

# Deepwater Horizon Review

Sunday May 23, 2010

Exhibit No.

**6124**

Worldwide Court  
Reporters, Inc.

BP-HZN-2179MDL00993066

**TREX-06124**

TREX 006124.0001

# Top Kill



**Diagnostics Program**  
Can we kill the well?

- Prerequisites Before Starting:**
- Model Confirms We Can Kill Well
  - 18" Casing Set on Relief Well
  - Casing Shears re-closed
  - Dispersant Approval
  - Kit for Riser Cut
  - Containment Tool Kit on Bottom
  - HC Connector on DDII Stack

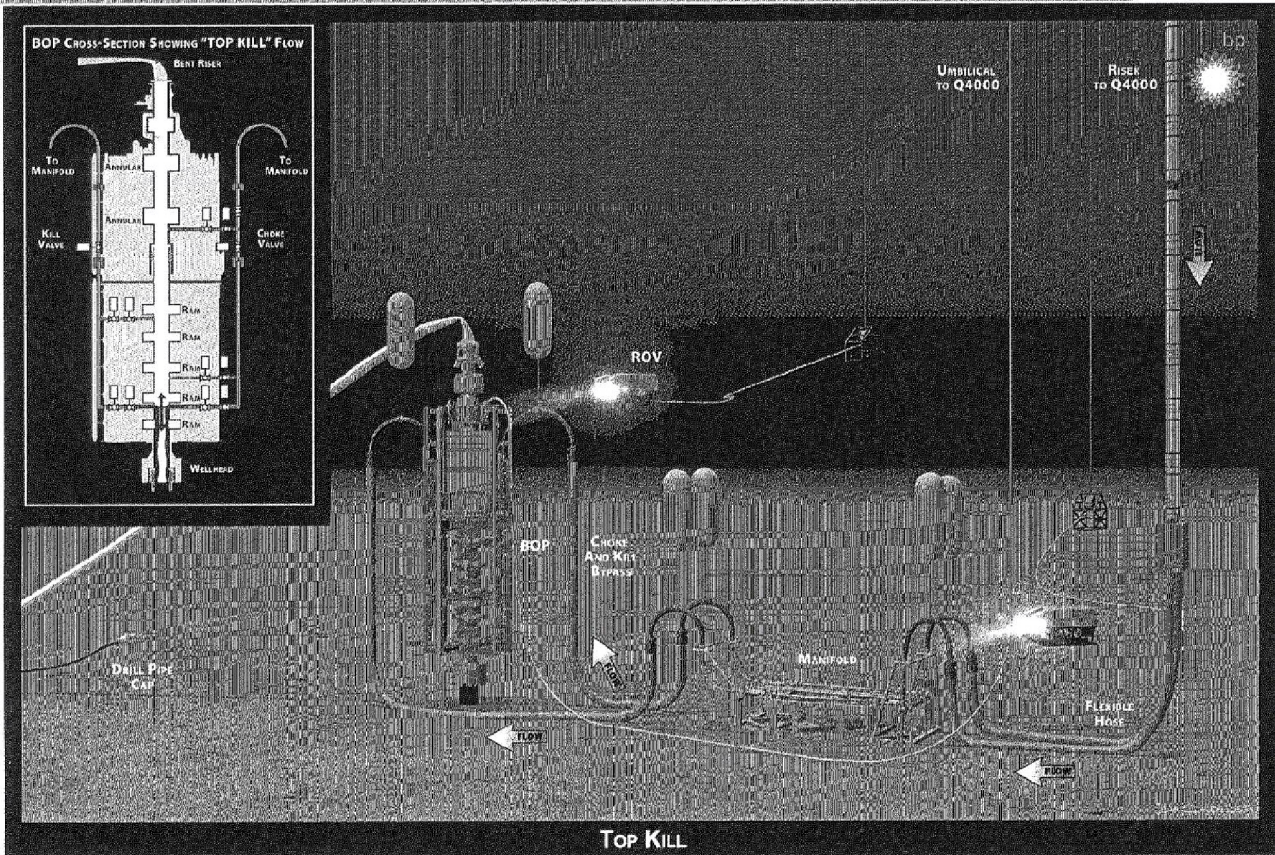
- Pumping**
1. Mud Momentum Kill
  2. Partial Bridge & Continue Mud Momentum Kill
  3. Seal & Continue Mud Momentum Kill

**Is the Well Dead?**

- ?Flow at Mudline Not Dead
- ?Static Head
- ?Suction Head?

