



# 2014 OFFSHORE TECHNOLOGY CONFERENCE **ASIA**

25–28 March 2014 • Kuala Lumpur, Malaysia  
Kuala Lumpur Convention Centre

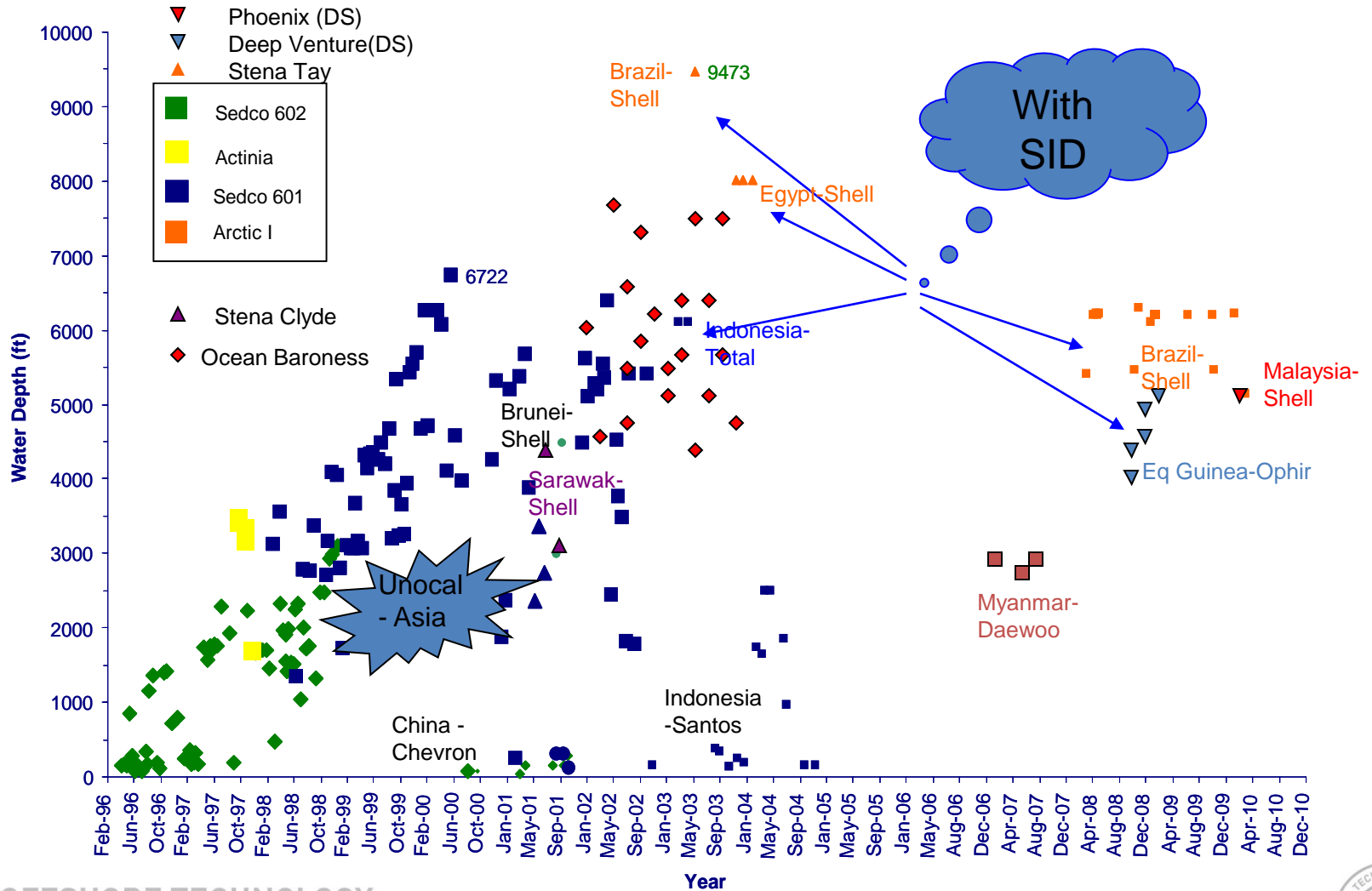
*"Meeting the Challenges for Asia's Growth"*

