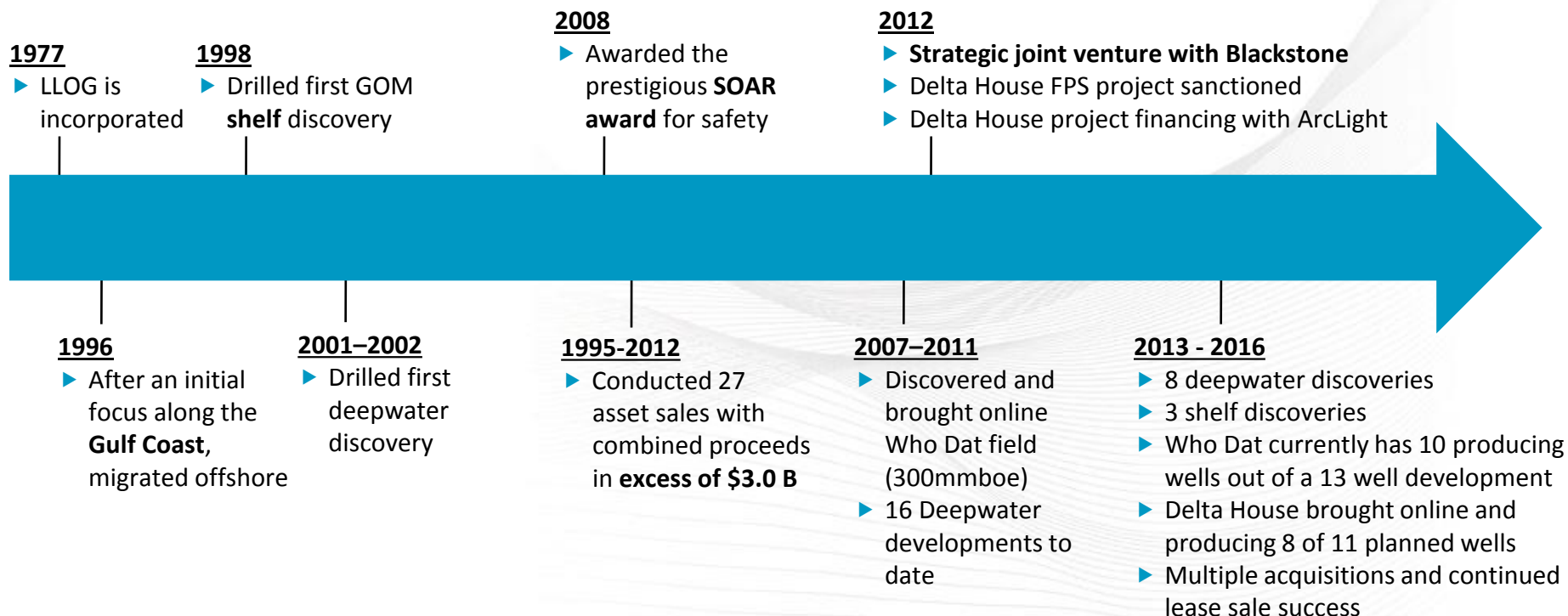




LLOG Exploration – OIRA/OMB Proposed Well Control Rule Comments & Concerns

March 21, 2016

- LLOG Exploration is one of the largest privately owned oil & gas firms in the country - largest private oil producer*
- LLOG was the 6th largest oil producer in the GOM in 2015.
- Drilled ~350 wells in the Gulf of Mexico / Gulf Coast since 2002.
- 165 Employees – professionals average nearly 30 years of experience - headquartered in Covington, LA
- Top 6 Deepwater GOM driller and deepwater GOM producer**
- 21 operated deepwater developments to date and 41 operated subsea wells brought on production