**Pump Cement**

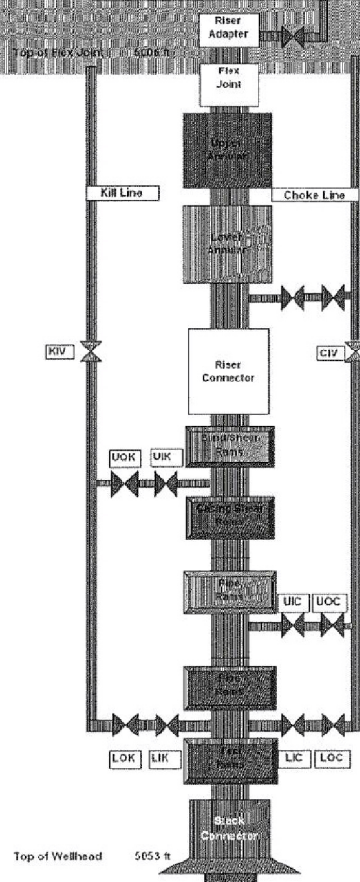
# Top Kill Sub-Sea Layout



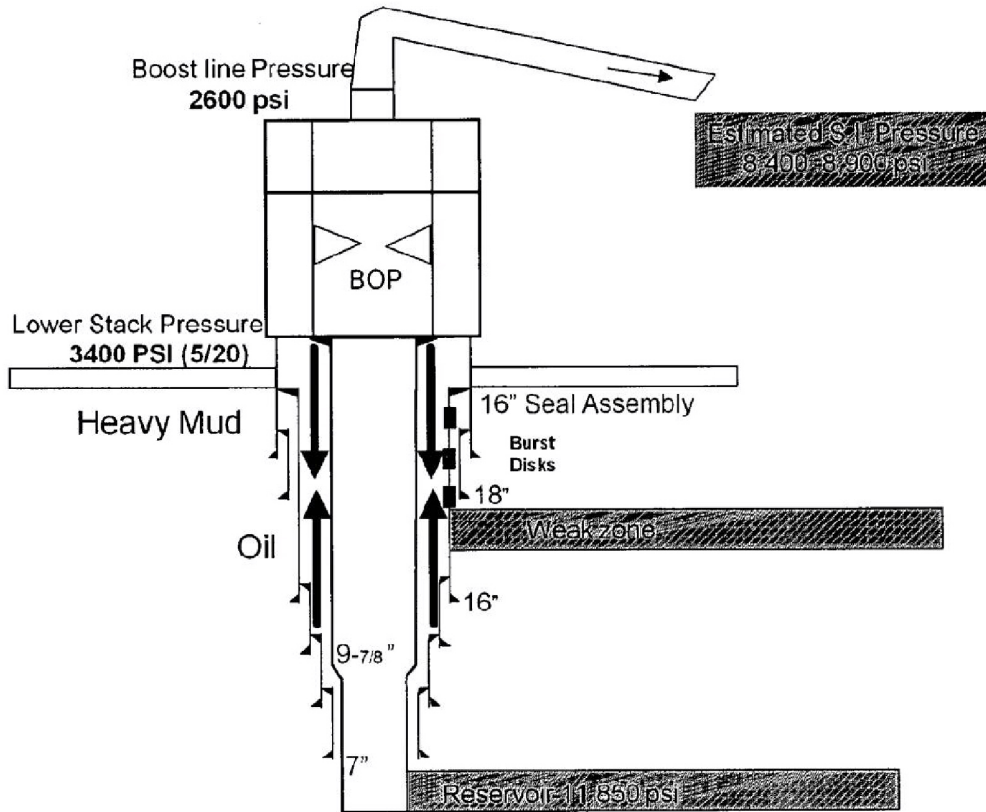
# Diagnostic Objectives



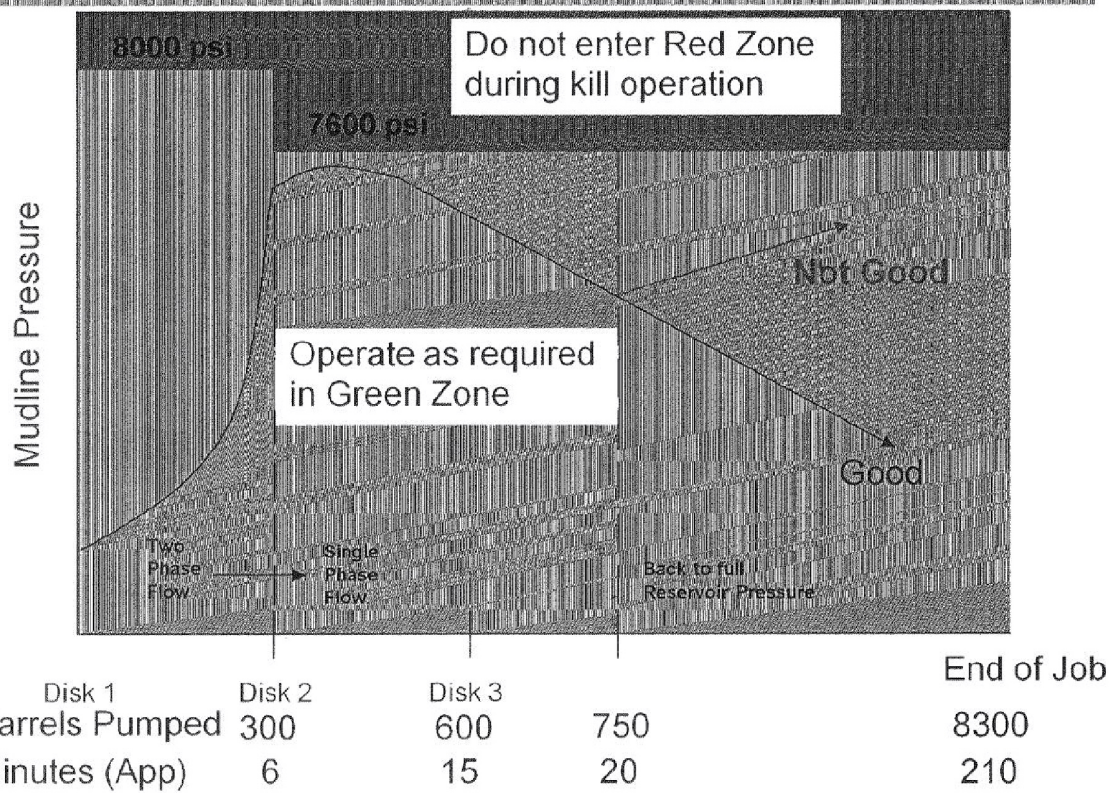
- ? **Ability to Kill Well**
  - ? Functionality of valves
  - ? Blockages in system
  - ? Number of access points
- ? **Identify ?P**
  - ? BOP and LMRP
  - ? Confidence to kill well
  - ? Preferred route to pump
- ? **Identification of Closed Chambers**
  - ? Drill pipe or not
  - ? Ram seals or not
- ? **Restrictions or Limitations to Pump Kill**
  - ? Alternatives or backups to path
  - ? Verify installed equipment pressure drops