## OTC-ASIA Pannel Session 9 : SBOP Technical & Risk Overview

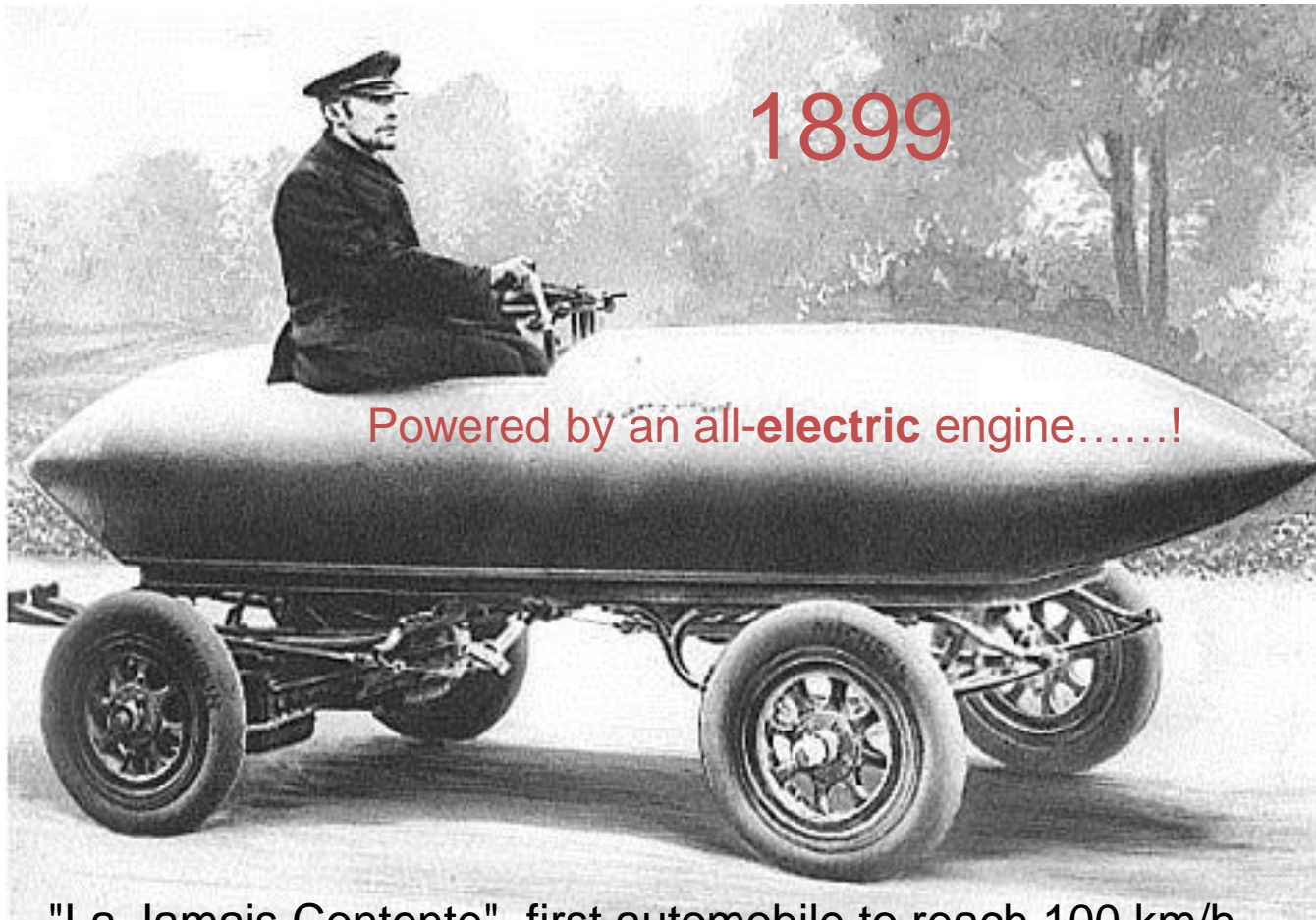


E. Magne

# SBOP Drilling History



## SBOP Drilling History



"La Jamais Contente", first automobile to reach 100 km/h

## SBOP Drilling History

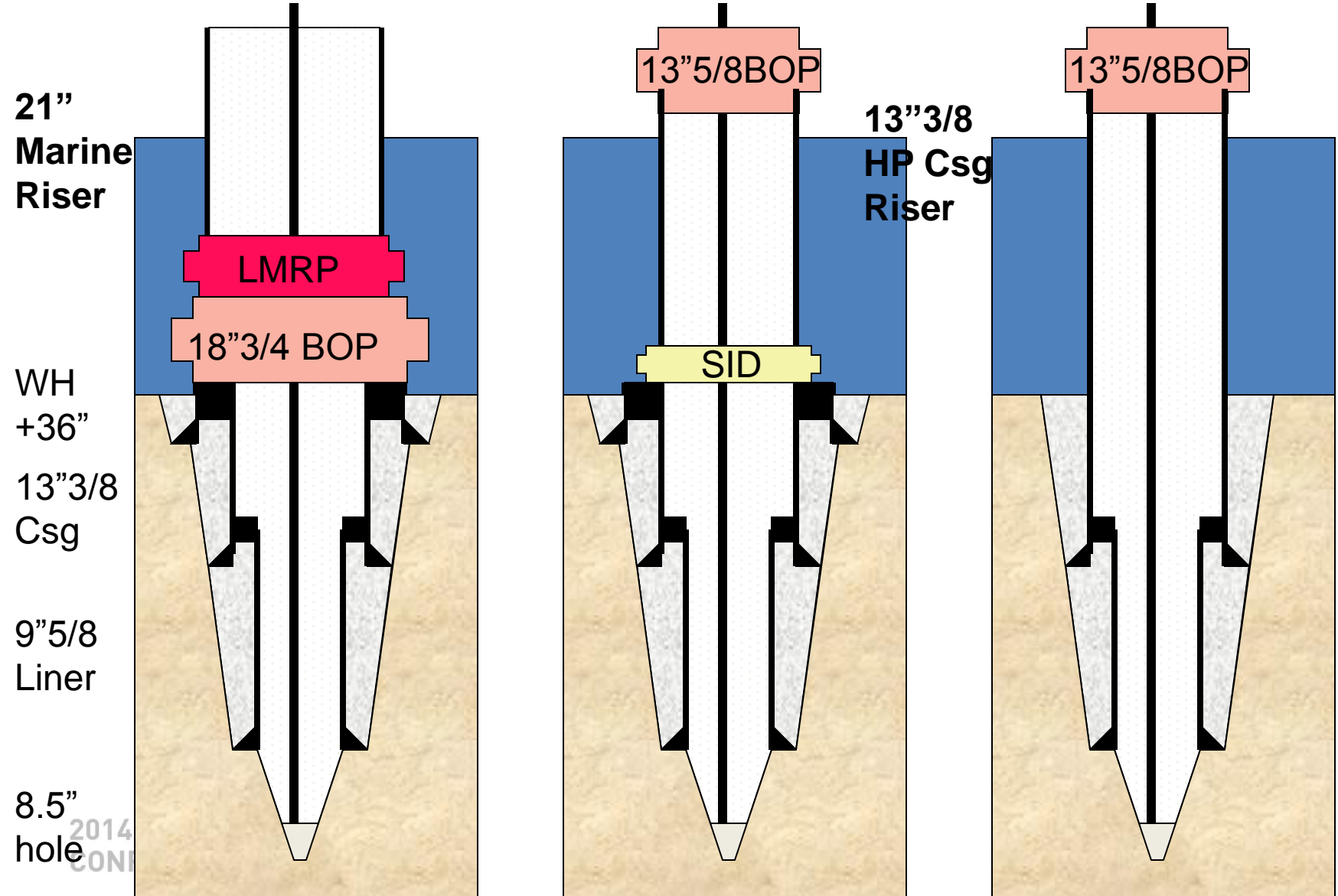
- In 2000's
  - Successful and Promising
  - Involvement from Operator and Contractor
  - Lack of deep-water MODUs
- But in 2010's...
  - Operator & Contractor bought out
  - Industry protectionism
  - Deep-water Fleet Expansion

