IBC's FPS 2010

25th Annual FPSO Conference

London

14-15 December 2010

Outlook for FPSO Business Post GoM Spill Disaster

Peter Lovie

SOCOSS Global, LLC

Houston

Summary

1. Natural disasters in GoM - the 2005 hurricanes - forever changed requirements for FPSOs in GoM in unexpected ways, and for other types of FPS in GoM;

2. The man made disaster in GoM – the BP Spill in April 2010 – forever changed drilling at deepwater for field developments for GoM - and perhaps elsewhere. But effect on FPSOs or other FPS was not initially clear;

3. Practical estimates now possible in December for delays and changes and what's ahead for FPSO business;

4. Final assessment of effects on industry from the *Macondo* disaster unlikely to be complete until into 2012.

Timeline

Explosion on the *Deepwater Horizon* semi:	20 April	US GoM Climate *Eleven killed*
and spill starts at *Macondo*		
Drilling moratorium imposed:	28 May	The fog of
IBC presentation proposed, agreed:	10 July	confusion and
(not at all clear where this might go!)		uncertainty was
Federal government gets involved		everywhere:
Spill halted:	15 July	Washington DC is
Many US Coast Guard hearings,		called Foggy
Senate hearings,		Bottom for a
Endless pundits, experts		reason!
Endless worry, people out of work,		Slowly all the hot
Fears of the future,		air helped disperse
Gigabytes said, written, published and videoed		some of the fog.
Digesting it, the morning paper covered		Fog thins out
the disaster well: Houston Chronicle, quoted here		a little!
This presentation submitted:	26 November	Still some fog . . .
Today we talk about it:	14 December	
Final determination of root cause(s)		
behind this disaster:	2012?	A clearer vision?

There are natural disasters . . .

Earthquakes

Famines

Floods

Hurricanes

Tsunamis

Then there are man made disasters

On land, at sea and in the air

And then US oil spill disasters that have altered the petroleum industry:-

28 January 1969	*Santa Barbara Channel*	Unocal	90,000 bbl
24 March 1989	*Exxon Valdez*	Exxon	260,000 bbl
20 April 2010	*Macondo*	B P	4,900,000 bbl

Man made disasters before our time. What did we learn?

On land and sea . . .

Both disasters managed from UK

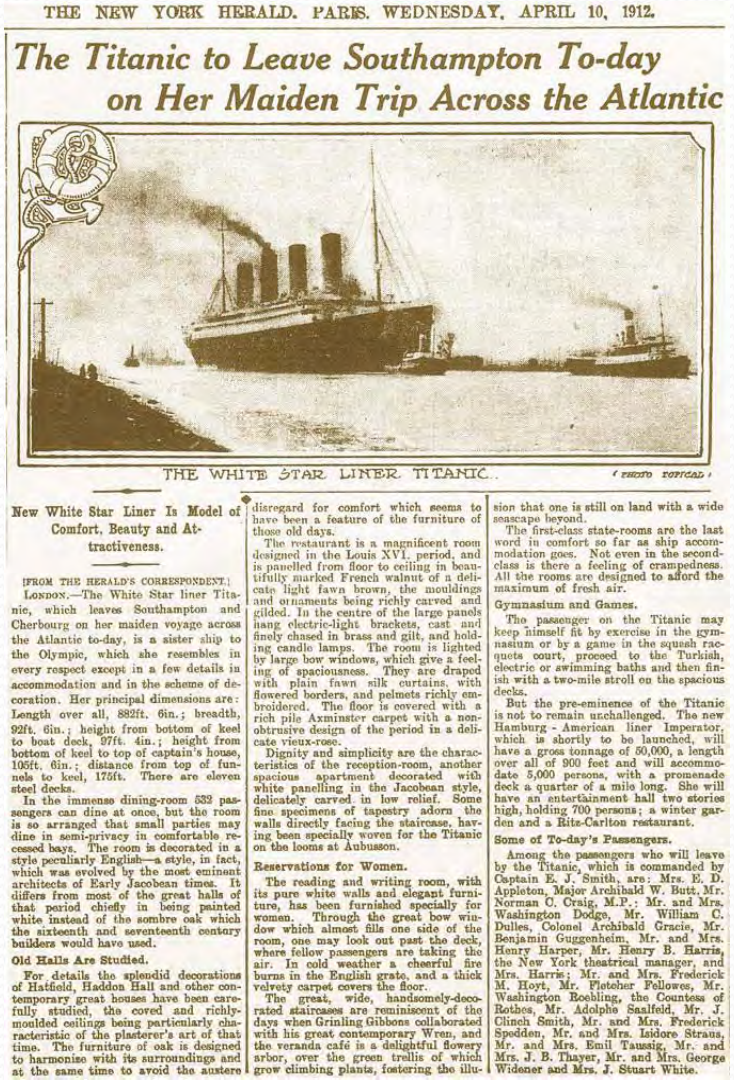
"All the News That's Fit to Print."

The New York Times.

TITANIC SINKS FOUR HOURS AFTER HITTING ICEBERG; 866 RESCUED BY CARPATHIA, PROBABLY 1250 PERISH; ISMAY SAFE, MRS. ASTOR MAYBE, NOTED NAMES MISSING

Col. Astor and Bride, Isidor Straus and Wife, and Maj. Butt Aboard.

Biggest Liner Plunges to the Bottom at 2:20 A.M.



THE NEW YORK HERALD. PARIS. WEDNESDAY, APRIL 10, 1912.

The Titanic to Leave Southampton To-day on Her Maiden Trip Across the Atlantic

THE WHITE STAR LINER TITANIC.

New White Star Liner Is Model of Comfort, Beauty and Attractiveness.

[FROM THE HERALD'S CORRESPONDENT.]

LONDON.—The White Star liner Titanic, which leaves Southampton and Cherbourg on her maiden voyage across the Atlantic to-day, is a sister ship to the Olympic, which she resembles in every respect except in a few details in accommodation and in the scheme of decoration. Her principal dimensions are: Length over all, 882ft. 6in.; breadth, 92ft. 6in.; height from bottom of keel to boat deck, 97ft. 4in.; height from bottom of keel to top of captain's house, 105ft. 6in.; distance from top of funnels to keel, 175ft. There are eleven steel decks.

