

# Repsol well design and risk mitigation processes, the case of HPHT Jaguar-1 well (Guyana).



Regional Direction Exploration Latin America

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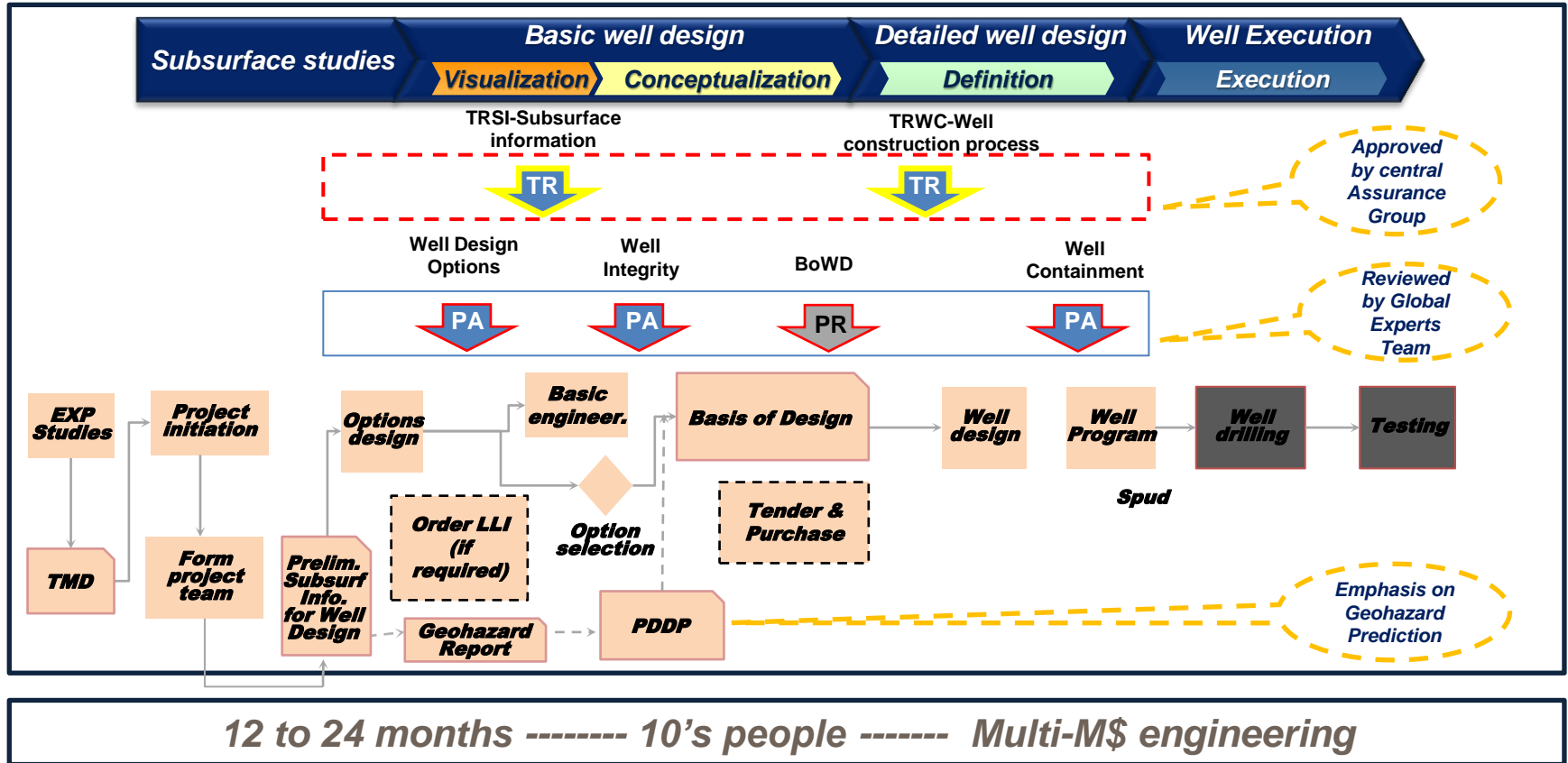
Repsol . Regional Direction Exploration Latin America. 04/23/2015

