



INTRODUCTION

A Dighem survey of 93 line-km was flown over the Montezuma area (within E.L.15/76) in February, 1982 as part of a joint venture between EZ, Getty and CSR. The nominal flight line spacing was 200m and a nominal bird height of 36m was quoted in the Dighem report (Peters and Fraser, 1982).

The Dighem system is a helicopter borne technique using a towed 'bird' which contains two sets of transmitting coils and receiving coils; one pair of vertical coils with a common axis (co-axial) and a pair of horizontal, coplanar coils. The transmitted frequencies are sufficiently far apart to be recorded separately, but are close enough to assume both coils operate at 900hz, for mathematical treatment of the responses. The two coil orientations allow Dighem to differentiate different types of conductors, in particular, conductive overburden from bedrock conductors.

The survey data is computer processed and as well as giving the usual in- and out-of-phase responses for both coil orientations and the altimeter and magnetometer data, the profiles show apparent resistivity and depth for a conductive earth; conductance for a vertical dyke; plus various anomaly enhancement channels. Also shown are ambient noise levels for both coil orientations. Further description is given in the Dighem report and in Fraser (1979).

Dighem have defined six grades for the EM anomalies, these are:-

Dighem Grade	conductance (t) range
6	>100
5	50-99
4	20-49
3	10-19
2	5-9
1	<4
X	possible

The following quote is on all Dighem EM maps.

"Dighem anomalies are divided into six grades of conductivity-thickness product. This product in mhos (siemens in S.I. units) is the reciprocal of resistance in ohms. The mho is a measure of conductance, and is a geologic parameter. Most swamps yield Grade 1 anomalies but highly conducting clays can give Grade 2 anomalies. The multi-coil anomaly shapes often allow surface conductors to be recognised, and these are indicated by the letter S on this map. The remaining Grade 1 and 2 anomalies could be weak bedrock conductors. The higher grades indicate increasingly higher conductances. Examples; the ore bodies of the Mogusi River camp yield Grade 4 anomalies, while Mattabi and Whistle give Grade 5. Graphite and sulphides can span all grades but, in this survey area, field work may show that the different grades indicate different types of conductors".

Dighem identifies the anomalies on the computer profiles alphabetically from west to east on any flight line; grade X responses are lettered separately, also starting from A. Anomalies thought to be spurious (i.e. caused by sferics, instrumental noise, etc.) are not plotted on the plans, and thus labelling may not be sequential along one flight line, and letters may be repeated if there are both definite and possible anomalies. For this report, zones of anomalies (interpreted by Dighem) have been outlined and labelled alphabetically (from A); single anomalies have been labelled numerically (from 1). Table 1 lists the anomalies (geographically