In the immense dining-room 532 passengers can dine at once, but the room is so arranged that small parties may dine in semi-privacy in comfortable recessed bays. The room is decorated in a style peculiarly English—a style, in fact, which was evolved by the most eminent architects of Early Jacobean times. It differs from most of the great halls of that period chiefly in being painted white instead of the sombre oak which the sixteenth and seventeenth century builders would have used.

Old Halls Are Studied.

For details the splendid decorations of Hatfield, Haddon Hall and other contemporary great houses have been carefully studied, the coved and richly-moulded ceilings being particularly characteristic of the plasterer's art of that time. The furniture of oak is designed to harmonize with its surroundings and at the same time to avoid the austere disregard for comfort which seems to have been a feature of the furniture of those old days.

The restaurant is a magnificent room designed in the Louis XVI. period, and is panelled from floor to ceiling in beautifully marked French walnut of a delicate light fawn brown, the mouldings and ornaments being richly carved and gilded. In the centre of the large panels hang electric-light brackets, cast and finely chased in brass and gilt, and holding candle lamps. The room is lighted by large bow windows, which give a feeling of spaciousness. They are draped with plain fawn silk curtains, with flowered borders, and pelmets richly embroidered. The floor is covered with a rich pile Axminster carpet with a non-obtrusive design of the period in a delicate vieux-rose.

Dignity and simplicity are the characteristics of the reception-room, another spacious apartment decorated with white panelling in the Jacobean style, delicately carved in low relief. Some fine specimens of tapestry adorn the walls directly facing the staircase, having been specially woven for the Titanic on the looms at Aubusson.

Reservations for Women.

The reading and writing room, with its pure white walls and elegant furniture, has been furnished specially for women. Through the great bow window which almost fills one side of the room, one may look out past the deck, where fellow passengers are taking the air. In cold weather a cheerful fire burns in the English grate, and a thick velvety carpet covers the floor.

The great, wide, handsomely-decorated staircases are reminiscent of the days when Grinling Gibbons collaborated with his great contemporary Wren, and the veranda café is a delightful flowery arbor, over the green trellis of which grow climbing plants, fostering the illusion that one is still on land with a wide seascape beyond.

The first-class state-rooms are the last word in comfort so far as ship accommodation goes. Not even in the second-class is there a feeling of crampedness. All the rooms are designed to afford the maximum of fresh air.

Gymnasium and Games.

The passenger on the Titanic may keep himself fit by exercise in the gymnasium or by a game in the squash racquets court, proceed to the Turkish, electric or swimming baths and then finish with a two-mile stroll on the spacious decks.

But the pre-eminence of the Titanic is not to remain unchallenged. The new Hamburg - American liner Imperator, which is shortly to be launched, will have a gross tonnage of 50,000, a length over all of 900 feet and will accommodate 5,000 persons, with a promenade deck a quarter of a mile long. She will have an entertainment hall two stories high, holding 700 persons; a winter garden and a Ritz-Carlton restaurant.

Some of To-day's Passengers.

Among the passengers who will leave by the Titanic, which is commanded by Captain E. J. Smith, are: Mrs. E. D. Appleton, Major Archibald W. Butt, Mr. Norman C. Craig, M.P.; Mr. and Mrs. Washington Dodge, Mr. William C. Dulles, Colonel Archibald Gracie, Mr. Benjamin Guggenheim, Mr. and Mrs. Henry Harper, Mr. Henry B. Harris, the New York theatrical manager, and Mrs. Harris; Mr. and Mrs. Frederick M. Hoyt, Mr. Fletcher Fellowes, Mr. Washington Roebling, the Countess of Rothes, Mr. Adolphe Saalfeld, Mr. J. Clinch Smith, Mr. and Mrs. Frederick Spedden, Mr. and Mrs. Isidore Straus, Mr. and Mrs. Emil Taussig, Mr. and Mrs. J. B. Thayer, Mr. and Mrs. George Widener and Mrs. J. Stuart White.

Man made disasters in our life time

In the air and on the sea

Two disasters managed from Houston, one from UK

Experiences learning from disasters

Years ago	Disaster, date	Engineering Failings	Management Failings
131	*Tay Rail Bridge* 28 December 1879	Understanding of steels, iron & storm loadings	Major industry advances in a few decades, unrecognized major challenges
98	*Titanic* 10 April 1912	Unkilled steel, punched rivet holes	Inadequate lifeboat capacity, radio room not occupied 24/7
56	*Comet* 10 January & 18 April 1954	Stress concentrations at window corners	Missed the cause initially, two losses before redesign with rounded windows in Comet 4
24	*Challenger* 28 January 1986	O ring between booster sections - embrittlement at freezing temperatures	Decision to fly in marginal conditions
This year!	*Macondo* 20 April 2010	Cement job, BOP redundancy & operation (? TBD ?)	Well design & construction supervision, operational supervision (? TBD ?)

Oil spills are a REALLY sensitive issue in the United States

1. in November 2007 about 1,400 bbl of fuel oil got spilled in San Francisco Bay when a 902 ft. long container ship had a 100 ft. tear in its side shell plating when it collided with the Bay Bridge.

2. A normally routine US Coast Guard hearing on the spill became a political circus, dominated by Speaker of the House Pelosi and other politicians;

3. An incident 17 months later occurred in the lightering area in GoM designated for single hull import tankers, but thankfully no oil was spilled;

4. Imagine now that a single hull tanker with 2,000,000 bbl of imported oil was breached by running over a rig sunk in a hurricane!

5. Imagine such a major spill in GoM, and how oil companies would have been grilled – crucified – regarding tanker delivery of oil.

Rigzone of 9 March 2009: a little known incident

Please excuse the small print: full text of little known story

Oil Tanker Strikes Submerged Ensco Jackup

Ensco International | Monday, March 09, 2009

Ensco International Incorporated has been informed by the U.S. Coast Guard that an oil tanker, the *SKS Satilla*, apparently struck a submerged object which the U.S. Coast Guard has identified as the sunken hull of the *ENSCO 74*. The *ENSCO 74*, a jackup rig, was lost during Hurricane Ike last September. The U.S. Coast Guard has advised Ensco that the oil tanker reportedly suffered damage to its ballast tanks and was listing slightly, but its cargo tanks were not ruptured. *ENSCO 74* reportedly is submerged in 115' of water approximately 65 miles south of Galveston. As reported last September, *ENSCO 74*, a MLT Super 116-C, was lost and presumed sunk in the aftermath of Hurricane Ike. At the time of the storm, the rig had been located in approximately 230 feet of water 92 miles from shore in South Marsh Island Block 149. ENSCO conducted extensive aerial and sonar reconnaissance following the storm but failed to locate the rig. Ensco maintains insurance policies for removal of wreckage and debris. Ensco also maintains liability policies which it believes will provide coverage for losses resulting from the incident for which Ensco may have responsibility, including any environmental issues, subject to a $10 million self-insured retention.

