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Nota di contenuto	Cover; Title Page; Copyright Page; Contents; Preface; Acknowledgements; 1 Reservoir Modeling - Background and Overview; Overview; Reservoir modeling landscape; Reflections on simulation and modeling; Reservoir Flow Algorithms for Petroleum Engineers; Multisim™ Features - Advanced Interactive Reservoir Modeling; Reservoir Description; Well System Modeling; Additional Simulator Features; Simple Wells to Multilateral Systems for Laymen; Advanced Graphics for Color Display; Tracer Movement in Three-Dimensional Reservoirs; 2 Mathematical Modeling Ideas, Numerical Methods and Software Overview and BackgroundFormulation errors; I/O problems; Fundamental Issues and Problems; Numerical stability; Inadequacies of the von Neumann test; Convergence; Physical resolution; Direct solvers; Modern simulation requirements; Pressure constraints; Flow rate constraints; Object-oriented geobodies; Plan for remaining sections; Governing Equations and Numerical Formulation; Steady flows of liquids; Difference equation formulation; The iterative scheme;

Modeling well constraints for liquids; Steady and unsteady nonlinear gas flows; Steady gas flows; Well constraints for gas flows
Transient, compressible flows
Compaction, consolidation and subsidence; Boundary conforming grids; Stratigraphic meshes for layered media; Modeling wellbore storage; Early 1990s Validation Calculations; Simulation capabilities; Data structures and programming;
Example 2-1. Convergence acceleration, two deviated horizontal gas wells in a channel sand; Example 2-2. Dual-lateral horizontal completion in a fractured, dipping, heterogeneous, layered formation; Example 2-3. Stratigraphic grids, drilling dome-shaped structures
Example 2-4. Simulating-while-drilling horizontal gas wells through a dome-shaped reservoir
Example 2-5. Modeling wellbore storage effects and compressible borehole flow transients; Run 1. Production well, no wellbore storage effects; Run 2. Production well, with some wellbore storage effects; Run 3. Production well, with more wellbore storage effects; Run 4. Injector well, without wellbore storage effects; Run 5. Injector well, with wellbore storage effects; 3 Simulation Capabilities - User Interface with Basic Well
Example 3-1. Single vertical well, user interface and menu structure for steady flow
Example 3-2. Volume flow rate constraint at a well; Example 3-3. Pressure constraint and transient shut-in; Example 3-4. Heterogeneities, anisotropy and multiple wells; Example 3-5. Reversing well constraints - consistency check; Example 3-6. Changing farfield boundary conditions; Example 3-7. Fluid depletion in a sealed reservoir; Example 3-8. Depletion in rate constrained well in sealed reservoir; Example 3-9. Steady flow from five spot pattern; Example 3-10. Drilling additional wells while simulating
4 Vertical, Deviated, Horizontal and Multilateral Well Systems