# System Pressure Limitations



# Top Kill Pump Schedule Boundaries



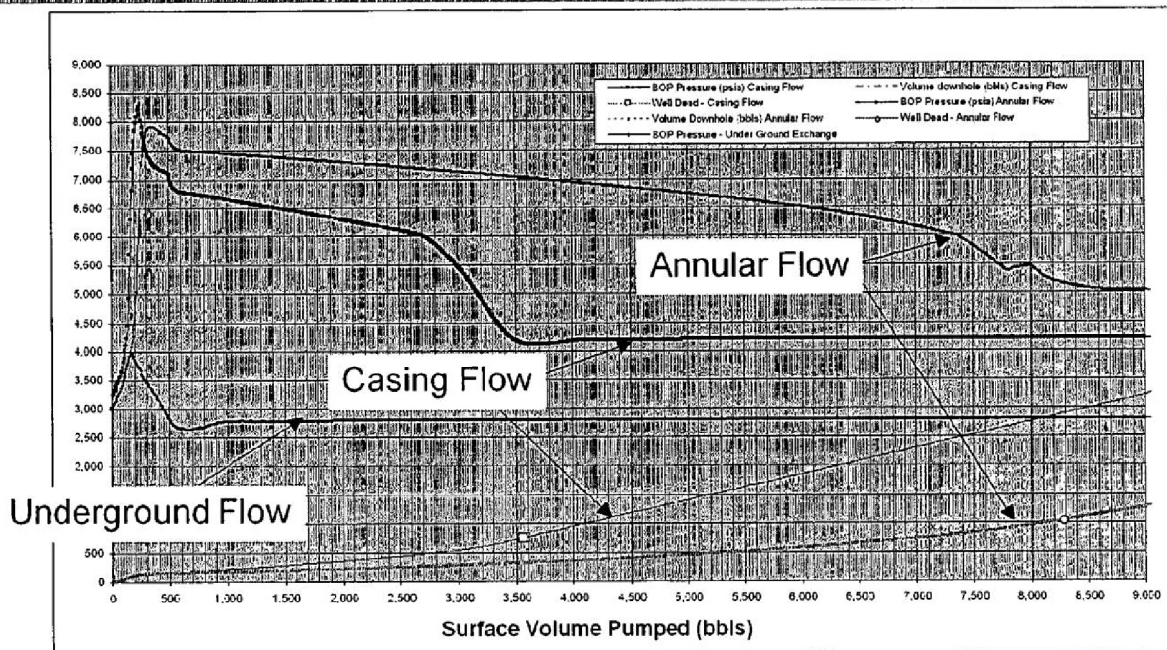
5/21/10

6

BP-HZN-2179MDL00993071

TREX 006124.0006

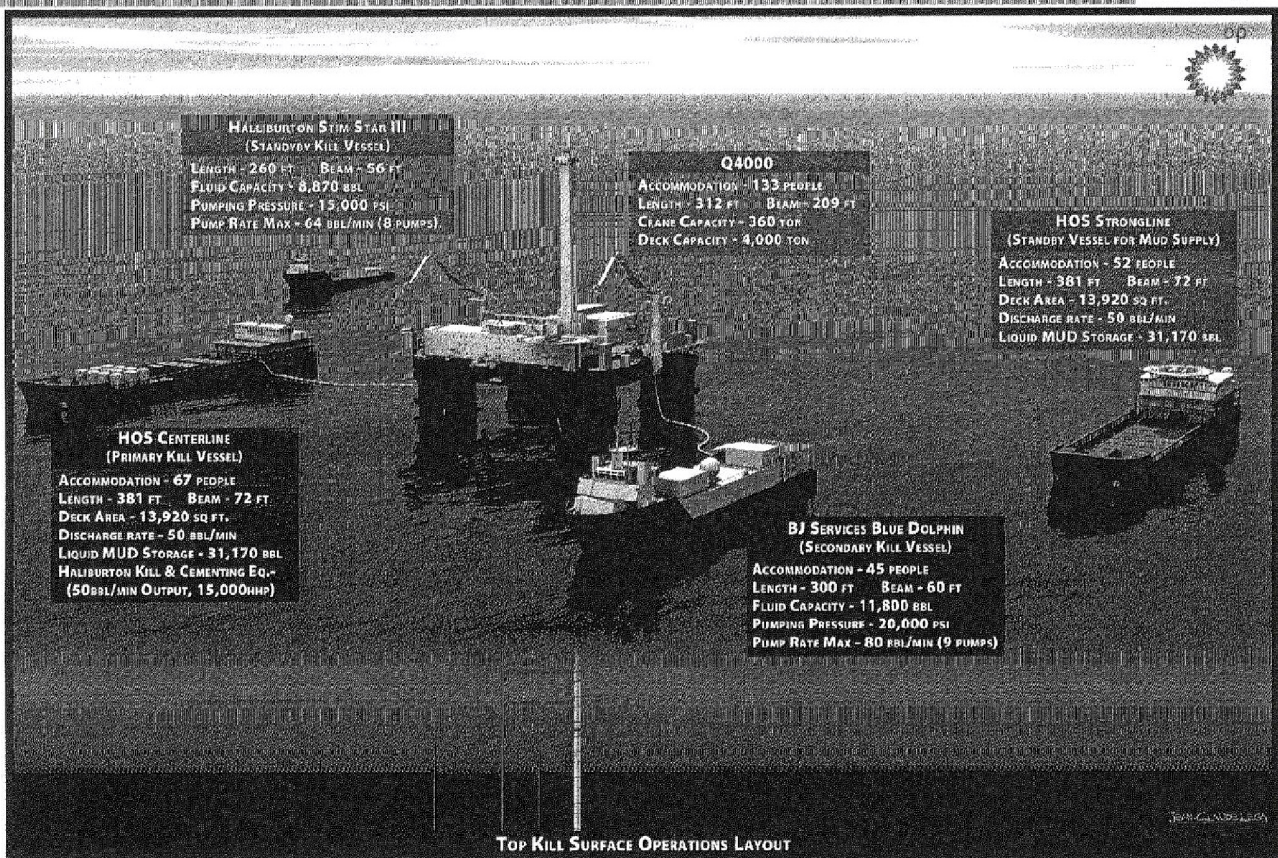
# Pump Schedule Potential Outcomes