Ensco is relying on information primarily from the U.S. Coast Guard regarding the incident and has not had an opportunity to conduct an independent investigation of the facts surrounding the incident. The U.S. Coast Guard issued a press release on March 8, 2009, which stated as follows:

"GALVESTON, Texas -- Coast Guard Marine Safety Unit Galveston personnel are monitoring lightering operations on the 900-foot tank ship *SKS Satilla*, 65 miles south of Galveston. "Lightering operations began today, and weather conditions permitting, operations are scheduled to be complete Tuesday, March 10, 2009

Houston Chronicle 12 March 2009 highlights near disaster

US Coast Guard: Tanker's double hull prevented disaster

HOUSTON — Galveston Coast Guard Commander James Elliott on Wednesday credited the SKS *Satilla*'s sturdy double-hulled construction with preventing a major oil spill after the Norwegian tanker crashed into submerged debris late last week. An underwater examination of the ship, which was carrying 41 million gallons of crude oil, revealed a gaping hole in the port side of the vessel's outer hull. The ship was awaiting permission Wednesday to sail to Portugal, where it will be placed in dry dock for repair.

Tanker lightered after incident

The *Satilla* was en route to an offshore lightering facility near Galveston when it struck the *Ensco 74*, a jackup oil rig swept from its moorings off the Louisiana coast by Hurricane Ike. Elliott said additional side-scan sonar searches will be conducted in the vicinity of the accident "just to make sure there's nothing else down there." The rig came to rest in 115 feet of water about 65 miles south of Galveston. Elliott said its owner, Dallas-based Ensco International, Inc., has been ordered to remove the wreckage.

Wreckage marked

Meanwhile, Elliott said, a buoy has been anchored above the wrecked rig and the hazardous site has been added to navigational charts. A Coast Guard vessel also has been positioned at the site, and hourly warnings are being sent to ships operating in the area. An underwater examination of the Satilla found a substantial hole in the hull below the water line, where the ship's steel had peeled back in the collision. Crews completed pumping the ship's cargo into other vessels on Tuesday. "It was a success," Elliott said of the Coast Guard's emergency operations. "The response came together immediately. They stabilized the vessel. The 41 million gallons of oil were removed without endangering safety and there was no impact to the environment. We were very blessed."

Fortunately for the petroleum industry, this incident did not attract much media attention!

Continued

Built by a South Korean shipyard in 2006 and owned by SKS Obo and Tankers SA, the *Satilla* is a new-generation double-hulled tanker of the type mandated by the United States and European nations after disastrous oil spills involving single-hulled vessels. March 24 marks the 20th anniversary of the oil tanker *Exxon Valdez* running aground on a reef in Prince William Sound, Alaska. Almost 11 million gallons of crude oil were spilled in that incident, fouling more than 1,100 miles of coastline. The accident was biggest oil spill in U.S. history, and Congress ordered a phase-out of the old-style tankers the following year. Dennis Kelso, executive vice president of the Washington, D.C.-based Ocean Conservancy, said the *Satilla* accident "clearly demonstrates the value of double-hulled tankers."

"This could have been a serious spill," said Kelso, who was Alaska's commissioner of environmental conservation at the time of the Valdez spill. "Because of that double hull that suffered damage on its exterior, there was no oil spill at all." Elliott on Wednesday stopped short of positively identifying the object the *Satilla* struck as the *Ensco 74*, but Ensco International reported the Coast Guard informed it that the rig likely was involved.

Area not searched

In the wake of Hurricane *Ike*, the National Oceanic and Atmospheric Administration and U.S. Army Corps of Engineers crews conducted side-sonar searches for dangerous submerged debris in the Houston Ship Channel and Galveston areas. The searches did not extend far into the Gulf of Mexico, however. At the Coast Guard's request, contractors for NOAA also conduced sonar searches for the missing rig off Louisiana's coast. Seven days of searching covered about 95 square statute miles, but found no trace of the missing rig, said NOAA spokesman David Hall. Hall earlier had said his agency had not received an official request to search in the Gulf of Mexico. Hurricane Ike slammed into Galveston with 110 mph winds on Sept. 13.

A near miss on a potentially huge spill disaster

The shipping industry had learned from years of experience: *SKS Satilla* and *Titanic* were roughly the same size and suffered about the same impact effect.

Fortunately hull design when this ship was built in 2006 had progressed from!

"no safety culture issue" . . . *Really ?* . . .

★★★
FRIDAY
OCTOBER 1, 2010
HOUSTON CHRONICLE
chron.com/business

BUSINESS

DISASTER IN THE GULF

New BP chief sees no safety culture issue

■ But he'll push hard to prevent a repeat of spill like this year's

By TOM FOWLER
HOUSTON CHRONICLE

BP's new push for safety isn't an admission the oil major has a culture problem, incoming CEO Robert Dudley says, but rather is a move the company had to make in the wake of the deadly Deepwater Horizon accident.

"Looking at the gravity of what happened, we must do everything we can to ensure that it never happens again," Dudley said in an interview with the Houston Chronicle from London. "I wouldn't describe it as an admission of anything."

The company remains committed to cleaning up the Gulf of Mexico but doesn't believe it was grossly negligent in its actions leading up to the accident, Dudley said.

That's a key distinction when it comes to how much the Justice Department levies in fines for the spill.

BP attorneys have met with Justice Department officials, according to sources familiar with the case.

"But we're not in any discussions with them around settlement yet," Dudley said, without confirming or denying any

Please see **DUDLEY,** *Page D4*

BP print & TV campaigns advertised "Making it Right"

Perceptions:

Commentary here does not address the safety culture,

The headline "re building image" reflects priority.

The BP CEO and millionaire British yacht owner "wanting his life back" did not sit well with the working folk of Gulf of Mexico!

DUDLEY: Rebuilding image

CONTINUED FROM PAGE D1

meetings took place.

The criminal investigation is just one of the many challenges ahead for Dudley, who starts today in the post vacated by Tony Hayward after a series of spill-related gaffes.