## 1. Repsol Drilling Risk Mitigation Processes

- PRE
  - ✓ *Well planning*
  - ✓ *Risk identification and prevention tools*
  
- DURING
  - ✓ *Execution*
  - ✓ *Emergency Management*
  - ✓ *Critical Response Resources*
  
- POST
  - ✓ *Environmental and Socio-economic Restoration*
  - ✓ *Business Continuity*

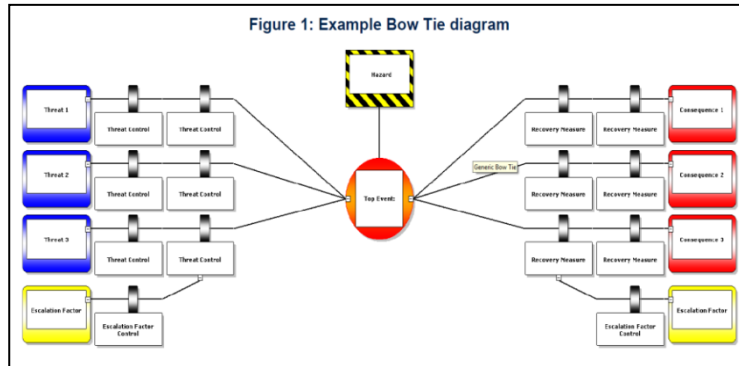
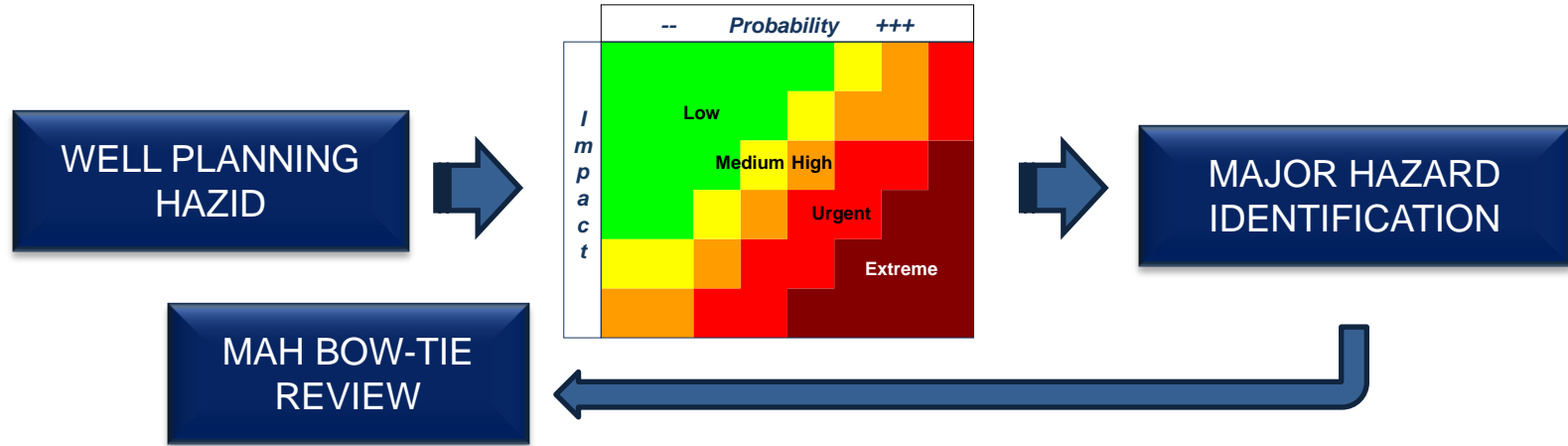
# Repsol Drilling Risk Mitigation Processes

