

Production and Reserves Analysis of the Multi-Zone Pembina Field, Alberta - A Look at an Old Area with a New Tool

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Abstract/Excerpt

Within a maturing oil and gas industry in Western Canada the efficient exploitation of existing discovered resources is very important. The identification and framing of unexploited potential within and around existing fields and pools is both necessary but increasingly difficult. Tens of thousands of wells in multizone oil and gas rich areas have significant supporting and historical data that can be used to assist exploitation efforts if it can be readily analyzed effectively. In-depth contextual analysis can be very time consuming and often is not easily updatable, making it difficult to detect and assess potential opportunities.

New information visualization technology and strategies have the potential to increase the speed, breadth and effectiveness of the analysis process. By enabling large multivariate data sets to be creatively viewed and analyzed new patterns can be noticed and hypotheses worked or reworked opening up the possibility of adding new insights regarding go-forward opportunities.

The authors have investigated multizone oil and gas production, reserves and hydrocarbons-inplace data using visual analytics tools, DecisionSite (DS) and DXP, from Spotfire Inc. The test data consists of 50+ years of oil and gas production data for the Pembina field and it's published remaining reserves as of 2006-01-01. Both are used in the context of assessed originally hydrocarbons-in-place to frame the area's remaining potential. The Pembina field consists of over ten thousand wells and 6000 square kilometres of land. DS and DXP are highly interactive and adaptive software tools allowing creative, in-depth analysis to be conducted with reasonable effort. This flexibility can assist in building a framework and work flow that can provide geoscientists and engineers with new insights, confidence with existing ideas, etc. allowing them to maximize remaining un-harvested value.