Many challenges

There are thousands of claims from Gulf businesses and individuals being processed and the potential for huge liabilities from dozens of civil lawsuits. Investor confidence still lags far behind BP's pre-spill highs, as many continue to question its future position among the oil giants. And some U.S. lawmakers have threatened to block the London-based company from further work in the Gulf.

To pull BP out of the tailspin, Dudley, a 54-year-old chemical engineer and MBA from Mississippi, must demonstrate early that the company has learned from its mistakes and begin plotting a new course, observers say.

"He has to set a completely different tone," said Fadel Gheit, industry analyst with Oppenheimer & Co. in New York. "Business as usual is not going to do it."

Major step

A reorganization announced this week appears to be a step in that direction.

The head of exploration and production, Andy Inglis, is leaving the company. That division will be broken into three groups, and a beefed-up safety department will be created with workers embedded in every unit of the business. Employee incentives will be realigned to put greater emphasis on safety.

The reorganization should not affect BP's Houston operations, even though the three top executives of the newly reorganized exploration and production business and safety operations will be located in London.

While safety has become the top agenda item for BP, Dudley will have to rebuild its image with regulators and investors with actions.

"I think it starts with meeting our commitments on the Gulf Coast," Dudley said. "The second thing is learning from the incident itself. That includes both what happened offshore, the accident itself, looking at new ways to manage contractors and the safety of equipment. Then sharing that in great detail with the U.S. government, the regulators, and the rest of the industry."

Taking care of investors

BP also is taking steps to alleviate investor concerns.

More than $30 billion has been set aside to handle legal liabilities related to the spill, but Dudley has indicated that amount should be more than adequate.

The dividend was suspended temporarily, and $25 billion to $30 billion in asset sales are planned over the next year, Dudley said.

"We have a chance to look at BP differently as a business," Dudley said. "We can reset it and maybe have some different combination of growth and dividend."

Rebuilding credibility with the public will be much more difficult. Dudley admits the company hasn't been perfect in its spill response but said it should be given some credit for rapidly funding claims.

Role of social media

The intensity of public attention on the spill was helped in large part by social media — sites like Facebook, Twitter and individual blogs that let individuals quickly share information and opinions widely. Dudley said it was fascinating to watch the event unfold via those media but at the same time disconcerting.

"There was this very early response that did seem to be based on not very substantive or real information — which no one really had — this rush to judgment that was very uncomfortable," Dudley said.

"I got distinctly uncomfortable when I saw experts and drawings and graphics of oil that would project itself around Florida to Key West to Bermuda to England. The clear overreaction that would cause, without a whole lot of accountability, was an interesting thing to observe."

"It didn't change anything we did in our response. I do think it's important in society for the media and social media to have that freedom, but also to have some wisdom and judgment about the kind of things that are said."

Brett Clanton contributed to this story.

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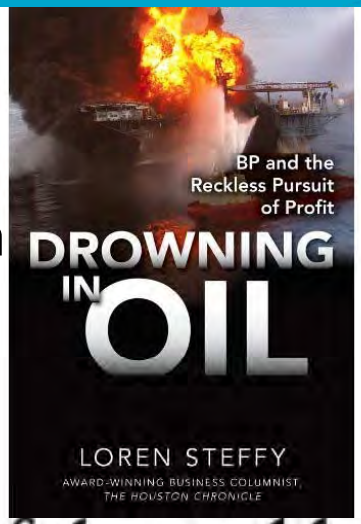
Houston Chronicle editor did not believe BP

The cost cutting culture is damning in the book, over years and years, and many locations in USA



★★★
WEDNESDAY
OCTOBER 6, 2010
HOUSTON CHRONICLE
chron.com/business

LOREN STEFFY

BP's chief is ignoring a key lesson

FEW chief executives have come into their jobs with the to-do list that Bob Dudley has.

Last week, the new head of London-based BP announced he was shaking up top management and creating a safety operation designed to infuse all layers of the company with a renewed focus on safety.

Before Dudley can start crossing items off his list, though, he faces a vexing question: Can those steeped in BP's problem culture fix it? Dudley, much like Tony Hayward before him, seems to recognize the company's problems, and he's willing to take steps that, within the culture of BP, seem radical.

Yet his plan hardly invites the sort of fundamental shift that BP needs. Dudley isn't reaching outside the company, at least so far, in his management shake-up. Trusted lieutenants are, once again, being promoted from the insular ranks of BP lifers.

For all the talk from BP executives in recent months about the "lessons" from the Deepwater Horizon accident, the most glaring lesson, the one that has stared BP in the face for five years,

Please see **STEFFY,** *Page D2*

STEFFY: BP's core values part of the problem

CONTINUED FROM PAGE D1

continues to be ignored.

On his way out the door, Tony Hayward made a stop by Parliament last month and reiterated that, try as they might, BP executives can't find any link between cost cutting and the pervasive operational problems and safety compromises, some of which have cost workers their lives.

Thanks to the disaster in the Gulf of Mexico, BP faces one of the biggest financial crises in its history. It has announced sweeping asset sales, its market value remains some $60 billion below what it was in April, and it suspended its once-generous dividend.

Shoring up the company's finances and restoring investor confidence, combined with Dudley's safety emphasis, will be expensive. Cost cutting may surpass anything BP has seen in the past, which raises new concerns about whether financial performance will continue to supersede safety.

Yet Dudley discusses BP's dismal operating record in terms of lessons that can be provided to the entire industry, as if all energy companies share BP's propensity for cutting corners.

Despite breaking up the exploration division and ousting its manager, Dudley said he wouldn't characterize his actions as "an admission of anything." Nor does he see a fundamental problem in BP's culture that undermines safety.

In other words, he's bringing the same company-man biases to the job that doomed his predecessor. Having risen through the ranks with the mantra of former CEO John Browne — more for less — ringing in his ears, Dudley seems unwilling to admit that BP's problems lie in its core values.

In 2007, the independent investigation of the Texas City refinery explosion, led by former Secretary of State James A. Baker III, noted that BP had 18 "group values" and four "brand values." Only one made a vague reference to safety.

Three years later, Dudley doesn't seem to be setting a radically different tone.

It is, of course, only his first week on the job. Perhaps he's trying to ease BP into the changes it needs to make, but that, too, underscores a problem. This company has demonstrated that its employees, contractors and partners can't afford gradual change.

