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   Nota di contenuto   Cover; Contents; Foreword; Preface; Acknowledgments; Chapter 1. Introduction; 1.1 Role of Gas Well Tests and Information in Petroleum

Engineering; 1.2 History of Gas Well Testing; 1.3 Gas Well Test Data Acquisition, Analysis, and Management; 1.4 Selecting Gas Wells for Optimum Stimulation Treatment; 1.5 Reservoir System Characterization Process; 1.6 Scopes and Objective; 1.7 Organization; 1.8 Unit Systems and Conversions; References and Additional Reading; Chapter 2. Application of Fluid Flow Equations to Gas Systems; 2.1 Introduction; 2.2 Steady-State Laminar Flow

2.3 Steady-State Turbulence Flow2.4 Pseudo-Steady-State (Finite) Flow; 2.5 Unsteady-State (Transient) Flow; 2.6 Gas Radial Diffusivity Equation; 2.7 Basic Gas Flow Equations; 2.8 One-Dimensional Coordinate Systems; 2.9 Radial Gas Flow Equations in Dimensionless Variables and Groups; 2.10 Analytical Solutions of Gas Flow Equations; 2.11 Application of Superposition Techniques; 2.12 Choice of Equation for Gas Flow Testing and Analysis; 2.13 Skin, IT Flow, and Wellbore Storage Effects; 2.14 Numerical Solutions of Partial Differential Equations; 2.15 Summary; References and Additional Reading

Chapter 3. Well Testing Techniques in Horizontal Gas Wells3.1 Introduction; 3.2 Steady-State Gas Flow; 3.3 Pressure Transient Characteristics in Horizontal Gas Wells; 3.4 Pseudo-steady-State Gas Flow; 3.5 Horizontal Transient Well Testing Techniques; 3.6 Problems in Testing Horizontal Wells; 3.7 Horizontal Well Application in Tight Gas Reservoirs; 3.8 Influence of Turbulence in High-Permeability Gas Wells; 3.9 Turbulence Identification; 3.10 Inflow Performance Responses in Vertical and Horizontal Gas Wells; 3.11 Estimating Reservoir Properties from Production Histories; 3.12 Summary

References and Additional ReadingChapter 4. Deliverability Testing and Well Production Potential Analysis Methods; 4.1 Introduction; 4.2 Gas Flow in Infinite-Acting Reservoirs; 4.3 Stabilized Flow Equations; 4.4 Application of Transient Flow Equations; 4.5 Classifications, Limitations, and Use of Deliverability Tests; 4.6 Flow-Rate, Pressure Behavior, and Deliverability Plots; 4.7 Gas Well Deliverability Testing and Production Potential Analysis; 4.8 Stabilized Deliverability Equation; 4.9 Stabilized Deliverability Relationship Using Graphical Method

4.10 Estimation of Gas Well Deliverability from Short Flow Tests4.11 Predicting Gas Well Deliverability Using Type Curves; 4.12 Estimation of Skin Factors from Well Completion Data; 4.13 Laminar- Inertial Turbulent Flow Analysis; 4.14 Summary; References and Additional Reading; Chapter 5. Fundamentals of Drawdown Test Analysis Methods; 5.1 Introduction; 5.2 Characteristics of Flow and Gas Well Transient Testing; 5.3 Pressure-Time History for Constant-Rate Drawdown Test; 5.4 Characteristics of Various Flow Regimes; 5.5 Pressure-Time Behavior in Gas Wells with Horizontal and Vertical Fractures

5.6 Uses of Pressure Drawdown Tests

Sommario/riassunto

This title deals exclusively with theory and practice of gas well testing, pressure transient analysis techniques, and analytical methods required to interpret well behavior in a given reservoir and evaluate reservoir quality, simulation efforts, and forecast producing capacity. A highly practical edition, this book is written for graduate students, reservoir/simulation engineers, technologists, geologists, geophysicists, and technical managers. The author draws from his extensive experience in reservoir/simulation, well testing, PVT analysis basics, and production operations from around the w