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ROSE CREEK AREA
YUKON TERRITORY

INTERPRETATION of GRAVITY DATA

by

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INTRODUCTION

Data were presented to the writer in the form of Bouguer values and elevations plotted in profile form. Regionals were run on the profiles and tied at the base line. These regional values were plotted on a base map, smoothed and adjusted on the profiles. Residuals were then extracted from the profiles, plotted and contoured. The residual map is the key map in the interpretation.

REGIONAL MAP

Regional values decrease from south to north about ten milligals per 2.5 miles. A north-south trough of low density material appears to lie between lines 172 + 00 S and 196 + 00 S. The regional map indicates the presence of heavier deep seated rocks to the south and lighter ones to the north. The trough is possibly indicative of faulting. More will be said of this later.

RESIDUAL MAP

Considerable ambiguity in interpretation exists in the central part of the area due to the presence of apparent faulting and the deposition of a great thickness of light debris on the down-thrown side in the vicinity of 10 + 00 N on lines 156 + 00 and 164 + 00. The fault trends north-east-southwest, crossing the base line near 172 + 00. Maximum displacement is probably in excess of 1,000 feet.

Many positive features exist within the area. The most important ones, identified as such on the basis of amplitude and flank gradient, are labelled A through D.

A - Although the north flank and a possible westerly extension are not completely covered, this is

an outstanding anomaly with amplitude probably in excess of 1.3 milligals and flank gradients up to 0.3 milligal/100 feet. The shape of the western extremity is questionable because of the effect of the mass deficient area farther west. The causative mass is probably a pod-shaped body. If it is typical of lead-zinc-pyrite ore bodies of this area, density of the causative mass would be 3.6, depth to top about 250 feet, edge at the 0.6 milligal contour and tonnage around 20 M M.

A¹ - A small pod-like mass with 1.0 milligal amplitude, depth to top is estimated at 200 feet.

Causative mass is probably an extension of that associated with the A anomaly.

- B - Strong amplitude (1.2 milligals) and steep gradient on the south flank indicate that this positive is nearly equal in importance to the A anomaly. Depth to top on line 48 + 00 is calculated as 200 feet. It is downgraded somewhat because of a lack of regional control north of the apparent apex. The causative mass dips northerly.

- B' - An extension of B, it is well controlled on the north and substantiates the north dip of

the causative mass. With more control, a greater amplitude than 0.8 milligal might be exhibited. E and E' together are in excess of 8,000 feet in length and represent a very large causative mass.

- C - The shape of this positive feature is probably influenced by the proximity to a large fault. At 0.9 milligal, amplitude is moderately high; and north flank gradient is relatively low. However, the causative mass could represent an ore body.

- D - Because of high amplitude (1.6 milligals), this feature

should be given more attention. However, it has been downgraded because: one, much of the gravitational relief may be due to a density contrast between ordinary bed rock and detritus along a buried fault scarp and, two, the steep gradients on the east and west flanks cannot be seen on profiles. (They have been derived on the basis of interpolation between lines.)

There are other positive features in the area having amplitudes of about 0.5 milligal. These are considered marginal. Although any one of them could have an ore-body causative mass, it is more likely that all are associated with local thinnings of the overburden.

RECOMMENDATIONS

1. The A-A' and B-B' anomalies should be detailed, along with the area between them. This should be done by extending lines 108 + 00, 116 + 00, 132 + 00, 140 + 00, 156 + 00, and 164 + 00 to 80 + 00 North. In addition, lines 104 + 00, 112 + 00, 120 + 00, 128 + 00, 136 + 00, 144 + 00, 152 + 00 and 160 + 00 should be run from the base line to 80 + 00 North. This is a programme of about 20 miles.

2. To further investigate the fault and the D anomaly, a line should be run at 20 + 00 North from 148 + 00 to 188 + 00, a distance of 4,000 feet.