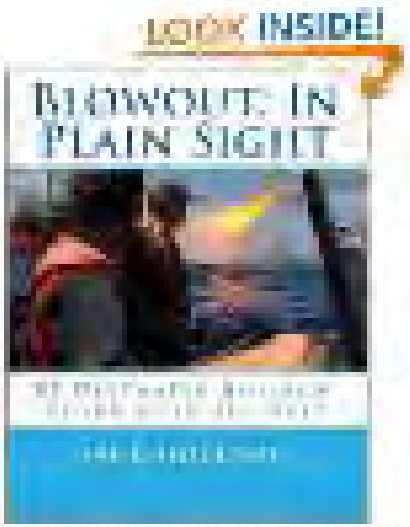
Dudley's new safety unit will be run by Mark Bly. Bly led BP's internal investigation, which seems to have used as a template the internal report that was issued after the Texas City disaster. Like its predecessor, Bly's report casts blame on lower-level employees and outsiders, ignoring the focus on financial performance that led to corners being cut in BP's well design.

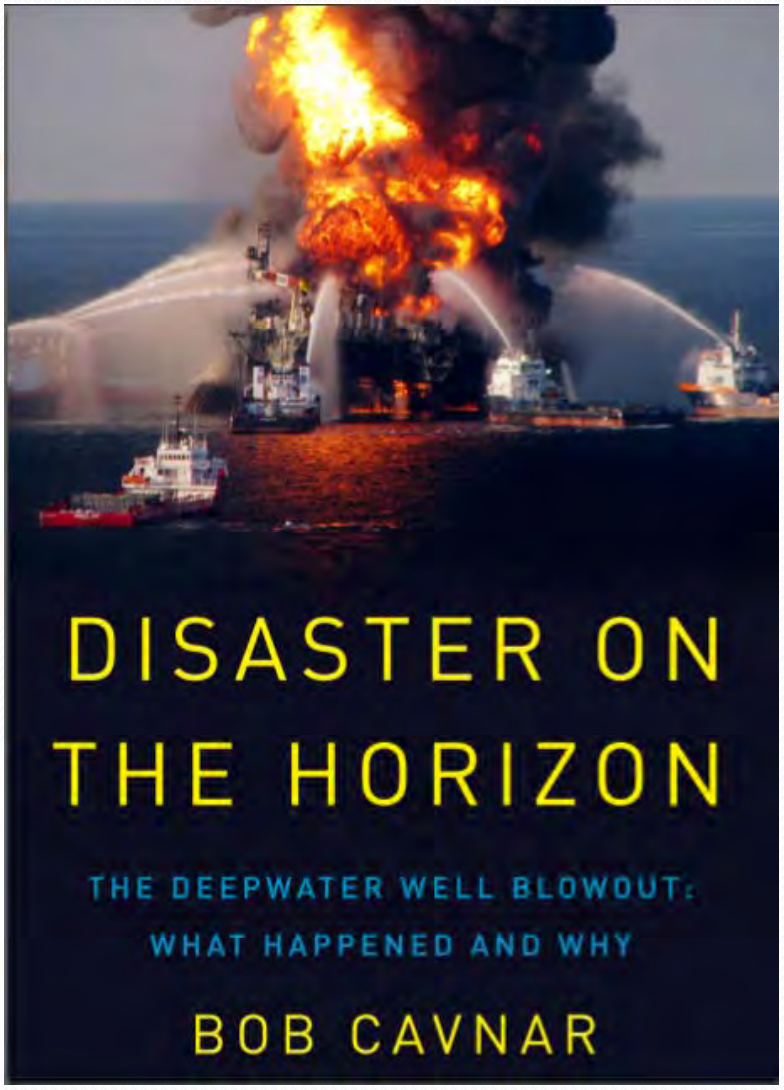
The question is whether the new safety department can operate within the BP culture without falling victim to it.

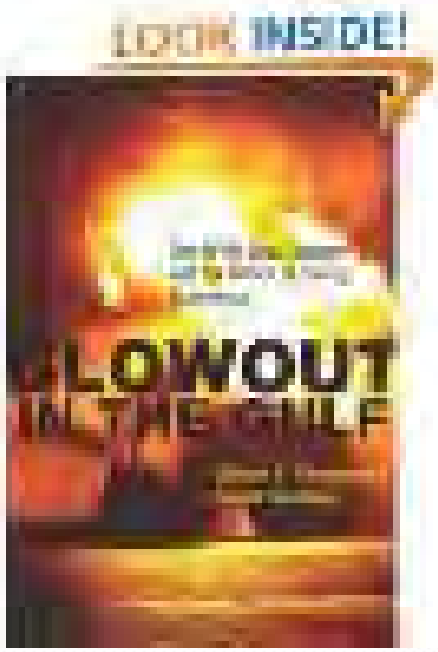
It's unfortunate that Dudley doesn't characterize his shake-up as an admission of anything. If it were, it might represent the first step in bringing the cultural change that BP so desperately needs.

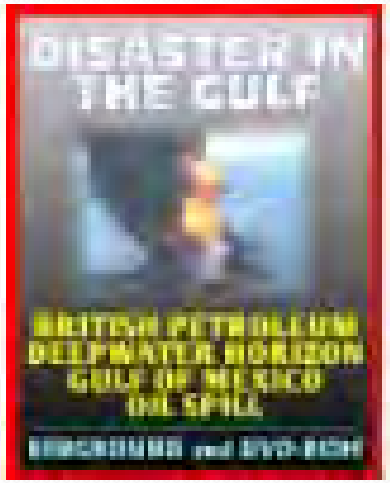
Loren Steffy is the Chronicle's business columnist. His commentary appears Sundays, Wednesdays and Fridays. Contact him at loren.steffy@chron.com. His blog is at http://blogs.chron.com/lorensteffy/.

