changed

"regional effect" which is now more accurate and more on the conservative side and (2) due to cutting off of the tonnage estimate at L 77 W. With the first estimate this portion of the zone was included by rounding off of the existing contours. i.e. west of L 77W

It would appear from the residual map that the northern contact of the graphitic formation is mineralized throughout its length. As we move eastward from the main zone the sulphides appear to pinch out between lines 38 W and 49 W. The dip of the formations changes from a steep possibly 60 to 70° north to a more shallow perhaps as low as 30° north. On line 34 W, 900 north (BL) a concentration of sulphides occurs. This is shown as lying to the east of the line but it could just as easily lie to the west or directly below the line. This zone would contain approximately 2 million tons of massive sulphides.

On line 1E the graphitic formation appears to be folded with the dips along the axis of the fold becoming shallower. A concentration of sulphides appears to occur between lines 10 W and 2W with a dip perhaps in the order of 20 to 30 degrees. Due to the shallow dip and complex structure no tonnage estimate has been made of this zone.

At line 13 E and 700 S (BL) another concentration of sulphides occurs. The dip here appears to be steeper (45° NW) and the tonnage in the order of 2 million tons of massive sulphides.

Drilling recommendations could be made at this time however I feel it would be wiser to leave them until more information and experience has been gained as we move out from the main anomaly.

It must be remembered that the gravity information even at this stage is limited in extent and subject to error due to the rugged terrain. Thus the above calculations are probably on the conservative side and could be considerably out.

Respectfully submitted

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