## PRE: Well Planning & Construction Process



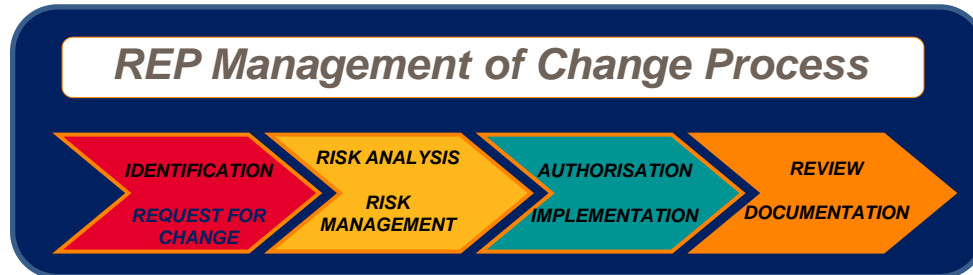
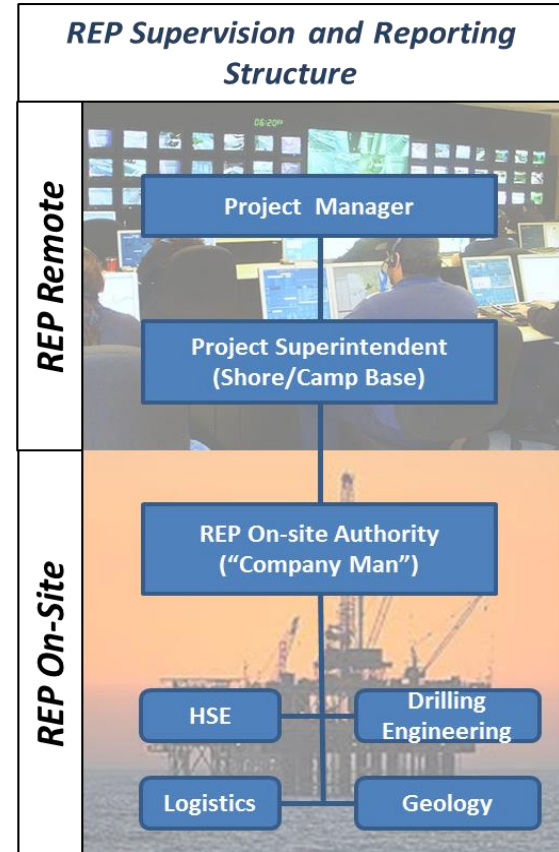
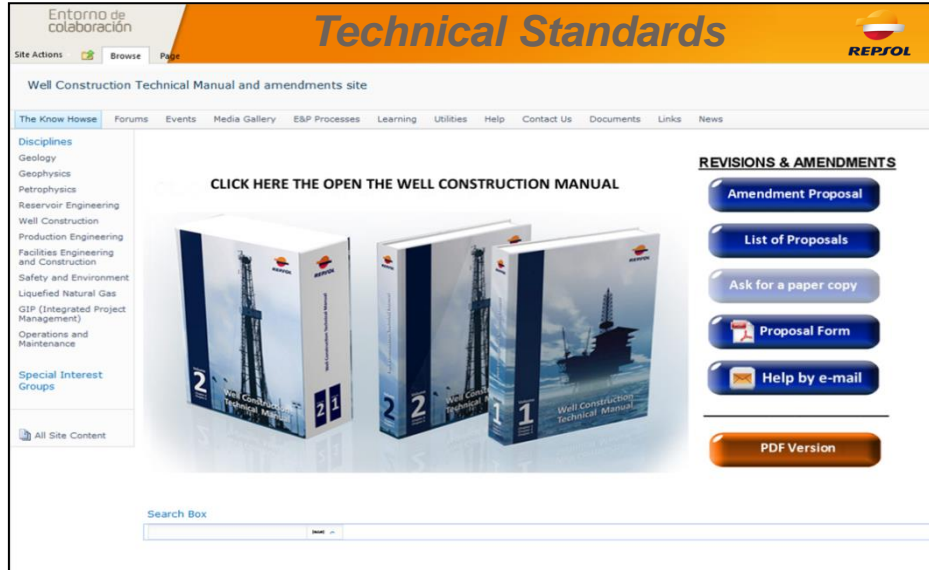
# Repsol Drilling Risk Mitigation Processes

