

THE APPLICATION OF MODERN MINERAL POTENTIAL MODELLING - A MULTI-OBJECTIVE STRATEGY FOR AUSTRALIAN STATE SURVEYS.

1SCOTT, M. and 2DIMITRAKOPOULOS, R.1Geological Survey Office, Queensland Department of Mines and Energy, Brisbane, Australia;2 Bryan Mining Geology Research Centre, University of Queensland, Brisbane, Australia.

The Application of Modern Mineral Potential Modelling - a Multi-objective Strategy for Australian State Surveys.1SCOTT, M. and 2DIMITRAKOPOULOS, R.1Geological Survey Office, Queensland Department of Mines and Energy, Brisbane, Australia;2 Bryan Mining Geology Research Centre, University of Queensland, Brisbane, Australia. Australian State Geological Surveys have two roles: (i) stimulating exploration activity by the reduction of discovery risk and increasing perceived prospectivity; and (ii) providing advice for Government mineral policy decision making. To effectively undertake these roles, State Surveys are increasingly under pressure to modify their operations because of continuing technological advances and significant changes in the operations of their clients. The exploration industry in Australia in the last few years has undergone major directional changes, with several major groups reducing or abandoning grass roots activity in favour of advanced opportunities, at the same time forming strategic alliances with junior groups involved in early stage exploration. At the same time the Government sector, with both environmental and economic pressures, is recognising the need to effectively manage State resources through informed decision-making. Australian State Surveys have made large investments in digital geographic information systems in order to provide information more effectively and in forms identified as increasingly required by the exploration industry and Government Departments. Surveys are also moving towards the routine provision of interpretative data, including identifying areas as barren or otherwise, and in many cases, more specifically identifying areas favourable for deposit occurrences. In the case where Government is the target client, some Surveys are also estimating the probability of a deposit occurrence within potentially mineralised ground. Three projects are used as examples to discuss the Geological Survey of Queensland's (GSQ) approach to its changing environment: (i) the Yarrol project, which uses prospectivity modelling and quantitative resource assessment as complementary processes; (ii) the north-west Queensland project, where the focus is on prospectivity modelling and marketing of State resources to a changing exploration sector. The emphasis here is on the generation and distribution of a range of information critical to industry decision-makers; and (iii) the prospectivity modelling project, a project assessing the suitability of recent prospectivity modelling techniques (neural nets and geodynamic process modelling) in terms of the objectives of the Survey.