**Assumptions:** 10,000 STBO/D, 400 psi differential in BOP's, Deep flow restriction  
50 BPM for 6 minutes then 40 BPM until finished pumping

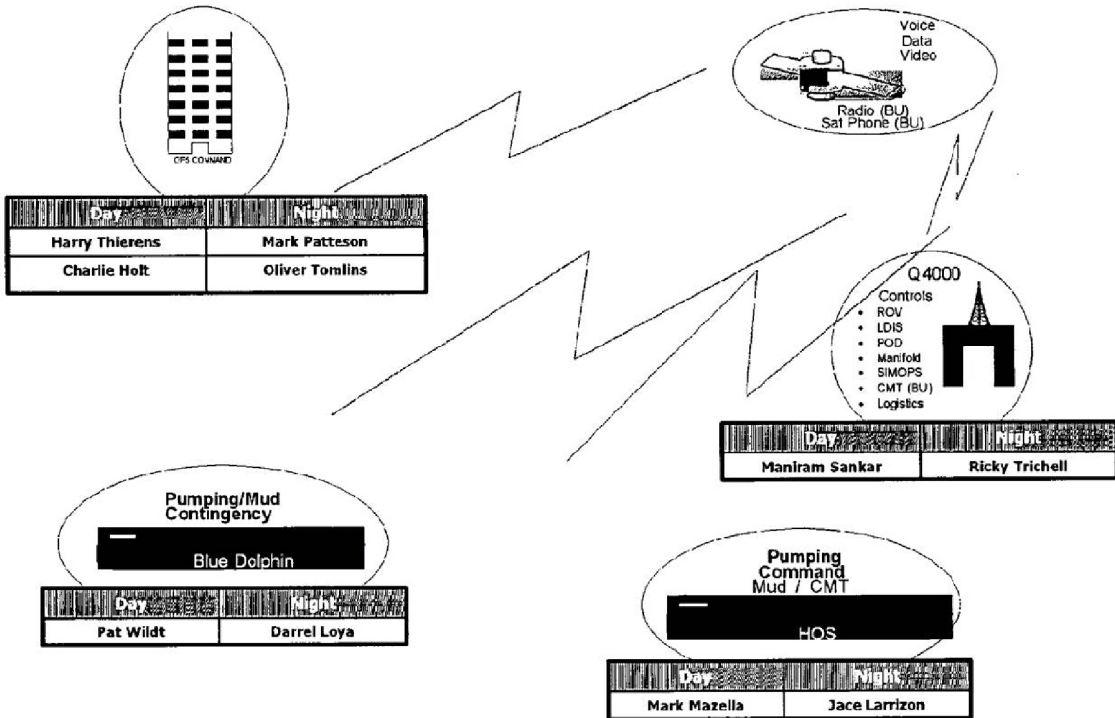
Work by: Dr. Ole Rygg, Thomas Selbekk, Kirt Mix, Mike Mullen