## PRE: Drilling Hazard Identification and Prevention



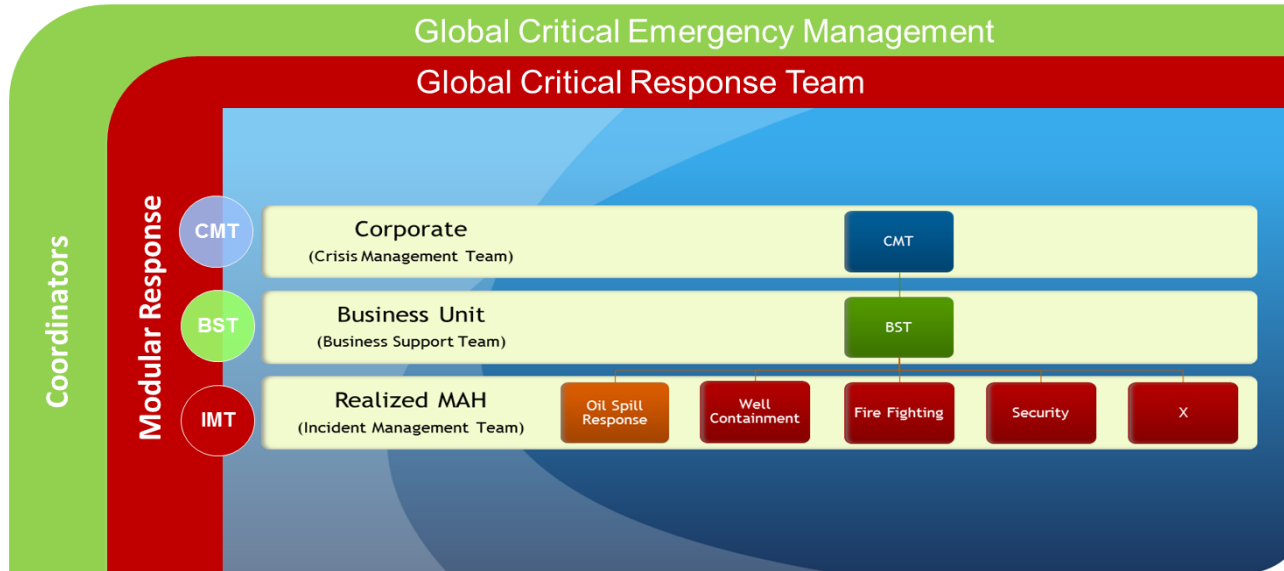
# Repsol Drilling Risk Mitigation Processes

## DURING: Technical Standards, Supervision, MOC



# Repsol Drilling Risk Mitigation Processes

## DURING: Global Critical Emergency Management



# Repsol Drilling Risk Mitigation Processes

## DURING: Critical Response Resources

### GLOBAL CRITICAL RESPONSE TEAM



- ✓ Modularity
- ✓ Training
- ✓ Quick Activation

### GLOBAL WELL CONTAINMENT STRATEGY



Wild Well Control Inc. MSA

### RESPONSE ASSETS

Critical Management Centres & Situation Rooms



Located in Madrid, Houston, Port of Spain, Lima and Rio de Janeiro

### OIL SPILL RESPONSE STRATEGIES



- ✓ Local – MAA
- ✓ Regional – OSRL (USA)
- ✓ Global – OSRL (UK)





