Dynamic Shock Modeling

Darren Barlow
Regional Technical Manager
Perforating
Leon Moisseiff

- What if he had the ability to model?
- What does it cost if you have a major failure on a well?
- Disaster is intriguing if it’s not you!
Key Areas
Large Guns
Modeling versus Reality

- 275’ of 6 ½ guns
- Reservoir 15K

Red – Tubing Movement
Blue – Packer Load
Cyan - Tubing Load C/T
Avoiding NPT

Packer

10m 3½ 12.95 ppf

Release

10m 3½ 12.95 ppf

Firing Head

Ported Sub

60m 7” UHSD
Pressures Equals Loading

Red – Tubing Movement
Blue – Packer Load
Cyan - Tubing Load C/T
Strengthening the BHA

- Packer
- Release
- Ported Sub
- Firing Head
- 10m 3 ½ 12.85 ppi
- 10m 3 ½ 12.85 ppi
- 60m 7” 18 spf UHSD
Confined Spaces
Loss of well
Movement

CWOP – 5’ Depth of the well was 25,000+
Component Failure

Why was Failure **NOT** Predicted?

- Formation test string
- Champ IV Packer
- Pup Joint w/ Firing Heads
- 35m of guns
Post Failure Analysis

Gauge Analysis:

- Reported $k = 0.2$ md
- Actual $k = 0.02$ md
- Changed perm and re-ran model

Predicted failure @ 3244m

Actual failure @ 3245m
How can modeling help your completion challenges?

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