# The Fleet for the Top Kill

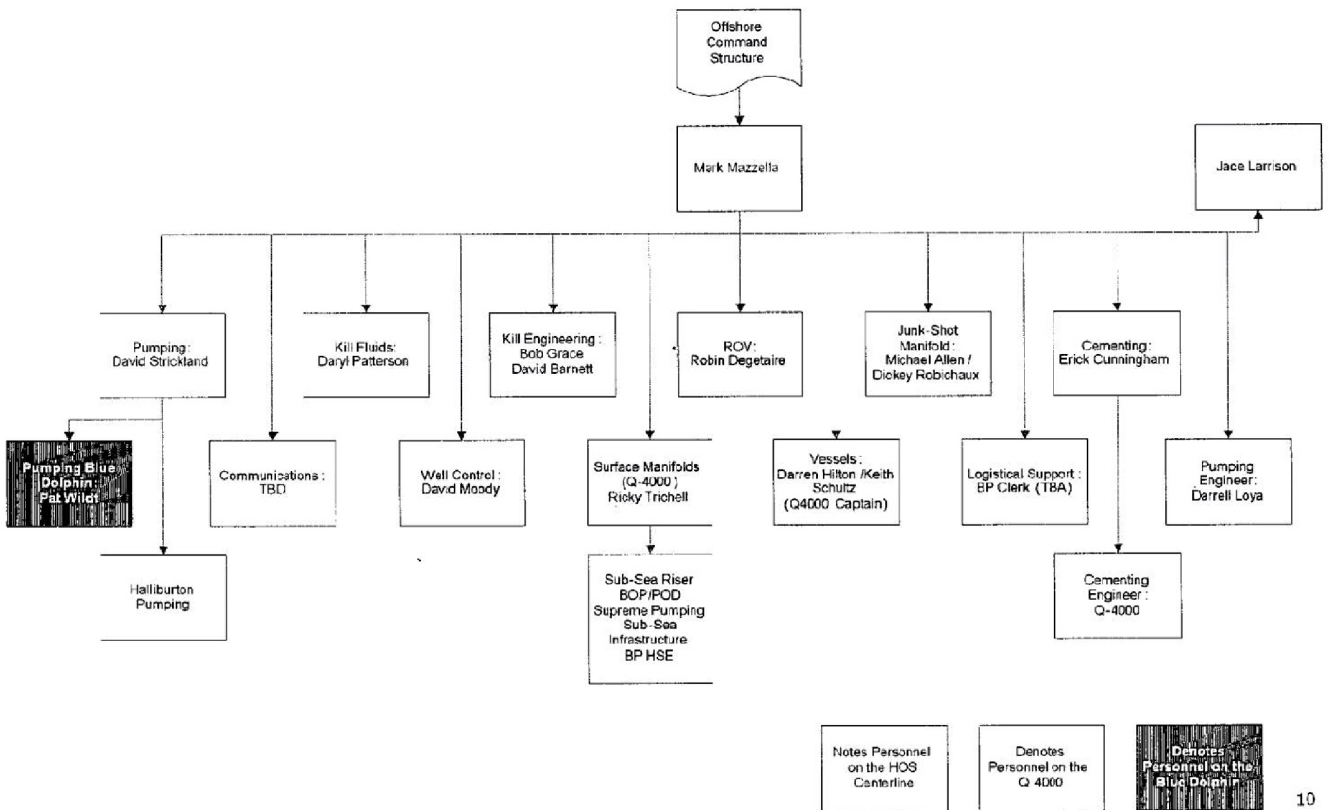




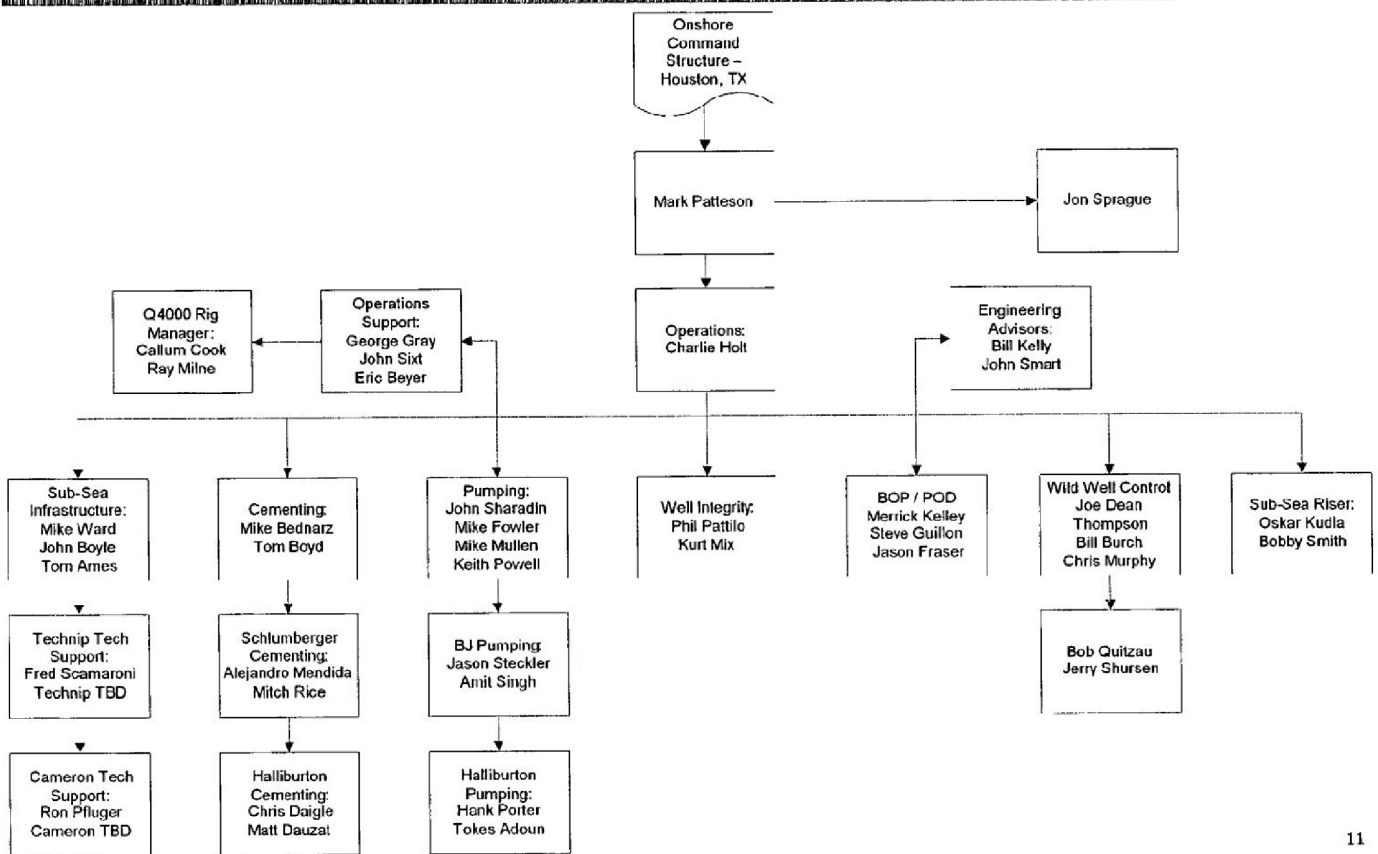
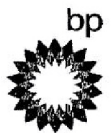
# Communications & Command



# Offshore Organizational Chart



# Onshore Organizational Chart



## Key Decisions



- ? **Go/No Go**
- ? **Can we kill the well?**
- ? **Is the well dead?**
- ? **Bridging & Sealing BOP**
- ? **Cementing**
- ? **BOP on BOP**
- ? **Cut Riser**
- ? **Weather Impacts**
- ? **Changing to BU boat**
- ? **Riser kink failure**
- ? **Working the hours of darkness**

