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Autore	Chin Wilson C.
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Nota di contenuto	Cover; Title Page; Copyright Page; Contents; Opening Message; Preface; Acknowledgements; Part 1 Modern Ideas in Job Planning and Execution; 1. Basic Ideas, Challenges and Developments; 1.1 Background and introduction; 1.2 Existing models, implicit assumptions and limitations; 1.2.1 Exponential tight zone approximation; 1.2.2 Permeability and anisotropy from steady-state dual-probe data; 1.2.3 Three-probe, vertical well interpretation method; 1.2.4 Gas pumping; 1.2.5 Material balance method; 1.2.6 Conventional three-dimensional numerical models; 1.2.7 Uniform flux dual packer models 1.3 Tool development, testing and deployment - role of modeling and "behind the scenes" at CNOOC/COSL 1.3.1 Engineering analysis, design challenges, solutions; 1.3.2 From physics to math to engineering - inverse problem formulation; 1.3.2.1 Simplified theoretical model; 1.3.2.2 More detailed finite element model; 1.3.3 Design chronicle - people, places and things; 1.3.4 Bohai Bay activities; 1.3.5 Middle East operations; 1.4 Book objectives and presentation plan; 1.5 References; 2. Forward Pressure and Contamination Analysis in Single and

Multiphase Compressible Flow

2.1 Single-phase source flow models
2.1.1 Qualitative effects of storage and skin; 2.2 Dual packer and dual probe flows; 2.2.1 A detailed calculation; 2.3 Supercharging, mudcake growth and pressure interpretation; 2.3.1 Supercharge numerical simulation; 2.3.2 Industry perspectives on "buildup versus drawdown,"; 2.4 Boundary and azimuthal effects in horizontal wells; 2.5 Contamination clean-up at the source probe; 2.6 Sampling-while-drilling tools and clean-up efficiency; 2.6.1 What happens with very short invasion times; 2.6.2 What happens with longer invasion times; 2.7 References

3. Inverse Methods for Permeability, Anisotropy and Formation Boundary Effects Assuming Liquids
3.1 New inverse methods summary; 3.2 New inverse modeling capabilities; 3.2.1 Module FT-00; 3.2.2 Module FT-01; 3.2.3 Module FT-03; 3.2.4 Module FT-PTA-DDBU; 3.3 Inverse examples - dip angle, multivalued solutions and skin; 3.3.1 Forward model, Module FT-00; 3.3.2 Inverse model, Module FT-01 - multivalued solutions; 3.3.3 Effects of dip angle - detailed calculations; 3.3.4 Inverse "pulse interaction" approach for low permeability zones
3.4 Computational notes on complex complementary error function evaluation
3.5 Source model - analytical and physical limitations; 3.6 Full three-dimensional transient Darcy flow model for horizontal wells; 3.7 Phase delay inverse method and electromagnetic analogy; 3.8 Source model applications to dual packers; 3.9 Closing remarks; 3.10 References; Part II Math Models, Results and Detailed Examples; 4. Multiphase Flow and Contamination - Transient Immiscible and Miscible Modeling with Fluid Compressibility; 4.1 Invasion, supercharging and multiphase pumping
4.1.1 Invasion and pumping description

Sommario/riassunto

"The book provides more than formulations and solutions: it offers a close look at formation tester development 'behind the scenes,' as the China National Offshore Oil Corporation opens up its research, engineering and manufacturing facilities through a collection of interesting photographs to show how formation testing tools are developed from start to finish"--
