

To Robin Tolbert

Copy to Tony Brown

From Gregg Jilson

006273

Date June 5, 1984

Subject KERR ADDISON/CAMC DRILLING COMPARISON AT VANGORDA

During a recent lull in the arrival of cross section plots from Calgary I had our assistant compare Kerr Addison and Cyprus Anvil drilling results for Vangorda. The comparison is not exhaustive but is based on only 10 diamond drill sites and 6 rotary drill sites. I understand that Daryl Hanson made a more exhaustive study and that a report was written on it thus I would urge you to consult that as well.

The holes were chosen at random and scrutinized for the "most likely to be comparable" assay intervals. By that, I mean logical clumps of assays of relatively high grade separated by relatively lower grade at comparable depths. The following tabulations compare those intervals that seem most appropriate with the additional selection that the intervals in the two holes should be close to the same length (i.e. +10%).

The results seem clear enough:

- A) Pb grade tends to increase from KA-DDH to CA-DDH
- B) Zn grade tends to decrease from KA-DDH to CA-DDH
- C) the average increase in Pb over KA's results ^{is} 31%, the average decrease on Zn is - 8%.
- D) there is a grade dependent relationship between KA-DDH and CA-RDH such that the comparison is poorer at high grade with both Pb and Zn grade decreasing, zinc more than lead (This is best viewed on figure 1)
- E) the diamond drillhole comparison is not as clearly grade dependent as the rotary (see fig.1)

These trends though based on a very small sample and obscured by much noise seem to fit the observed trends in average deposit grade comparing Cyprus Anvil's recalculation of Prospector Airways drilling results (=KA) of Pb = 2.96% Zn = 4.86% to Cyprus Anvil's results after redrilling Pb = 3.47% Zn = 4.58%. This represents an increase of Pb grade by 64% and decrease in Zn grade by 6%.

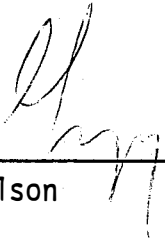
The cause of the discrepancy in the diamond drillhole comparison is probably poor original sampling but I wonder if assaying plays a part since Kerr/Prospector Airways didn't analyse Ba.

CYPRUS

The rotary comparison is alarming in that it suggests to me that there is a serious sampling problem that gets worse with grade. Aro Aho's experience was that rotary drilling didn't give good grade comparisons to diamond drilling at Faro and it looks like we reinvented the wheel.

No comparison on silver as our data source had no Ag values for the early drilling at Vangorda.

A sidelight of this study was that the depth to overburn/bedrock interface was generally greater in CAMC's DDH redrills. The average was 6.4 m over 10 holes! with the fit being from very close to horrible (17 m out!) The following is not really valid but interesting nonetheless. At Vangorda about 100 m x 500 m of area of the bedrock interface is subcropping sulphides; if the 6.4 m average were used then CA drilled away $6.4\text{m} \times 100\text{m} \times 500\text{m} \times 3.5\text{t/m}^3 = 1 \times 10^6$ tonnes of ore (the reason its not valid is that the bulk of this subcropping sulphide is outside the re-diamond drilled part of the deposit).



Gregg Jilson

GJ/lp
attachments

T A B L E I

Kerr Addison Diamond Drillhole vs Cyprus Anvil Diamond Drillhole

$$\frac{\text{Change in assay}}{\text{Original Assay}} \times 100\%$$

| <u>Approximate Length (in m)</u> | <u>Pb</u> | <u>Zn</u> | <u>Range of Pb + Zn Grade</u> |
|--------------------------------------|------------|------------|-----------------------------------|
| 41 | -14 | -14 | 2 |
| 57 | +71 | +22 | 3-4 |
| 70 | +25 | -13 | 6 |
| 56 | +29 | -10 | 6-7 |
| 8 | +22 | -23 | 9 |
| 12 | +38 | +58 | 6-8 |
| 12 | +56 | +3 | 8-9 |
| 14 | +170 | -12 | 7 |
| 8 | +36 | -20 | 4 |
| 44 | +41 | -48 | 9 |
| 23 | +13 | -11 | 9 |
| 5 | +5 | -10 | 1 |
| 18 | -12 | +2 | 6 |
| 5 | +43 | -14 | 2 |
| 35 | <u>-12</u> | <u>-10</u> | 1 |
| Length weighted average | +31% | -8% | |

