017424

May 13, 1977

DY LINE 108 VERTICAL CROSS SECTION

COMMENTS & ANALYSIS

SUMMARY

Outcrop distribution, fabric data & fold symmetry place strong constraints on the structural geometry of the DY area. A cross section has been constructed that is based on and compatible with the above features. No doubt, significant changes will be made in the Detail Geometry; however, the overall picture, in my opinion, is correct.

Briefly, large-scale, upright D_1 isoclines are refolded and overturned by large-scale, tight, recumbent D_2 folds. Overall, D_2 ultimately controls outcrop distribution; D_1 fold closures are more locally significant.

METHOD

a) Most D_1 - D_2 fabric data plotted on F-6 at scale 1" = 1000'.
b) Brief stereonet analysis of D_1 - D_2 fabric elements.
c) Axial traces of large-scale structures established by symmetry analysis.
d) Axial traces overlain on and compared with F-6 outcrop geology.
e) Cross section constructed.

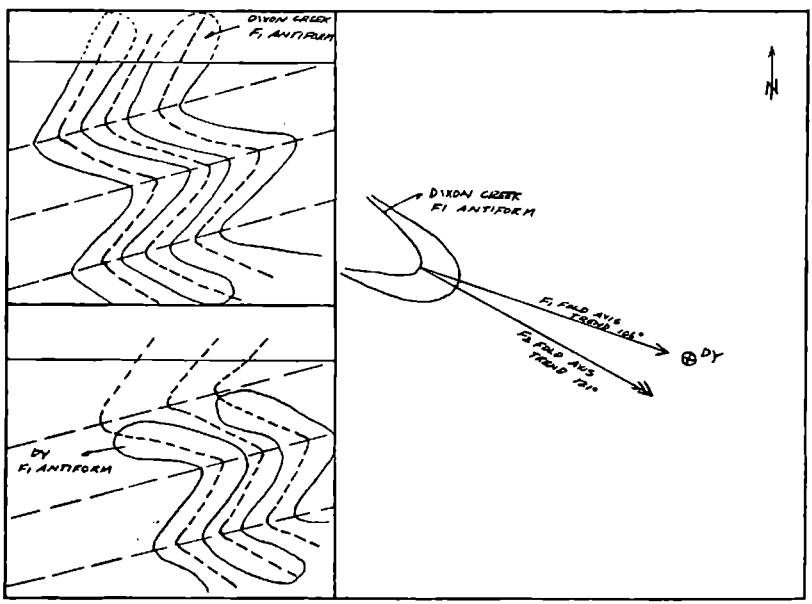
D_1/D_2 RELATIONSHIPS

Based on limited observation of the strong penetrative fabric of S_2 and its subsequent interference with D_1 (small-scale lithon structures) I had immediate doubts that large-scale D_1 isoclines would retain their original (?) upright attitudes in the area. A stereonet plot of S_1 confirms this suspicion with poles to S_1 forming a diffuse girdle. This pattern suggests that originally (?)

upright S_1 have been moved through the horizontal and in some cases, to steep and opposing dips. D_1 fold axes behave in a different manner showing a good concentration. These relationships suggest that S_1 was originally steep or upright (relative to S_2) and that F_1 and F_2 are approximately co-axial (plunging gently south of east).

S_1 has been refolded yet can still exert a strong but restricted influence on outcrop patterns. Because S_1 has been forced into a generally sub-parallel attitude with S_2 it is only where large-scale D_1 closures wrap around large-scale D_2 axial surfaces that these early structures from distinctive outcrop patterns.

The Dixon Creek area fits the above situation with a large-scale D_1 antiform closure refolded by a large-scale D_2 synform. Since D_1 and D_2 are approximately co-axial, the resulting geometry has down plunge continuity. In detail, this continuity is absent when Dixon Creek surface and Dy sub-surface geometries are compared. This anomaly can be neatly and reasonably explained by the below cartoons.



The trend of F_1 is 106°; the trend of F_2 is 121°: at Dixon Creek the 2 trends converge and are coincident. However, as we move to the southeast the trends gradually diverge. At Dixon Creek, the F_1 antiform closure (as defined by the ore horizon) crosses the F_2 synform axial plane and is overturned: however at Dy, the F_1 antiform closure (as defined by the ore horizon) no longer crosses the F_2 synform axial plane and is not overturned.

As drilling progresses the above interpretation will be tested. Of immediate significance are two observations:

a) The Kerr Addison ground, centered around the baseline, may cover the nose of the F_1 antiform.

b) A large area of potential ore horizon remains untested to the northeast. Depth to the ore horizon remains favourable in this area.

Respectfully submitted,

J. P. Franzen

May 13, 1977
/ew