

## INTERPRETATION OF SOUTH HENTY BOREHOLE EM SURVEYS

### INTRODUCTION

The history is summarised in a Goldfields Exploration Technical Note by Chris Dauth, dated 14/1/99. Holes SHD1, 2, 12 and 13 were drilled by Resolute Ltd, and logged with Crone PEM, in 1997. Holes SHD16 and 18 were drilled in 1998 by Goldfields Exploration, and logged similarly in 1998.

Hole SHD19 was drilled in 1999 by Goldfields Exploration, and logged similarly in 1999. At the same time, additional logging of holes SHD2, SHD12, SHD1 and SHD2 was completed.

This note presents an interpretation of the entire borehole EM set of data to June 1999, plus comments on conductive trends as deduced from surface CSAMT profiles (also acquired in 1998).

Plotted profiles of all historical and current data, including two-dimensionally-filtered data where applicable, are appended to this report.

### Hole SHD1

Both loops 1 and 2 give borehole A-component (also called Z-component) profiles which show a broad negative anomaly at near the base of the hole. This is consistent with a flat-lying conductor. Amplitude is stronger on Loop1 (x2). Distance off-hole order 100 - 200 m? Likely position is west of base of SHD1, dipping 20-30 deg east. NB re-interpretation of intersections of Ccs in holes SHD1, SHD16, SHD13 is consistent with this shallow dip.

Additional logging with Loop 9 gives a similar signature in the A-component. The time-constant with loop 9 is 0.13 msec (Figure 1). At this loop-conductor distance, energisation by current channelling might have been expected to dominate, but the power-law decay coefficient is  $t^{-7}$ , which is very different from an expected current channelling response of  $t^{-3.5}$ .

Study of U components (also called X-components) is inconclusive; profiles of U components for both loops 1 and 2 are positive, and flat. There is possibly a negative signature superimposed on the profile Loop1 SHD1, over 500-700m depths. I doubt the XY probe was functioning correctly for this survey.

Study of the V-component (also called Y-component) is much clearer; the loop 1 SHD1 V-component shows a classic off-hole profile shape for conductor at range order 100 m, displaced along strike to north. The decay curve (Figure 2) gives  $\tau=0.2$  msec. This is consistent with a significant conductor (Conductor A) of 8 S, size order 200x200 m. (This decay constant is greater than the value of 0.13 obtained

---

**Flagstaff GeoConsultants Pty. Ltd. (ACN 074 693 637)**

Suite 2, 337A Lennox Street, (PO Box 2236) Richmond South, Victoria, 3121 Australia

Phone: +61 3 9421 1000 Fax +61 3 9421 1099

Email: [postman@flagstaff-geoconsultants.com.au](mailto:postman@flagstaff-geoconsultants.com.au) WebSite: [www.flagstaff-geoconsultants.com.au](http://www.flagstaff-geoconsultants.com.au)