*Oil & Gas Financial Journal - Private Company Update January 2016

**Over the last five years

Well Control Rule – LLOG Issues & Concerns

- **Ambiguity in key areas** is a concern in the current regulatory environment.
 - District engineers are reluctant to exercise discretion and variance – even in some cases where the safety benefits of a variance to a prescriptive regulation are evident.
 - WSJ reporting indicates the modifications made to the proposed regulatory text will provide “more flexibility” to maintain the safe drilling margin. Without the opportunity to view the same documents we can not determine if such flexibility will be workable.
 - In the current environment where BSEE District Engineers are exercising little to no discretion, LLOG is concerned with how such a “flexibility” protocol will be enacted.
 - Under the current environment – prescriptive application of the drilling margin could result in increased Loss of Well Control Events due to increased “kicks” – example to follow.
- **Total Cost Impact of the Rule** – Drilling margin, BOP modifications and testing protocol. In aggregate the sum of the prescriptive application of the proposed rule text is expected to result in 16 fewer Deepwater wells drilled by LLOG over the next 5 years. Such an impact to LLOG could constitute a “taking” of the wells from our approved development plans. These 16 wells represents \$1 billion in lost economic activity, 100 million bbls of lost reserves and 900 million in royalty revenue to the Federal treasury.
 - To mitigate these concerns LLOG recommends BSEE implement the proposed alternate Drilling Margin regulatory text proposed by API, and reevaluate the economic costs of other provisions.
- **Real Time Monitoring** – LLOG agrees with the requirement for Real Time Monitoring...however, we prefer a more performance based approach. LLOG has concerns with the requirements and implementation protocol for streaming critical data real time (security) and the required location of the real time monitoring staff. Final text of the prescriptive requirements of this rule should be released for comment so security and operational issues can be addressed.
- **Unintended Consequences Concerns:**
 - LLOG is seeking to understand the BSEE drilling margin implementation protocol, and is concerned the unintended consequences of the prescriptive nature of the proposed rule will lead to a true increase in loss of well control events.
 - LLOG and Seadrill are concerned with the increased complexity added to the BOP systems (elements and controls) where the consequences/risks of increased failure points is greater than any benefit due to higher capacity/capability.

LLOG recommends the rule be reissued for comment and review, to allow industry and the public to fully address the safety concerns and reevaluate the economic impact analysis.

If we “Drill Down” into the actual events behind the Loss of Well Control Data what do we learn?

Operation	YEAR										Totals	
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015		
Drilling	1	1	4	1	0	0	1	6	5		19	39%
Shelf - Top Hole - No BOPs		1	2					2	1		6	
Lower Hole - With BOPs	1		1					1	1		4	
Deepwater - Top Hole No BOPs							1	1	2		4	
Deepwater Lower Hole - With BOPs			1	1				2	1		5	10%
Completion	0	0	1	1	1	0	0	1	0		4	8%
Production	0	2	2	1	3	1	0	0	0		9	18%
Workover	0	3	0	0	0	1	2	0	1		7	14%
P&A	1	1	1	3	0	1	1	1	1		10	20%
	2	7	8	6	4	3	4	8	7	1	49	100%

- Of the 49 events that can be classified only 19 (38% are drilling related).
- Of the 19 Drilling Events 9 (less than half) occurred with BOPs in place.
 - On the Shelf 60% (6 events) occur drilling top hole sections with a diverter.
 - On the Shelf 40% (4 events) occur drilling the lower wellbore sections with BOPs
 - In DW ~50% (4 events) are in the Top hole with no BOPs, & ~50% (5 events) in the lower section

