Formation Evaluation and the Analysis of Reservoir Performance

Module for:
Analysis of Reservoir Performance

Module Orientation

T.A. Blasingame, Texas A&M U.
Department of Petroleum Engineering
Texas A&M University
College Station, TX 77843-3116
(979) 845-2292 — t-blasingame@tamu.edu

(13 November 2003) Orientation — Analysis of Reservoir Performance Slide — 1
Module 3 (ARP) — *Module Content*

Course Module 3: Analysis of Reservoir Performance (Blasingame)

- Derive and apply the analysis and interpretation methodologies for pressure drawdown and pressure buildup tests — for liquid, gas, and multiphase flow systems (*i.e.*, "conventional" plots and type curve analysis). Specifically, the following cases:
  - Apply dimensionless solutions ("type curves") and field variable solutions ("specialized plots") for the following well test analysis case cases:
    - Unfractured and fractured wells in infinite and finite-acting, homogeneous and dual porosity reservoirs, for constant rate and constant pressure cases.
    - Variable-rate convolution (specialized plots).
    - The pseudopressure and pseudotime concepts for the analysis of well test data for dry gas reservoir systems.
- Analyze production data (rate-time or pressure-rate-time data) to obtain reservoir volume and estimates of reservoir properties for gas and liquid reservoir systems. The student should also be able to make performance forecasts for such systems.
- Demonstrate the capability to integrate, analyze, and interpret well test and production data to characterize a reservoir in terms of reservoir properties and performance potential (field study project).
## Module 3 (ARP) — Module Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>November 13</td>
<td>(ResPrf) Orientation — Analysis of Reservoir Performance</td>
<td>Lee Ch. 1; Lee-Wat. Ch. 1</td>
</tr>
<tr>
<td>18 T</td>
<td>(ResPrf) Analysis/Interpretation of Well Test Data — &quot;Conventional&quot; Analyses</td>
<td>Lee Ch. 2.3; Lee-Wat. Ch. 6</td>
</tr>
<tr>
<td>20 R</td>
<td>(ResPrf) Analysis/Interpretation of Well Test Data — &quot;Type Curve&quot; Analyses</td>
<td>Lee Ch. 4; Lee-Wat. Ch. 6</td>
</tr>
<tr>
<td>25 T</td>
<td>(ResPrf) Analysis/Interpretation of Well Test Data — Design/Integration/Analysis</td>
<td>Lee Ch. 4; Lee-Wat. Ch. 6</td>
</tr>
<tr>
<td>27 R</td>
<td>No Class — Thanksgiving Holiday</td>
<td></td>
</tr>
<tr>
<td>December 2</td>
<td>(ResPrf) Analysis/Interpretation of Production Data — Introduction</td>
<td>Lee Ch. 5; Lee-Wat. Ch. 7,9</td>
</tr>
<tr>
<td>4 R</td>
<td>(ResPrf) Analysis/Interpretation of Production Data — &quot;Decline&quot; Analyses</td>
<td>Lee Ch. 5; Lee-Wat. Ch. 7,9</td>
</tr>
<tr>
<td>9 T</td>
<td>(ResPrf) Analysis/Interpretation of Production Data — Integration/Forecasting</td>
<td>Lee Ch. 5; Lee-Wat. Ch. 7,9</td>
</tr>
<tr>
<td>December 17</td>
<td>Analysis of Reservoir Performance Examination (8-10 a.m. — RICH 302)</td>
<td></td>
</tr>
</tbody>
</table>

There is no comprehensive final examination for this course — the timeslot for the final examination will be used as the examination slot for the Analysis of Reservoir Performance (Module 3).
Module for:
Analysis of Reservoir Performance
Orientation

End of Presentation

T.A. Blasingame, Texas A&M U.
Department of Petroleum Engineering
Texas A&M University
College Station, TX 77843-3116
(979) 845-2292 — t-blasingame@tamu.edu

(13 November 2003) Orientation — Analysis of Reservoir Performance  Slide — 4