Gazillions of electrons get written, at least 5 books already on the market









Images courtesy of
www.amazon.com

Many BP incidents in USA – more to it than just *Macondo*

ONSHORE		
1. Alaska North Slope	From the start	Pump station - gas turbine explodes Other incidents. Internal criticism stifled etc. US Congressmen intervene, Google to see more!
2. Alaska North Slope	August 2006	Pipeline shut down due to corrosion
3. Texas City Refinery	23 March 2005	Explosion, fire, killed 15, 170 injured, later 4 smaller accidents, last 21Sep10
OFFSHORE		
4. GoM: First Near Miss	July 2005	*Thunderhorse* production semisubersible lists, almost lost, project delayed 2 years
5. GoM: Second Near Miss	8 March 2009	Suezmax tanker laden with 1.0 mmbbl of crude steams over submerged jackup at 12 knots, another "*Valdez*" narrowly averted
6. GoM: Did it this time! *Deepwater Horizon* loss at *Macondo*	20 April 2010	Explosion, 11 killed 5 mmbbl oil spilled

BP incidents in the US Gulf Coast 2005-2010

Near misses: major property losses and oil spills narrowly avoided

Major incidents: $billions in property losses and loss of life

Effect on drilling was big on the short term

★★★
SATURDAY
OCTOBER 9, 2010
HOUSTON CHRONICLE
chron.com/business

BUSINESS

COMING SUNDAY

■ A number of Texans may want to lift their glasses to a boom in craft breweries.

DISASTER IN THE GULF

Price tag for drilling rules put at $183 million a year

■ Industry officials say tally may send some players packing

By JENNIFER A. DLOUHY
WASHINGTON BUREAU

WASHINGTON — A yearly $183 million estimated price tag for new offshore drilling regulations — along with uncertainty about new rules to come — could cause some energy companies to shift away from Gulf of Mexico exploration, oil and gas industry officials warned Friday.

"All of this is going to put the producers in a situation where they are going to have to take a hard look at operating in the Gulf," said Dan Naatz, a vice president with the Independent Petroleum Association of America.

He said the uncertain environment could make it harder for companies — particularly small ones — to make decisions about investments in offshore drilling projects.

At issue are the Obama administration's new rules for offshore drilling, which require multiple barriers to prevent the escape of hydrocarbons at offshore wells and additional testing of critical safety equipment.

In announcing the new mandates last week, Interior Secretary Ken Salazar cautioned that oil and gas companies should expect a "dynamic" regulatory environment, with more mandates likely to be proposed soon.

According to a government analysis of the rules, set to be published Monday in the Federal Register, the mandates will cost the industry an additional $183 million annually and could slow the pace of energy production.

It will cost about

Please see **DRILLING,** *Page D4*

Disruptions affected operators, contractors and individuals

$1.4million per well, where the total for a deepwater well is say $150-300 million, with completion, is not a lot!

Doubtful it will really affect economic viability of deepwater field developments;

Bigger question on the delays in getting operations back to normal after the drilling halt, with all inter-related services and plans.

DRILLING: Administration says rules worth cost

CONTINUED FROM PAGE D1

$1.4 million more to drill a deep-water well with a floating rig under the new requirements.

Drilling a deep-water well with a platform rig would go up about $170,000, and the cost of new shallow-water wells would jump about $90,000.

But the Obama administration says it's worth the extra spending to prevent another catastrophic oil spill, which the analysis found potentially could cost $16.3 billion.

And administration officials note that the new costs are a relatively small piece of the overall price of drilling deep-water wells with floating rigs, a process that typically runs $90 million to $100 million.

"While not an insignificant amount, we note this extra recurring cost is less than 2 percent of the cost of drilling a well in deep water and around 1 percent for most shallow-water wells," the government said.

Fewer jobs and wells?

The higher costs and drilling delays from the new rule could translate to lost jobs and less investment in marginal wells, according to the Interior Department's analysis.

"A meaningful increase in costs as a result of more stringent regulations and increased drilling costs may result in a reduction in the pace of deep-water drilling activity on marginal offshore fields and reduce investment in our domestic energy resources," the department said. "The additional regulatory requirements ... will increase drilling costs and add to the time it takes to drill deep-water wells."

They also could spur some small companies to shift their investments away from deep-water projects to more shallow-water wells, according to the Interior Department's analysis.

Although the Department said it has not found studies that demonstrate how much safer offshore drilling would be under the new mandates, the government added: "We believe it reasonable to anticipate that such measures will increase the reliability of the well control systems and therefore that the benefits ... justify the costs."

Unsure of benefits

The oil and gas industry is committed to safety, Naatz said, but "the agency itself acknowledges they're not sure what the actual benefits of this will be."

Randy Stilley, the CEO of Seahawk Drilling, said the new rules are part of a shifting regulatory environment that causes uncertainty for energy producers and undermines their ability to plan ahead.

Instead of boosting safety, he said, new regulations imposed since the BP oil spill earlier this year have only translated to more delays.

Effect on consumers

Although the industry will bear higher costs, that isn't likely to translate to bigger fuel bills for consumers, according to the Interior Department's calculation.

Sufficient energy supplies globally should offset the decrease in domestic production under the new mandates, the department said.

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"STOP NOW" Moratorium of 28 May for deepwater drilling damaged operators, drilling contractors, service companies

4 supermajor operators with 8 deepwater wells suddenly halted, regardless of what stage they were at or the safety of their procedures and well designs.

Full extent of the disruption shown here, not widely recognized.

Please excuse the small print: full data for little known story

Operator	Development	Importance of Development
Supermajors		
BP	*Tiber*	Potential exceeds 1 billion barrels of oil, but new well to appraise this September 2009 discovery nearly 7 miles (11 km) down had to be postponed. Water depth: 4,132 feet (1,259 meters). Location: Keathley Canyon Block 102, about(11 km) down had to be postponed. Water depth: 4,132 feet (1,259 meters). Location: Keathley Canyon Block 102, about 200 miles (322 km) southeast of Galveston, Texas.
Chevron	*Buckskin*	Potential oil deposit 300 feet (91 meters) thick nearly 6 miles (10 km) down, but appraisal well to confirm postponed. Water depth: 8,920 feet (2,719 meters). Location: Keathley Canyon 872, about 190 miles (305 km) southeast of Houston
	Moccasin	Promising seismic data, but exploratory well suspended. Water depth: 6,750 feet (2,057 meters). Location: Keathley Canyon 736, about 190 miles (305 km) southeast of Houston.
Shell	*Tobago*	Project capacity 100,000 barrels per day of oil and 20 million cubic feet of natural gas after production started in March, but new well to expand development postponed. Water depth: 9,627 feet (2,934 meters). Location: Alaminos Canyon 859, about 220 miles (354 km) south of Galveston.
	Vito	Potentially productive hydrocarbon deposit 600 feet thick 6 miles (10 km) down, but new drilling to carry out appraisal, development postponed. Water depth: 4,038 feet (1,231 meters). Location: Mississippi Canyon 984, about 170 miles (273 km) southeast from New Orleans
	Appomattox	Potentially productive oil deposit 530 feet (162 meters) thick 5 miles (8 km) down but appraisal well to confirm its Water depth: 7,127 feet (2,200 meters). Location: Mississippi Canyon 392, about 170 miles values postponed (223 Km) from New Orleans
Exxon	*Hadrian*	Promising seismic data in Lower Tertiary play, 5-mile (8-km) deep well abandoned in 2005, new exploratorywell with rig capable of reaching 7-mile (11-km) depth suspended. Water depth: 6,941 feet (2,116 meters). Location: Keathley Canyon 919, about 293 miles (472 km) southwest of New Orleans.
	Hoover / Diana	Development well postponed to sustain 10-year-old project's production levels of 80,000 barrels per day of oil and 200 million cubic feet of gas. Water depth: 4,800 feet (1,464 meters). Location: East Breaks 945, Alaminos Canyon 25, about 160 miles (257 km) south of Galveston, Texas.