# Typical Well Schematic

CONVENTIONAL

SBOP - DP

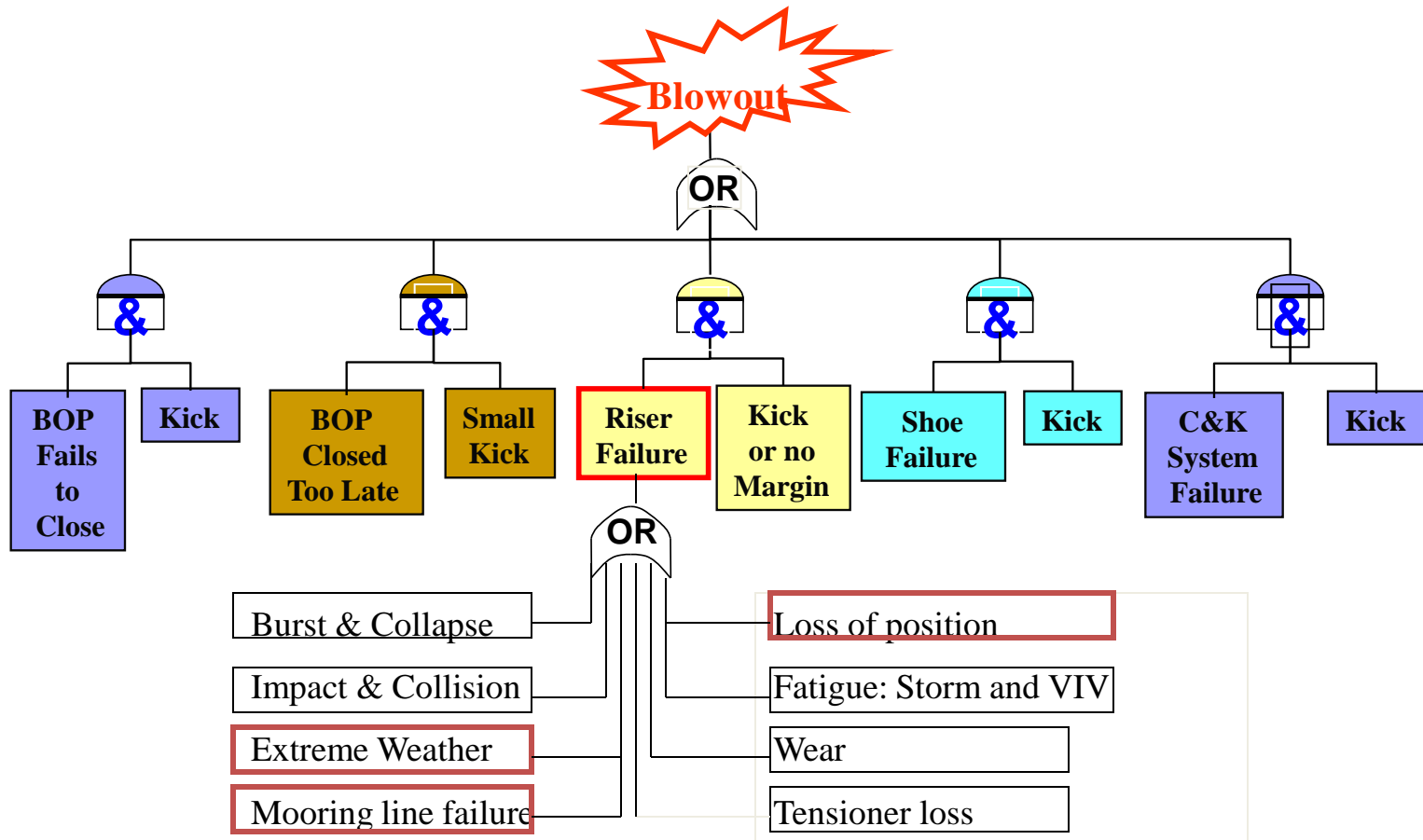
SBOP - Moored