## Top Risks Make It Worse



### ?Broach at the Seabed

- 15% SF on Burst Disk
- Pump Schedule

### ?Do Not Kill Well, More Oil Flowing

- Erosion/Kink

### ?People, Pressure, SIMOPS

- Operational Control
- Organization
- Communications

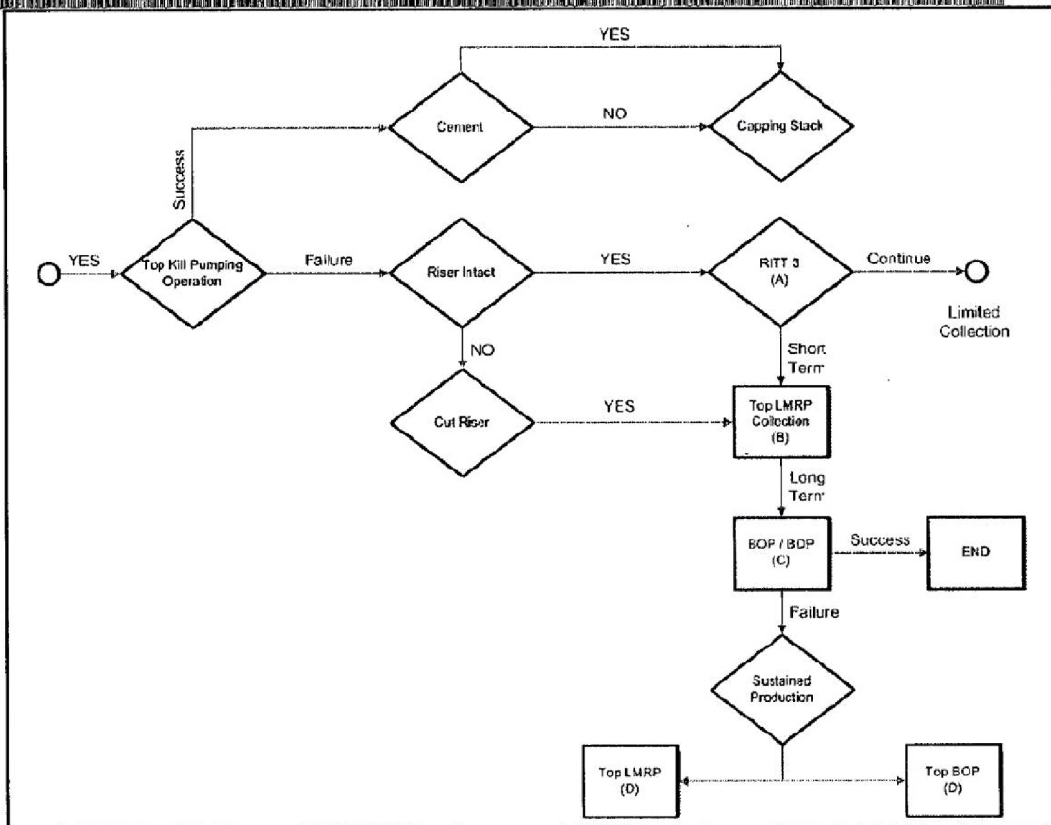
### ?Pressure Data Reliability

- 5 Sources SS
- Surface to SS Pressure Relationship Finger Printing

### ?Impact Relief Well Success






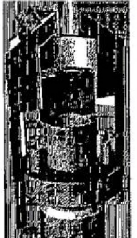

### ?Public Perception of Failure

# Decision Tree



# Subsea Containment



Option	RITT 1	RITT 2	(A) RITT 3	Hot Tap	Top Hat End of Riser	(B) LMRP Cap	BOP Cap
<b>Location</b>	Operational	Seafloor	Construction	Construction	Seafloor	Construction	Construction
							
<b>Execution Issues</b>	?Collection is not 100%	?Collection is not 100%	?Collection is not 100%	?Drill and seal tap ?Crimp Riser ?Seals	?Collection is not 100% ?Potential for hydrate formation ?Pipe in Trench	?Hydrate	?Hydrate ?LMRP Removal
<b>Risk</b>	?Low Risk - Proven	?Low Risk - Proven	?Low Risk - Proven	?Moderate	?Tool lift off	?Tool lift off	?Tool lift off

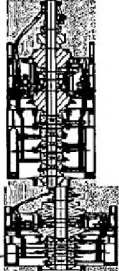

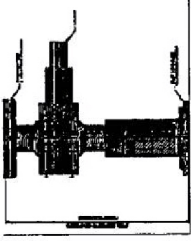
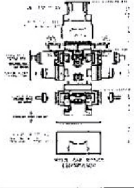
15

BP-HZN-2179MDL00993080

TREX 006124.0015

# Valve Stack



Option	(C) BOP on BOP	(D) Flex Joint or BOP Overshot	Swing Valve on LMRP	Cap Stack on LMRP
				
<b>Execution Issues</b>	<ul style="list-style-type: none"> <li>?Removal of LMRP</li> <li>?Hydrate formation</li> <li>?Drill pipe presence?</li> <li>?Bleed Pressure</li> </ul>	<ul style="list-style-type: none"> <li>?Hydrate formation</li> <li>?Seals</li> </ul>	<ul style="list-style-type: none"> <li>?More complicated than BOP on BOP</li> <li>?ROV operations</li> <li>?Hydrate formation</li> <li>?Drill pipe presence?</li> </ul>	<ul style="list-style-type: none"> <li>?More complicated than BOP on BOP</li> <li>?ROV operations</li> <li>?Hydrate formation</li> <li>?Drill pipe presence?</li> </ul>
<b>Risk</b>	Breach of 18	Breach of 18	Breach of 18	Breach of 18



# Potential Flowrate Multiplier

