C003

Examples of using Play Fairway Mapping in Conventional and Unconventional Plays

A. Davis* (Exprodat Consulting Ltd)

SUMMARY

This talk presents results from two studies undertaken at Exprodat, using geographic information system (GIS) software - used increasingly in this area in recent years with much success. Many companies only use GIS as a
simple data integration and visualisation tool, and don't exploit the spatial analysis capabilities which can be used to support the interpretation of large volumes of data and develop quantitative play analysis models.

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Play fairway mapping studies enable rapid analysis of prospective areas. Using GDE and paleogeography maps in conjunction with modern play fairway mapping software, the geoscientist can easily create common risk segment (CRS) or play fairway maps. Creating creaming curves from discovery data allows for the identification of the most prospective plays and by analysing the distribution and size of existing reservoirs estimates can be made of remaining reserves in existing plays.

The first study focusses on the Republic of Yemen, which lags far behind its neighbours Saudi Arabia and Oman in terms of existing oil reserves, with approximately 3500MMBbs recoverable oil. With these reserves rapidly running out, major economic implications loom should these reserves not be replaced in the near future. Play fairway mapping of onshore Yemen identified at least two additional prospective basins, and prospectivity analysis suggests undiscovered reserves in existing plays may be as high as 3.3 billion barrels. Whilst Yemen currently does not possess the reserves to rival its oil-rich neighbours, good opportunities for continued oil discoveries and production exist in this underexplored country.

The second study shows how play fairway mapping can be used in an "unconventionals" setting - the coal bed methane of the Canadian province of Alberta. Interest in Alberta's vast coal resources resumed in 2000 due to a combination of increasing demand for gas, declining conventional reserves and stimulation from the success of the USA's Powder Basin production. Using existing data from the area, new play elements were created for coal quality, gas quality, coal quantity and gas quantity. These elements were turned into CRS maps for each play to highlight areas of interest, with results indicating that the Drumheller and Ardley plays showed the most potential for future CBM production.