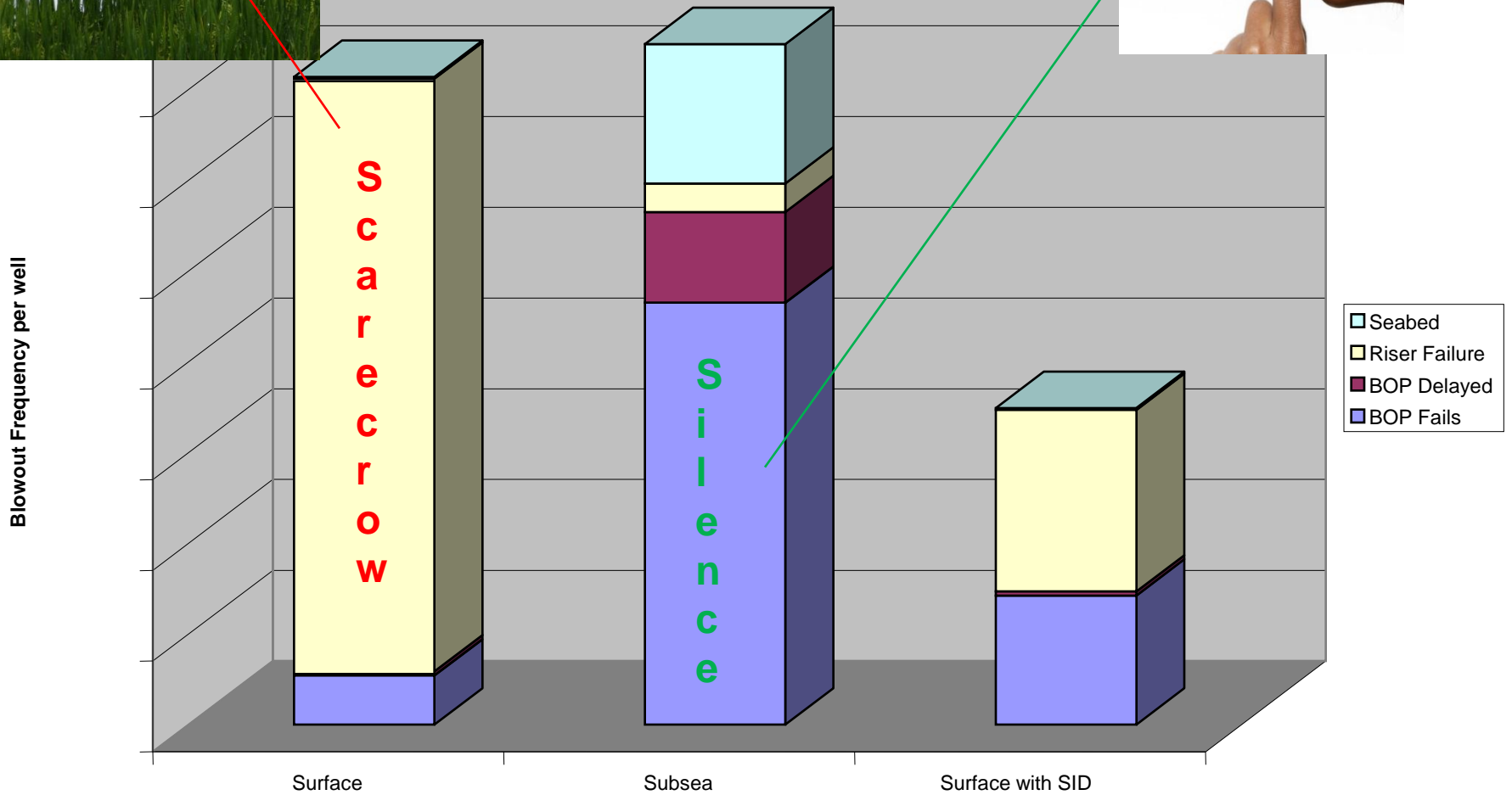
2014  
CONF



# Risk Analysis – Fault Tree

