



**Drillsafe**

**Casing Running Tool  
Safety Perspective**

**December 2005**



# PNG Drilling Environment



Lake Kutubu

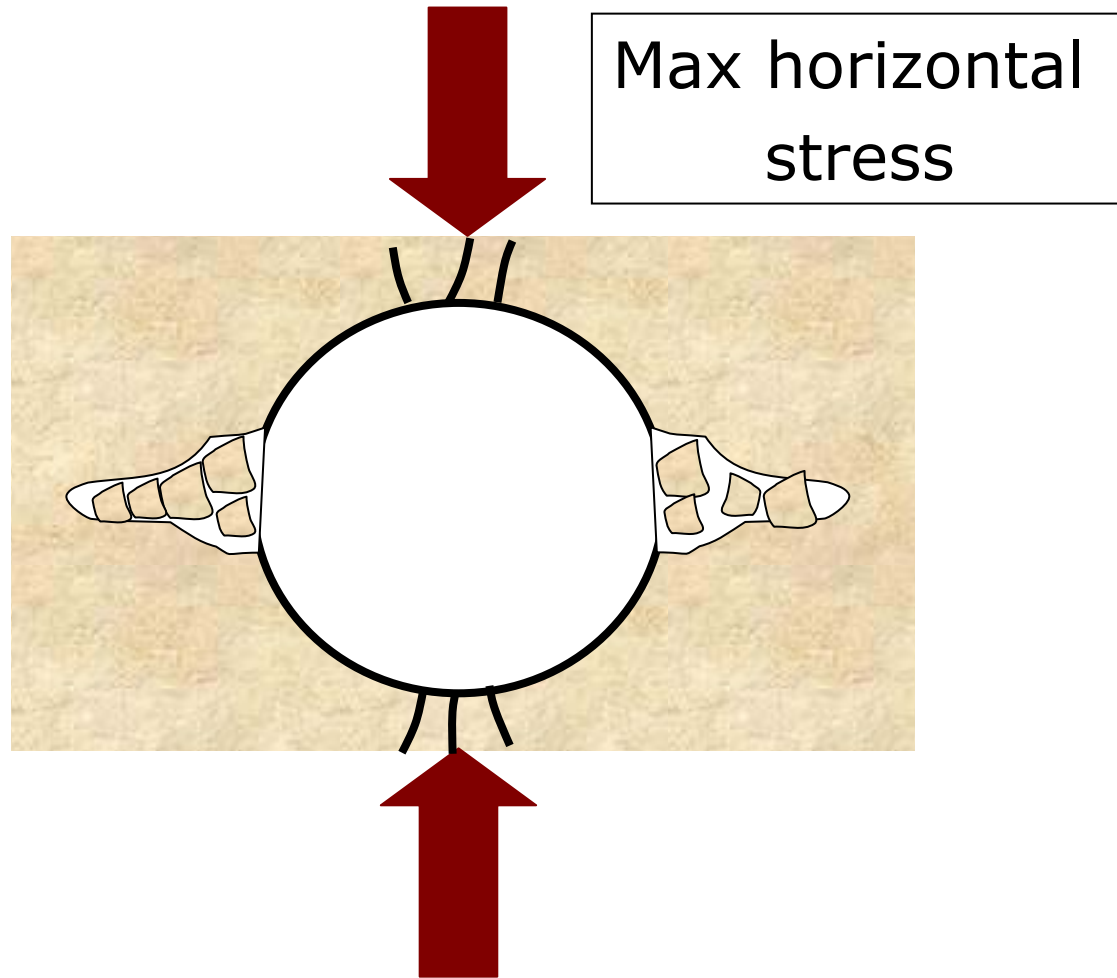
Southern Highlands

PNG

- Pushing plates - mountains, ridges, volcanoes, earthquakes
- Massive tectonic stress and pressure locked in the formations we drill. (Especially noted in Ieru Shales)



# Wellbore Break out



(Looking down the wellbore)



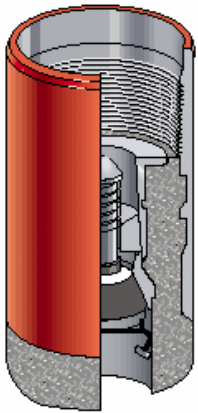
# PNG – Rig Crews





# Casing Running Strategy

- How do we get the casing to TD?
- Use of “Drilling With Casing” (DwC)



Halliburton Super Seal™ II Float Shoe

Traditional Shoes



Reamer  
Shoe



DwC  
DS 2 Shoe



# Casing Running Strategy

- *How do we rotate the casing to ream in to TD  
....or potentially drill ?*



- Drive system modified casing spear attached to top drive
- *Need correct casing couplings to take the torque !*



