Appendix K

Magnetic and Seismic Data Zeehan Region

Leaman Geophysics

LEAMAN GEOPHYSICS

Registered office:
ABN: 34 479 871 658 3 MALUKA STREET, BELLERIVE, TAS. 7018
All correspondence to:
GPO Box 320, HOBART, TAS. 7001
Telephone: (03) 6244 1233
Fax: (03) 6244 6674

October 29, 2007

Exploration Manager,
Zeehan Zinc Limited
GPO Box 1603
Hobart Tas 7001

Attention: Paul Heath/Tim Bendall
RE: MAGNETIC AND SEISMIC DATA ZEEHAN REGION

Dear Paul and Tim,

I have reviewed the data supplied for the Zeehan area.

TENTH LEGION SURVEY
There are some real problems here. The specifications of 200 m line spacing and 25 m observation spacing could yield a regional view of the regional field and structure but there is a huge line separation bias and this shows in the inability to contour sensibly. More crucially, however, I doubt the actual observations.
Field values range from 1600 to about 95 000 nT and jump around by several thousands between readings. These are almost certainly invalid values related to high gradient effects in the sensor (of type G858).
The files give no indication that values were replicated and appear to be single readings.
There is also no evidence of diurnal correction, though that will be very minor against these value ranges.
As an example of possible validity, the values of line F (from ID 1 to 16) may be real; what happens after that is almost certainly not.
High gradient problems of this sort are quite common if the rocks and soils involved are variable and contain magnetite.
The plots showing diurnal drift should be fully labelled with time and intensity and both days could be showing significant variations – we do not know from the plots. These profiles are credible.

Consequently, I can only recommend the survey be repeated.
Read the lines again at 2 or 5 m reading spacing (this will not take much longer than that already tried)
Ideally, observe more lines. A spacing of no more than 50 m is advised (25 m preferred)
Read at least three cycles of the instrument OR until three values reproduce within 20 nT in high gradient sites or within 5 nT elsewhere. Average the number for plotting purposes.
If it proves impossible to reproduce values (this might happen) then add a 3 m extension to the magnetometer pole (to place sensor 4-5 m above ground) and try again. The entire area must be observed at the same height.
Test procedures between B18-25, C12-24 or on line E. A new base record is required.

MELBA FLATS
The situation at Melba Flats is better and almost useful (but closer lines needed) although there is not enough information for a complete verification of minor issues. Was this data fully corrected for the base station? I cannot be sure.

SEISMIC DATA
I saw the Findlay interpretations of the Zeehan traverses in the office but suspect an over-interpretation. His report does not, but should, include A4 versions of such interpretation so that we may link his structural analysis.

I recommend that you request final stack and migrated data be presented at a modest scale using the software held by GSLM and that colour image files be made available for notation and perspective purposes. JPG files of each line would serve your purposes but I have to comment that from what I have seen so far I doubt that little of benefit to your exploration is likely to be derived from the seismic data, and certainly not without assistance from gravity and magnetic data.

I trust these comments are of use,

Yours faithfully,

Dr D. E. Leaman