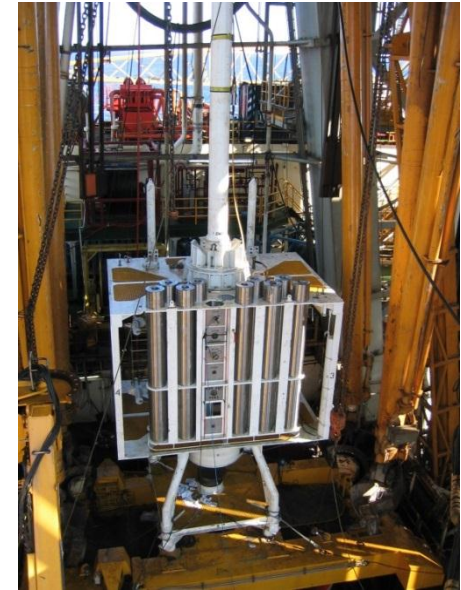
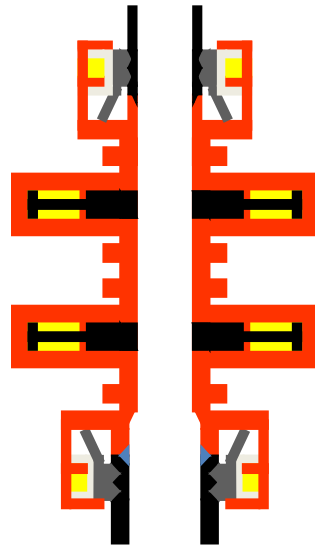
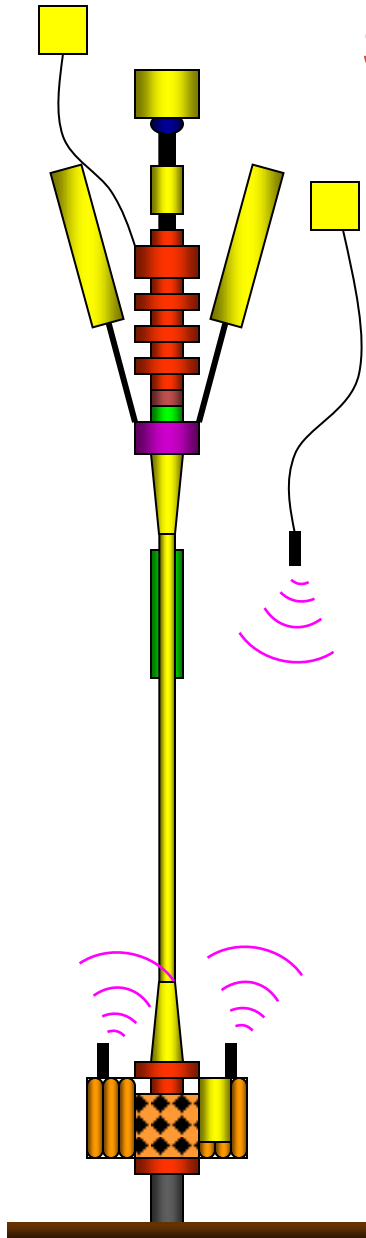