# Repsol Drilling Risk Mitigation Processes

## POST: Recovery & Continuity



### ✓ **RECOVERY**

- *Environmental and Social Restoration*
- *Compensation*

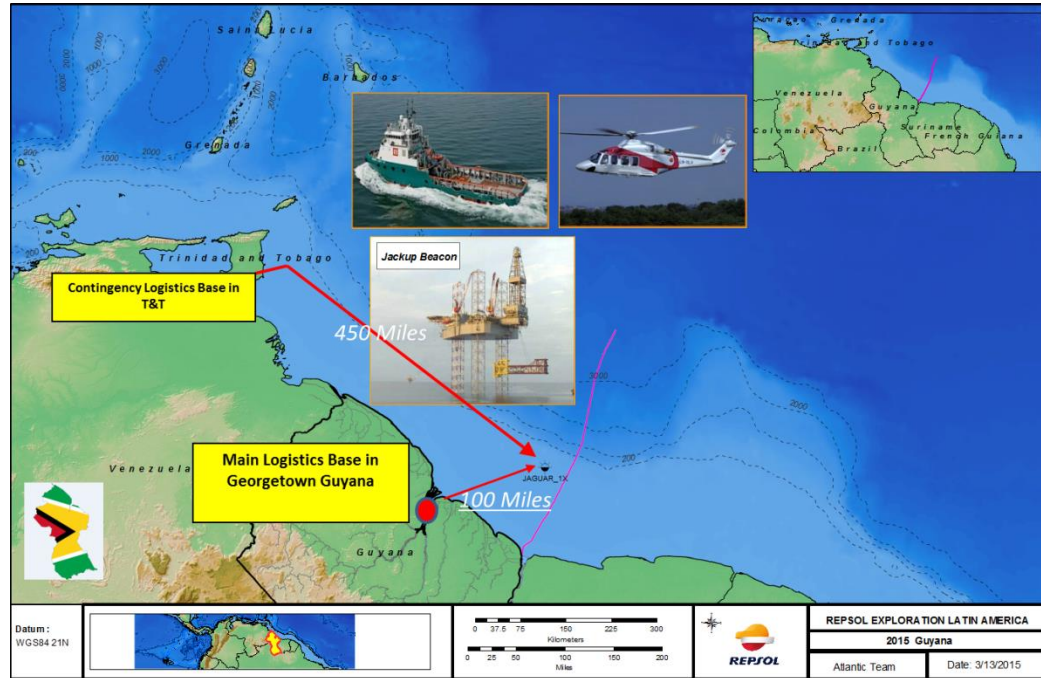
### ✓ **BUSINESS CONTINUITY – Lessons Learned**