# Tesco Casing Running System



CRT-NE-Animation-MPG-CODEC-25-sep-2003-R5-short.AVI



# Casing Running System

## Casing Running System get DwC concept technology but with improving efficiency and safety

- 12 - 21% of time on well spent casing running (DEA "Flat Time Reduction Opportunities" Hous Sept 99)
- Potentially hazardous operations
- Falls from elevations
  - Derrick hand on stabbing board**
  - Tong operator on elevated work platform**
- Pinch points (use of power tongs)
- Slips/trips & sprains/strains from manual handling of tongs and casing
- Struck by (elevators)
- Less people in operation – no special crew



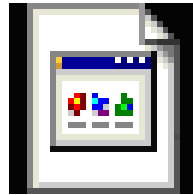


# Movie Time – casing running





# Movie Time – casing make up



Mvc-891w.mpg



# The Benefits

## ➤ Advantages

- Improves casing running speeds
- Integral to moving to "Drilling with Casing" strategy
- HSE improvement as less equipment handling by crew

## ➤ Job History

- SE Mananda 4      9<sup>5</sup>/<sub>8</sub>" Casing
- SE Mananda 5      9<sup>5</sup>/<sub>8</sub>" Casing
- Moran 11            13<sup>3</sup>/<sub>8</sub>" Casing
- Moran 11            9<sup>5</sup>/<sub>8</sub>" Casing
- 20% decrease in casing running speeds

## ➤ 2006 – 14 wells

- assume 20% reduction in casing running times
- Total = 75.6 hrs x \$150k = **\$450k Saving**





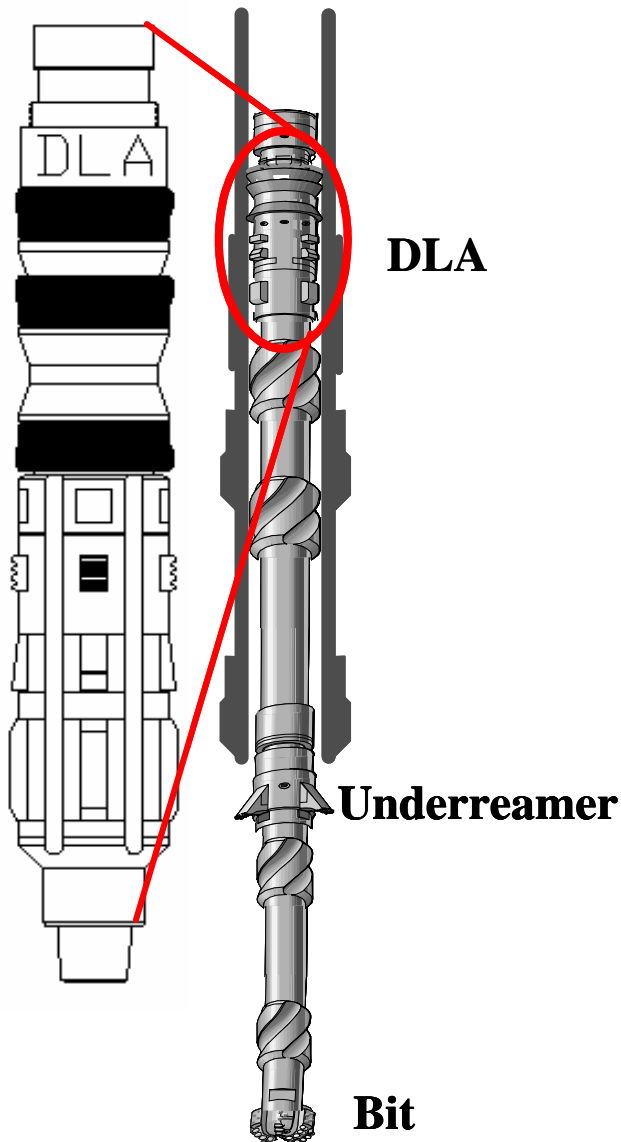
# FUTURE STRATEGY

## Really “Drill with Casing”

- **Volcanics** – drill casing through beds and cement ....(or \$5M)
- **Wellbore instability** – no 2 days trips out
- **Wellbore instability** –no 2 1/2 days reaming casing in
- **Hole cleaning** - vastly improved by the smaller annulus
- **ROPs** - maybe compatible – wireline retrievable BHAs
- **Bits** - one run sections possible drilling with casing
- **LWD/MWD** - incorporated in BHA so no more missed log runs
- **Losses** - Casing drilling “glazes” wellbore - **Seals off Losses**



# Retrievable Drilling Assembly



- Top of assembly locked in profile nipple.
- Drilling assembly extends below casing shoe.
- Capable of multiple runs .
- Normally retrieved with 9/16" braided cable.
- Must be reliable.