

Ceramah Teknik (Technical Talk)

Techniques to optimise history matching

ANDREW CARNEGIE

Laporan (Report)

Dr. Andrew Carnegie, a Reservoir Engineer with Schlumberger, gave the above talk to the Malaysian Chapter of the SPWLA and the Petroleum Group of the Geological Society of Malaysia on Thursday 13th July 2000, at 11.45 am at the 40th Floor Twin Tower 1, Kuala Lumpur City Centre.

Abstrak (Abstract)

The talk will be on a Case Study of a History Match of a complex, heterogeneous carbonate field, located offshore India. The emphasis will be on the strategies and techniques used to optimise the efficiency of this process. These will be discussed under the following sections: (a) the application of analytic engineering techniques, such as material balance and well performance plots, (b) utilisation of advanced simulation technology such as Flux Boundaries, Local Grid Refinements and Parallel Processing, (c) uses of reservoir monitoring data, such as that from through casing nuclear tools and production logging tools.

In many carbonate fields, including the one described in the case study, flow is significantly influenced by high permeability conduits, which usually cannot be located by static reservoir data alone. It will be explained that a simple new method and associated PC software, which integrates both dynamic and static reservoir data, was developed during the history match to efficiently incorporate such conduits into the simulation model. A stochastic distribution scheme for the prediction phase of the study will be suggested, which explores the uncertainty surrounding the high permeability conduits identified during the history match.

Finally, basic guidelines derived from the experiences of this study, will be suggested for optimising the efficiency history matching. The application of geostatistics to history matching will be discussed as part of this.

GSM