Tasmania Department Of Resources and Energy

Division of Mines and Mineral Resources — Report 1990/10

Operations report—1989/90 helicopter gravity survey.

by R. G. Richardson

Abstract

The 1989/90 helicopter gravity survey provided infill cover in north-east Tasmania for the impending groundwater bulletin, and commenced a coverage of the Adamsfield district. During the later part of the survey a GPS system was used to assist in navigation.

INTRODUCTION

Survey techniques and philosophy were outlined in Richardson (1986). Appendix 1 details the hours flown and number of stations acquired during the helicopter operations.

The gravity base stations used were:

(i) *St Helens Airport* (Wellman *et al.*, 1985).

Station Number	6491.9139
Gravity value	980302.29 mgal
Elevation	45.65 m

(ii) *Strathgordon*

Station Number	8951.9926
Gravity value	980362.96 mgal
Elevation	323 m

(iii) *Twelvetrees Range*

Station Number	9051.9902
Gravity value	980285.78 mgal
Elevation	732 m

Operation of the GPS navigation system is the subject of a separate report (Richardson, 1990).

COSTS

Assume that a field assistant is paid $27,000 per annum spread over 260 working days, and that the daily travelling expenses rate is $90. Then the total daily cost of a field assistant is $178.46. Note that in the following calculations, days scheduled for flying but with bad weather impose both a machine and a labour cost.

Survey duration — 18 days
Total helicopter charges — $48 509.73
Number of successful stations — 560
Number of personnel — 3
Cost per station — $103.83

This represents a considerable increase over the 1988/89 figure of $79.43 per station (Richardson, 1989) and reflects, in part, the rugged topography of the present area and the increases in personnel costs.

FIELD PERSONNEL

(a) Division of Mines and Mineral Resources

B. Cox; M. Dix; J. Hitchcock; R. Langridge; R. Richardson; R. Sedgman; J. Wright.

(b) Helicopter Resources Pty Ltd

G. Burdach; S. Richards.

CONCLUSION

The 1989/90 helicopter gravity surveys provided a cost effective coverage. In both areas long transit times and rugged topography increased the cost per station.

REFERENCES

RICHARDSON, R. G. 1986. Operations report—1985/86 Mt Read gravity survey. *Unpubl. Rep. Dep. Mines Tasm.* 1986/74.

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APPENDIX 1

Helicopter survey statistics

Period	Hours flown	Stations acquired
20.2.90—21.2.90	15.6	103
15.3.90—21.3.90	20.0	171
22.3.90—28.3.90	22.8	160
29.3.90—31.3.90	12.1	126