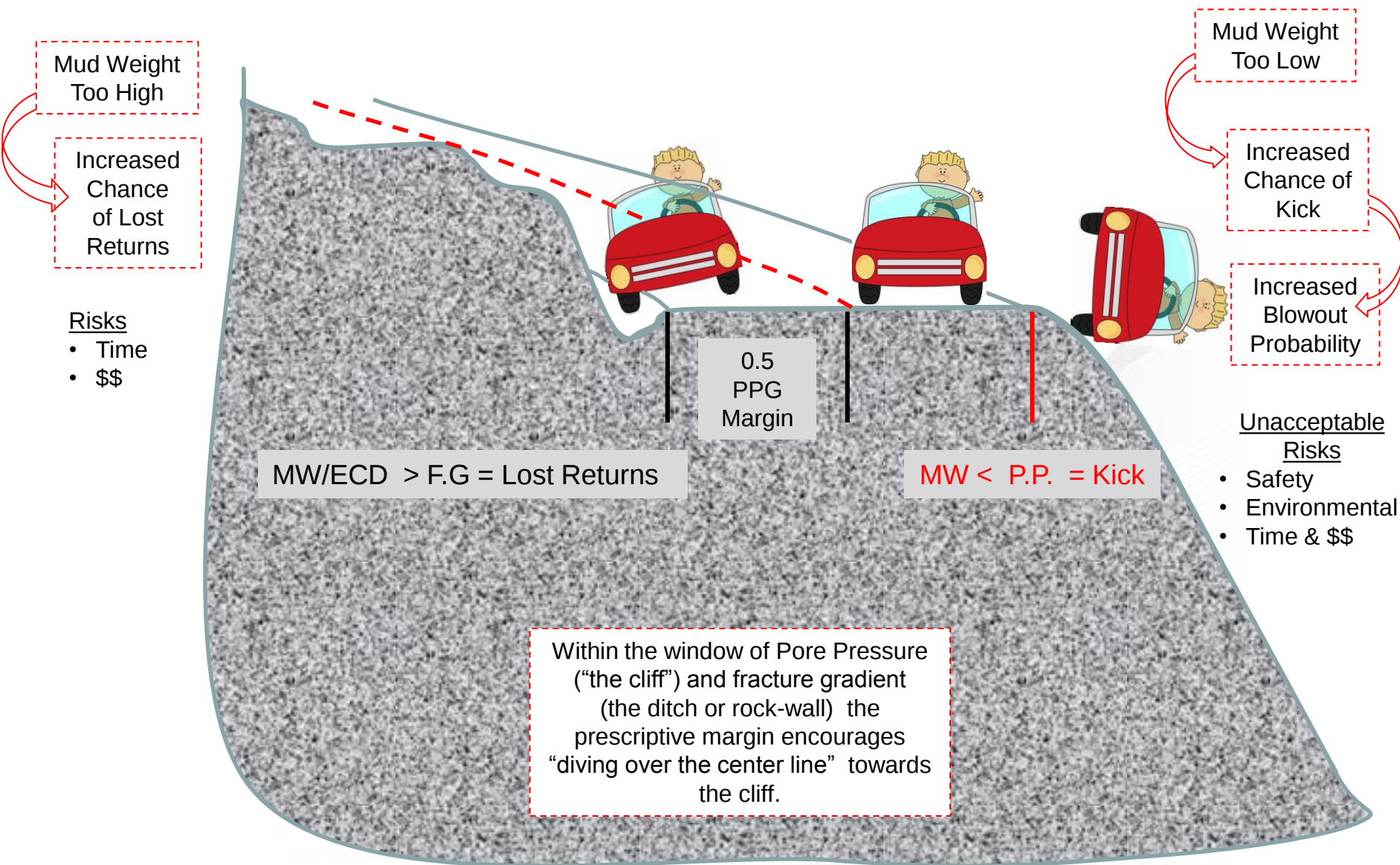
Conclusion: Reviewing the drilling LWC events, very few (1-2) are related to drilling ahead underbalanced resulting in a kick.

Prescriptive application of a hardline 0.5 PPG margin will move industry towards low mud weights and more kicks.

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Deepwater - Top Hole No BOPs							1	1	2		4	
Deepwater Lower Hole - With BOPs			1	1				2	1		5	10%

- Poor 20" cement job	- Flow Post Cmt Job W/Nipplig up BOPs Mariner - Pressure below Gumbo Attack - MW Poss too low.	- Underground B/O - little to no details in database	- Diverter - Diverter	- Diverter	- Casing Grouting Operation
- Post Cementing	- Event - Was not LWC, flow on Conn, SI - stick Pipe. Underground Flow Indeterminate	- SWF	- SWF	- SWF 2X	- Drilled into Overpressured Salt Inclusion - Shut In - Incr MW 0.2 PPG hole stable.
- Csg on Btm but stuck R/T, Lost Returns, Cemented Well, 16" Conn leaks, Underground Flow, broach mud to seafloor.	- LWC not clear - gas bubble in riser - expanding gas bubble in riser led to a 2 BBL. SBM mud spill at Surface.	- Ballooning - Csg Hole			

Unintended Consequence - The Drilling Margin Road: RISKS: Pore Pressure Cliff or the Lost Circulation Ditch



QUESTIONS?