T A B L E I I

Kerr Addison Diamond Drillhole vs Cyprus Anvil Diamond Drillhole

| <u>Approximate Length (in m)</u> | $\frac{\text{Change in assay}}{\text{Original assay}} \times 100\%$ | | <u>Range of Pb + Zn Grade</u> |
|--------------------------------------|---|------------|-----------------------------------|
| | <u>Pb</u> | <u>Zn</u> | |
| 13 | - 6 | -34 | 5-7 |
| 23 | +43 | +11 | 2 |
| 13 | -18 | -50 | 9-10 |
| 15 | +7 | -9 | 4-5 |
| 19 | -25 | -42 | 4-6 |
| 11 | <u>+75</u> | <u>+13</u> | 1 |
| Length weighted average | +12% | -17% | |

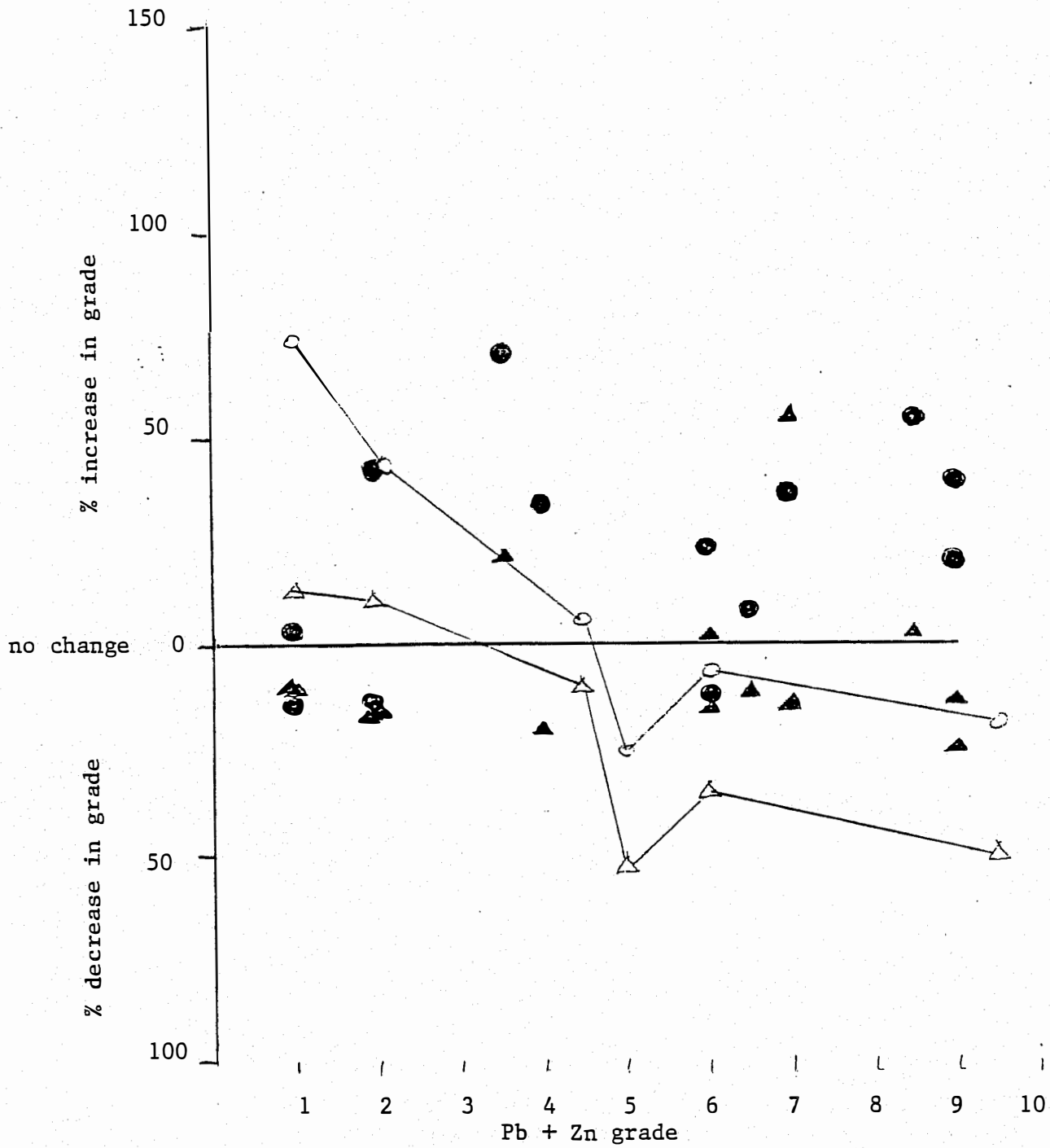


Fig. 1 Comparison of change in average lead and zinc grade between K.A. and C.A. drilling

- △ Zn in RDH/DDH
- Pb in RDH/DDH
- ▲ Zn in DDH/DDH
- Pb in DDH/DDH