3. Drill the A and B anomalies, but select the drilling locations after the added programme has been interpreted.

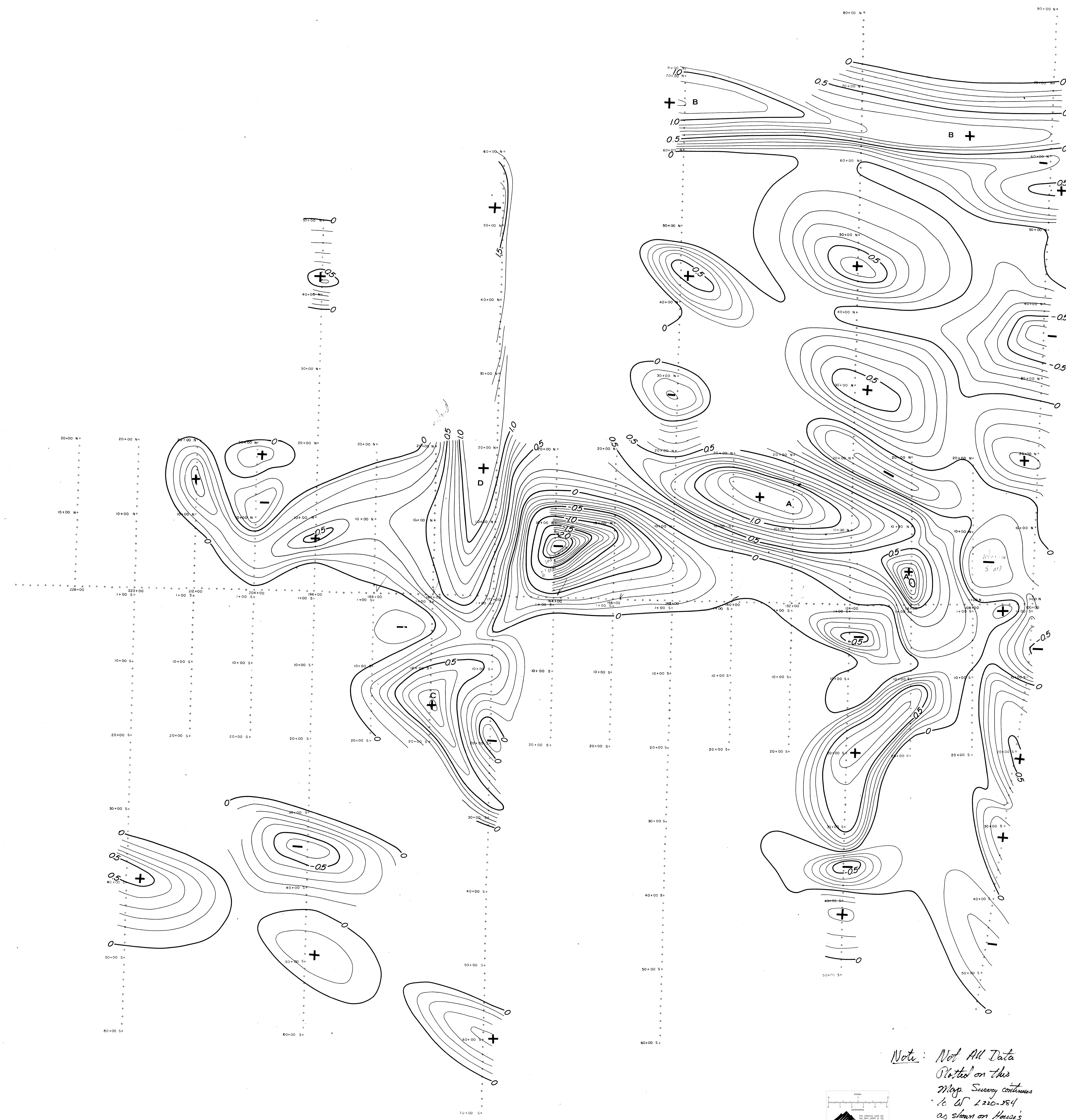
COMMENTS

Residuals were extracted in a conservative manner, so the A and B anomalies may be somewhat larger than shown. Both have strong relief and large areal extent. Their characteristics are similar to those found over other ore bodies in this region. Furthermore, both are close to a northeasterly trending fault -- a geological situation considered favourable for ore accumulation in this area.

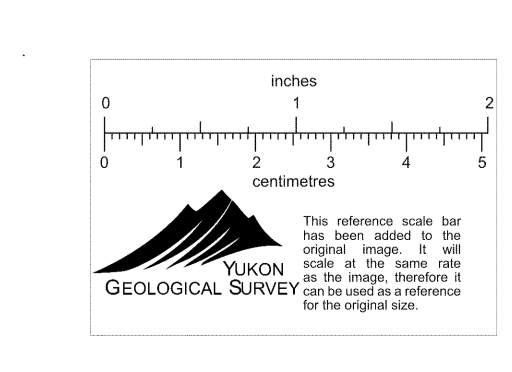
Respectfully submitted by:

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P. Geoph.

REG/jp



*Note: Not All Data
Plotted on this
Map. See my contours
to G.S. 220-384
as shown on House's
geol. map.*



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 ROSE CREEK AREA
RESIDUAL GRAVITY MAP

SCALE 1" = 400' CONTOUR INT. 0.10 MGALS.