

Directional and Horizontal Drilling

Why

- 1) Multiple wells from a single location Offshore
- 2) Reaching inaccessible targets
- 3) Drilling relief wells to control blowouts
- 4) Sidetrack
- 5) Horizontal drilling for great reservoir recovery

Additional requirements

Use of downhole motors and MWD tools
Rubber protectors on the drill string for wear protection
Lubricating additives in the mud to reduce torque and drag
Higher hydraulics for effective hole cleaning
Articulated drill pipe in short radius drilling
Unique BHA for maintaining course and weight on bit
Steering tools for preselected paths
Deflection tools
More Engineering calculations required, trajectory etc

Directional well profiles

Build and hold
Build, hold and drop
Continuous build

Terms

Target location, this is where you are planning for the hole to end up
TVD, true vertical depth
HD, horizontal departure
KOD, Kick off depth, the point you kick off from the vertical
TOD, turn off depth, the depth that the direction of the hole is changed
BRA, Build rate angle, degrees in 100s of feet
 1-6 long radius
 6-35 medium radius
 1.5-3 per foot short radius
DRA, Drop off angle, is an incremental decrease in inclination
LA, Lead angle, initiate the turn of well with a lead to compensate for a walking bit

