Petroleum Geology in the Pattani Basin
Main Structural Elements in the Gulf of Thailand.
1. Rollover anticline
2. Upthorwn fault closure
3. Downtthrown fault closure
4. East dipping flower-like closure
5. West dipping flower-like closure
6. Horst block faulted closure
7. Drape over basement high
8. Stratigraphic pinchout
9. Pre-Tertiary carbonate buried hill
10. Pre-Tertiary fractured buried hill
Faulted Sand Play

Upthrown fault closure
Downthrown fault closure
East dipping flower-like closure
West dipping flower-like closure
Horst block faulted closure
Schematic Cross Section Showing Half-Graben and Listric Normal Fault Characters of the Pattain Basin.

Schematic Cross Section Showing Petroleum System in the Pattani Basin.
Petroleum System

Source
Organic-rich Lacustrine Shales
Underlying Oligocene Shales
Interbedding Miocene Shales
1-13% TOC, Kerogen Type I and III

Reservoir
Lower – Middle Miocene Sands
Highly-Faulted Fluvial-Deltaic Sands
1,200-3,000 mss.
Porosity 15-25 %
Sw cut-off 60%
Petroleum System (Con’d)

Trap
- Most are Structural - Fault Traps
- Few Stratigraphic Traps

Migration
- Vertical Migration along Fault Planes

Seal
- Sand-Shale Juxtaposition
Exploration & Development Strategies
Graben Trends in the Pattani Basin
Cross Section Showing Structural Style in the Northern Part of the Pattani Basin.
Cross Section Showing Well Courses of the F-2 and F-3 Wells.
Schematic Cross Section Showing Well Courses of the F-4 and F-7 Wells.
Schematic Cross Section Showing Well Course of the F-6 and F-7 Wells
Schematic Cross Section Showing Well Course of the F-8 Wells.
Cross Section through a Production Platform with Development Wells Projecting onto the section.
Cross Section View of the Well G-1, G-2 and G-3 paths projected onto the same section.
Strategies in Exploration & Production

Geological & Geophysical Data Integration

• 3-D seismic interpretation

  X-sections along fault planes & along well courses

  Structural Mapping

  Amplitude Maps

• Log characteristic vs. Well performance correlation
Strategies in Exploration & Production (Con’d)

Performance-based reserves determination

Slim hole technology
  fast
  cost efficient

Advanced Production Logging Tools