- *Restructuring of the organization*
- *Realignment of the strategy*



# Repsol Drilling Risk Mitigation Processes

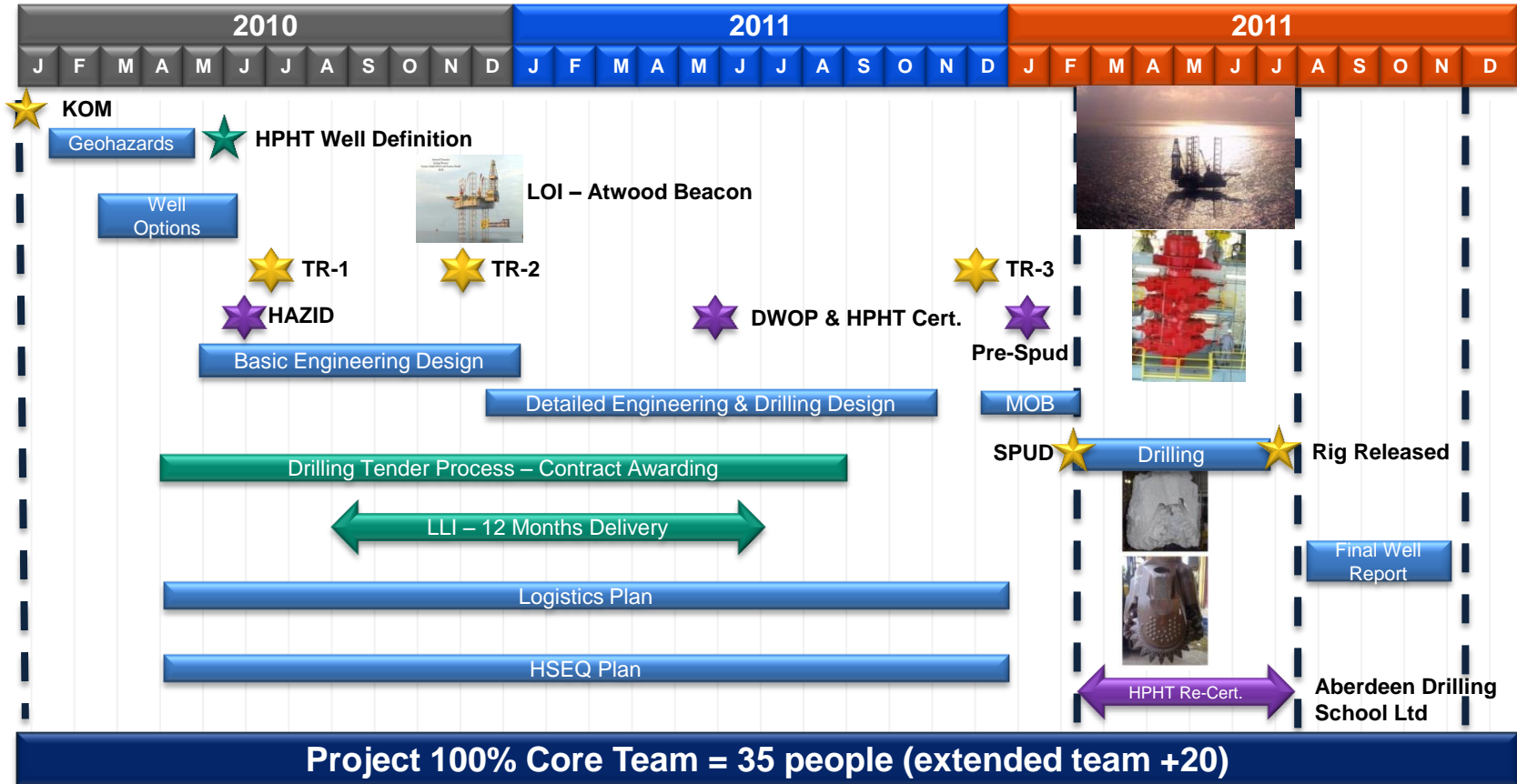
## The Jaguar 1 Well Case



- Remote area supported by Trinidad and Tobago at 450 miles.
- Previous to the drilling of Jaguar-1, only one additional well had been drilled offshore in Guyana in 20 years.
- Very good level of Cooperation by Local Authorities.

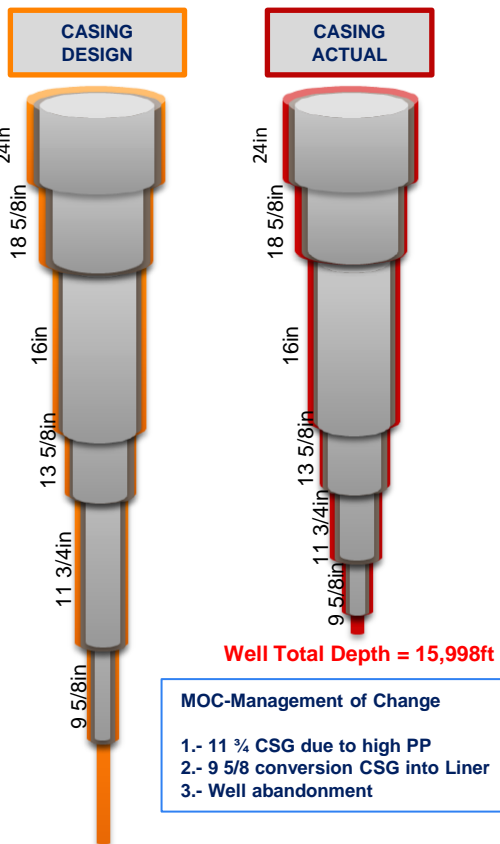
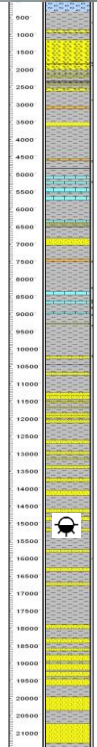
# Repsol Drilling Risk Mitigation Processes