Majority of GoM deepwater drilling NOT with supermajors

12 other operators had a total of 20 wells interrupted.

Please excuse the fine print: if you can read the stories, they show the extent of delay and costs to these operators, often at a key stage in their company development.

Operator	Development	Importance of Development
Independents & Other Integrated Oil Cos.		
Anadarko	*Lucius*	Potential oil and gas deposit 600 feet (183 meter) thick in first appraisal well, but second appraisal well postponed. Water depth: 6,840 feet (2,085 meters). Location: Keathley Canyon 875, about 195 miles (313 km) southeast of Houston
	Heidelberg	Potential of 200 feet (61 meter) thick oil deposit in this February 2009 discovery, but redrilling an appraisal well southwest of New Orleans.postponed. Water depth: 5,272 feet (1,607 meters). Location: Green Canyon 903, about 190 southwest of New Orleans.miles (305 km)
ATP	*Telemark Hub*	Potential oil and gas deposit 266 feet (81 meter) thick, platform capacity is 25,000 bpd of oil and 60 MMcfd of natural gas. Drilling delayed until early 2011 for production wells in Mirage and Morgus fields to be tied back to Telemark. Water depth 3,900 feet (1,189 meters). Location: Hub in Atwater Canyon 63, Mirage and Morgus in Mississippi Canyon 941 and 942, about 170 miles (275 km) southeast of New Orleans.
	Canyon Express Hub	Potential to raise gas production from 65 MMcfd to 500 MMcfd ultimately. Had planned to start additional well in second quarter. Water depth: 6,500 to 7,000 feet (1,980 to 2,130 meters). Location: Mississippi Canyon 217 and 305, about 120 miles (193 km) south of New Orleans.
	Gomez Hub	Potential to raise production from 4,600 barrels of oil equivalent per day to 20,000 barrels per day of oil and 100 million cubic feet of gas. Drilling later in 2010 and early 2011 on two production wells postponed. Water depth: 3,000 feet (914 meters). Location: Mississippi Canyon 711, about 120 miles (193 km) southeast of New Orleans.
BHP	*Shenzi*	Potential capacity of hub is 100,000 barrels per day of oil and 50 million cubic feet per day of gas, but development well suspended mid-drill and eight-well development plan interrupted. Water depth: 4,400 feet (1,341) meters. Location Green Canyon Blocks 609, 610, 652, 653, 654, about 230 miles (370 km) south of New Orleans.
Cobalt	*North Platte*	Estimated 550 million barrels of oil equivalent in the Lower Tertiary trend, but exploration well postponed due to moratorium. Water depth: 4,900 feet (1,494 meters). Location: Garden Banks 915, 916, 958, 959 and 960, about 250 miles (402 km) southwest of New Orleans.
	Ligurian	Second exploration well delayed. Total of three lanned in assessment of Heidelberg discovery and deeper trends. Water depth 5,500 feet (1,676 meters). Location: Green Canyon 814 and 858, about 250 miles (402 km) south of New Orleans.
ENI	*Alleghany*	Work planned or underway in existing field when accident happened. According to U.S. Minerals Management Service records, work stopped after moratorium imposed. Water depth: 3,226 feet (983 meters). Location: Green Canyon 254, about 130 miles (209 km) south of New Orleans.

Total of 28 wells halted, even when close to TD !

The rest of the list.

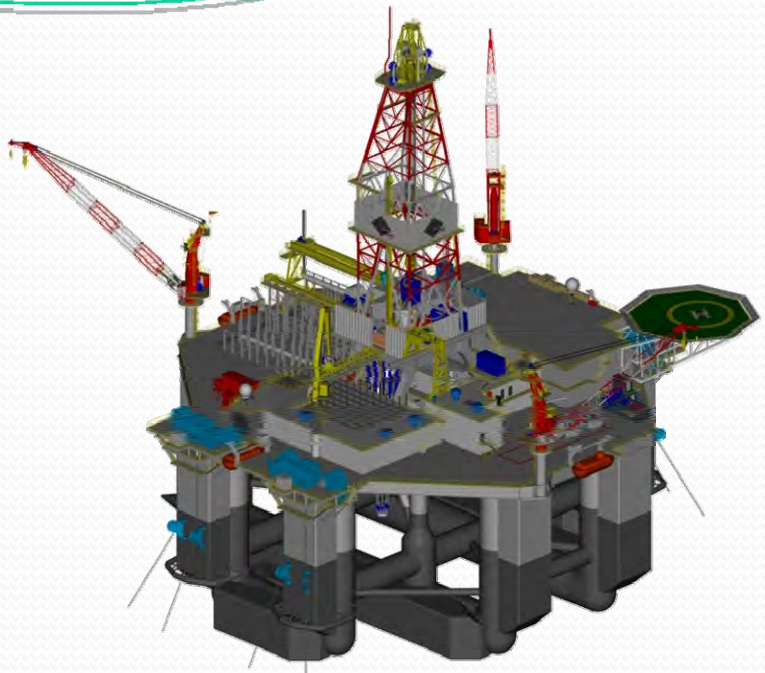
This is in addition to the stories of rigs leaving GoM and people out of work.