# Risk Analysis – Risk of Blowout



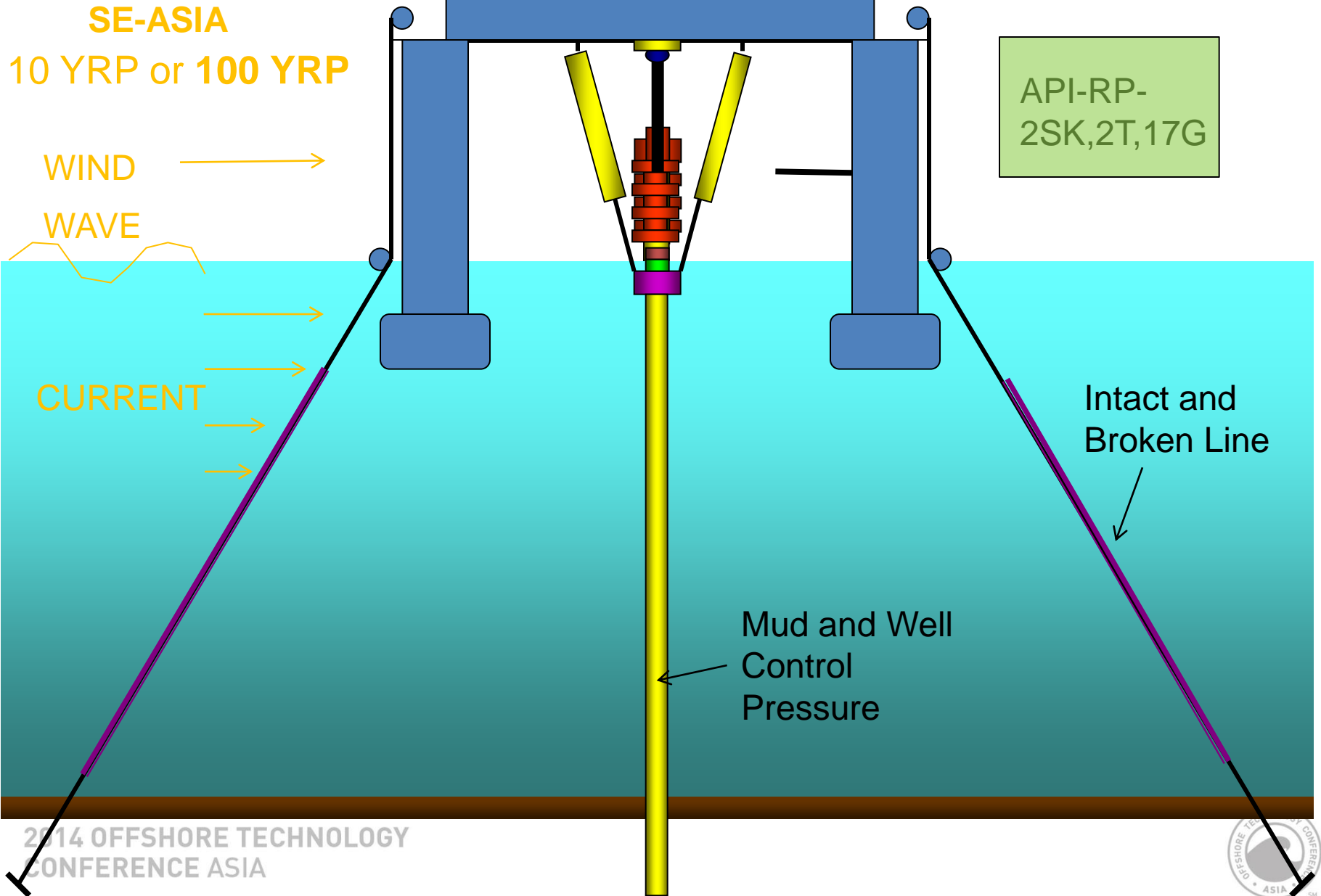
# SID Subsea Isolation Device

(Half a BOP ?)





# SBOP with PRE-INSTALLED MOORING



# Combined Mooring & Riser Analysis

ROME - C:\Program Files\NDRomeo\H5-SBOP\SBOPressure.com

File Graphic View Analysis Mooring Environment Help

Case  
Title HAKURYU V - 1500M\_6000 PSI  
Vessel Draft 22.50 m

QUASI-STATIC MOORING ANALYSIS  
Warning %Break 50  
Failed Line C1

Environment Load  
Force 175 T 176 †  
Moment 74 Tm

Vessel Excursion: Mean±2nd order  
Initial Position 24.0 m 157 †  
Mean Offset 34.0 m 169 †  
1st Order 0.0 m 0 †  
2nd Order Sig 4.8 m 182 †  
Total Offset 38.7 m 171 †  
Final Position 62.3 m 165 †  
Heading 53 † Yaw 0 †

Top UBJ/UfJ Mean 0.0 †  
Tens 390.0 T Mud 13.02 ppg Max 0.0 †  
Ext. Stress 51937.0 T/m² LBJ/LfJ Mean 0.0 †  
Stress Range 55892.5 T/m² Max 0.0 †  
Ext. Joint Stroke 3.49 m

Line ID	Tensions Payout	Quasi-static Max	%Brk
C1	200.0	0.0	0
C2	200.0	325.8	54
C3	200.0	164.0	27
C4	200.0	107.4	18
C5	200.0	101.0	17
C6	200.0	104.6	17
C7	200.0	137.6	23
C8	200.0	254.8	42

Broken Line L1

N

MA SP 6000psi

10 YRP from N

4.0% Offset

65% YS

11.5' Stroke out

54% MBL

In the Ground

90 Ksi (72%YS)

NOBLE DENTON

Extreme Equivalent Stress

Elevation (m)	Stress (T/m²)
0	~50000
-1500	~50000
-1600	~15000

Elevation= 0 m

Stress= 0 T/m²

Noble Denton ROMEO 11/25/2011 3:32:14 PM

# SBOP – ASIA Future?

- Sponsor: Involvement from Operator
- Opportunity (Nbr of wells)
- Development of a **Simple** SID



## 2014 OFFSHORE TECHNOLOGY CONFERENCE **ASIA**

25–28 March 2014 • Kuala Lumpur, Malaysia  
Kuala Lumpur Convention Centre

*"Meeting the Challenges for Asia's Growth"*

# Thank You / Questions