## The Jaguar 1 Well Case: PRE



# Repsol Drilling Risk Mitigation Processes

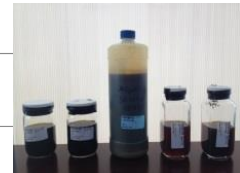
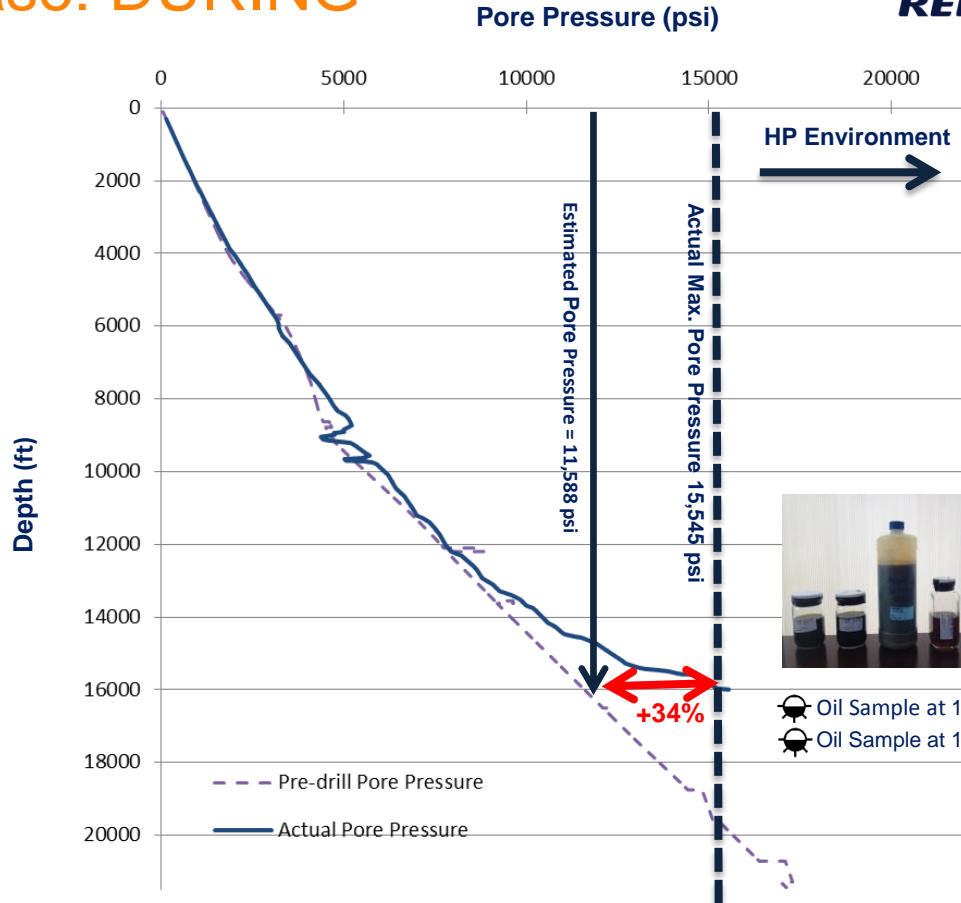
## The Jaguar 1 Well Case: DURING



**MOC-Management of Change**

- 1.- 11 3/4 CSG due to high PP
- 2.- 9 5/8 conversion CSG into Liner
- 3.- Well abandonment

**Prognosed Depth = 21,445ft**



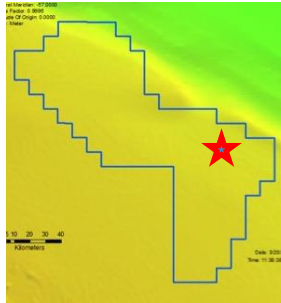
- Oil Sample at 15,442ft
- Oil Sample at 15,955ft

# Repsol Drilling Risk Mitigation Processes

## The Jaguar 1 Well Case: POST

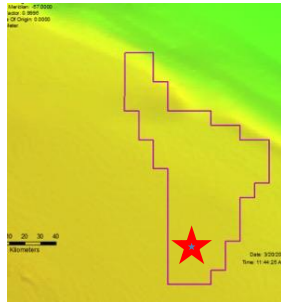


### Georgetown



1997

### Kanuku



2013

Plug and Abandon Decision - Successful

Project Cost US\$ 230 Million

Feasibility Studies Jaguar-2 Positive

Georgetown Block Contract - Expired

Kanuku Block – New Contract

Partners & Government aligned to redirect the project towards lower pressure environments

New 2D & 3D Seismic Campaign – US\$ 30 Million

New Prospects Search in progress

Reduced Risk

**THANK YOU**



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