



Production Optimization Using NODAL™ Analysis

BOOK

About the Book

This book looks at both oil and gas production and presents a systems analysis approach (called nodal analysis) to analyze performance. The nodal analysis procedure consists of selecting a division point or node in the well and dividing the system at this point to optimize performance in the most economical manner. Although the entire production system is analyzed as a total unit, interacting components, electrical circuits, complex pipeline networks, and centrifugal pumping are evaluated individually using this method. Locations of excessive flow resistance or pressure drop in any part of the network are identified. Many factors are used to maximize production from discovery wells to those ready to be abandoned, including: establishing a relationship between flow rate and pressure drop within each component in the system; using gradient correlations and selection procedures; and deciding when to use artificial lift to maintain a required production rate. Numerous example problems clarify content.

Contents

- Production Systems Analysis
- Reservoir Performance
- Flow in Pipes and Restrictions
- Total System Analysis
- Artificial Lift Design
- Two-phase Flow Correlation
- Pressure Traverse Curves

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