Operator	Development	Importance of Development
	Appaloosa	Suspended seven-well drilling plan on gas and condensate prospect. First production planned May 15 from first well. of oil and 1.29 MMcfd of gas over 15 years. Water depth: 2,750 to 2,900 feet (838 to 884 meters). Location: MississippiUnclear if started. Projected peak output 7,000 bpd of oil and 6.6 Mmcfd of gas, projected average 1,420 bpd Canyon 459, 460, about 125 miles (200 km) southeast of New Orleans.
Marathon	*Innsbruck*	Drilling postponed on exploratory well for the field, slowing planned five-well program. Water depth: 5.070 feet (1,820 meters). Location: Mississippi Canyon 993, about 160 miles (257 km) southeast of New Orleans.
Murphy	*Front Runner*	Work suspended on well to expand, sustain existing field brought on line in December 2004. Water depth: 3,350 feet (1,021 meters). Location: Green Canyon 338, about 150 miles (241 km) south of New Orleans.
Noble	*Galapagos*	Estimated 130 million barrels of oil equivalent (oil and gas), with an additional 130 million potentially available. Suspended third well, dubbed Santiago, expected to reach target depth by July. Water depth: 6,450 feet (1,966 meters). Location: Mississippi Canyon 519 and 562, about 200 miles (322 km) southeast of New Orleans.
	Deep Blue	Exploratory well drilled to depth of 6 miles (10 km) but sidetrack appraisal well delayed. Water depth: 5,100 feet (1,554 meters). Location: Green Canyon 723, about 200 miles (322 km) south of New Orleans.
	Gunflint	Potential 550 feet (168 meter) of net hydrocarbon pay in multiple high-quality reservoirs, more than twice the thickness originally expected. Two appraisal wells planned but delayed. Water depth: 6,000 feet (1,829 meters). Location: Mississippi Canyon 948, about 190 miles (310 km) southeast of New Orleans.
Petrobras	*Cascade / Chinook*	First phase that involves two to three wells in each field expected to be 80,000 barrels per day. One well in each field is ready to produce, but second production well to be drilled in 2010 in Cascade postponed. One more well in each field planned for 2011. Water depth: 8,500 feet (2,600 meters) Location Walker Ridge 205, 205, 425 and 469, about 250 miles (400 km) south of New Orleans.
Statoil	*Krakatoa*	Exploration well. Drilling suspended before reaching target depth. Water depth: 2,036 feet (621 meters). Location: Mississippi Canyon 540, about 100 miles (161 km) southeast of New Orleans.
	Tucker	Exploration well. Drilling into highly prospective Lower Tertiary suspended before reaching target depth. Water depth: 6,500 feet (1,981 meters). Location: Walker Ridge 543 and 544, about 240 miles (386 km) south of New Orleans.
Stone	*Amberjack*	Older field, diminishing production totaled 126,712 barrels of oil and 66.6 million cubic feet of gas in March. New well to sustain production suspended unfinished, plan to drill more wells delayed. Water depth: 1,000 feet (305 meters). Location: Mississippi Canyon 109, about 190 miles (306 km) southeast of New Orleans.
Walter	*Hummingbird*	Exploration well, temporarily abandoned. Water depth: 1,200 feet (366 meters). Location: Ewing Bank 834, about 130 miles (209 km) south of New Orleans.

Source: Reuters, 15 July 2010

Drilling affects fundamental economics of deepwater developments more than ever

Drilling and completion for one well may take six (6) to nine (9) months in the Lower Tertiary in GoM and an investment in the region of $250+ million per producing well;



Well costs dramatically high for the Lower Tertiary: some of it day rates, lot to do with well characteristics;

Facility choices more driven by drilling than 5-10 years ago: well CAPEX about 2/3 now of field development, instead of 1/3 before. Major choice is to drill from platform , OR from MODU(s) with subsea completions;

Developments may take several years to drill up, hence production ramp up may be slower;

Post spill, drilling costs now even higher.

Comments from outside US

Upstream

Macondo fall-out may hit Norway awards

BP's oil spill in the Gulf of Mexico will probably delay the awarding of licences off Norway, the head of the country's Petroleum Directorate said today.

News wires 20 August 2010 12:27 GMT

Shell's CFO talks of need for safety case in GoM

But the rest of the world had little impact on GoM!

FPSOs continue as most widely used type of FPS: A lot at stake in this market

The world fleet in service at July 2010 comprised:

Floating Production Storage Offloading (FPSOs)	151	Mostly tanker conversions, some newbuilds
Floating Storage Offloading (FSO) vessels	94	
Semisubmersibles	43	Generally field specific newbuilds
Tension Leg Platforms (TLPs)	22	
Spars	18	
Production Barges	7	Various
Floating Storage Re-liquefaction Units (FSRU)	5	Conversions
	340	

Source: International Maritime Associates, Houston

FPSOs in US Gulf of Mexico

2001 January Environmental Impact Statement (EIS) on FPSOs in GoM published;
December MMS issued the Record of Decision approving use of FPSOs and shuttle tankers in US waters;

2005 August Hurricane *Katrina*, onshore and offshore devastation, production interruptions. MODUs adrift;
October Hurricane *Rita*, production interruptions now worst ever, more facilities damage;
Industry recognizes the intolerable risk of MODUs adrift in a hurricane near a crude filled FPSO – in future must have disconnectable FPSOs;

2010 April *BW Pioneer* arrives: the first FPSO in US GoM;
BP's oil spill at *Macondo.*
Great timing!
October *BW Pioneer* on location, connected to mooring lines.

Unannounced, BP & Shell had chosen not to pursue FPSOs for GoM at *Kaskida*, *Tiber* and *Stones.*

The real impact on floating production longer term

a. Basic driver of risk v NPV10 criterion is still in place on operator's choice of which fields to develop;

b. Higher drilling costs then make overall development more difficult to be attractive enough to sanction;

c. But direct costs of say $1.4million per well are (overall) small;

d. A serious effect is the true exposure of the operator to the perhaps small risk but huge potential exposure of $20+Billion with deepwater drilling operations in US GoM: may have a chilling effect on future development plans (higher more difficult insurance etc);

e. Not very much impact on FPSOs!

Conclusions on what's ahead

a. The *Macondo* spill affects drillers but unlikely to have much effect on the FPSO business – slightly slower field developments, slightly more CAPEX for operator, but little effect on FPSO contractors and builders;

b. The underlying culture portrayed in Steffy's book: "BP and Reckless Pursuit of Profit" says BP still has to change big time, a la ExxonMobil;

c. Drilling will indeed become safer in deepwater, answers not there yet;

d. Spill response systems in GoM will improve vastly, private and governmental;

e. Outlook for more FPSOs in US GoM is now very bleak. A direct link to the *Macondo* spill is difficult to see.

Thank you

Questions?

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