UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF OCEAN ENERGY MANAGEMENT
REGULATION AND ENFORCEMENT

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Public Forum on Offshore Drilling

Drilling safety: Well construction
and safety equipment

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Proceedings held in the above-styled regulation and enforcement forum on offshore drilling on the 11th day of August, 2010, commencing at 9:00 a.m., at the New World Landing Conference Center, Pensacola, Florida, reported by David A. Deik, CP, CPE, Professional Reporter.

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P R O C E E D I N G S

MR. DREW: Good morning. Welcome to the Bureau of Ocean and Energy Management Regulation and Enforcement Forum on Offshore Drilling.

In a few minutes, BOEM Director Michael Bromwich will open the forum, but first we need to take care of a few administrative issues.

For emergency exits, please note that there is the main door behind you, the door you came in. Also through that side of the room towards the rear. Either one will work. For restrooms we have them at the rear room, mens' to the left, ladies' to the right.

At this time, we ask that you turn your cell phones, Blackberries or any other device to mute or vibrate so that it doesn't disturb the meeting.

We also ask that you refrain from applauding or cheering or booing any member that is giving a presentation, as a courtesy.

Finally, please take few minutes on your way out or actually right now to fill

before you go.

The comments can be addressed to us any one of three ways: By the comment card today, by letter to an address that's listed on the comment card or through the Web site, www.boemre.gov.

I should stress that any comment, no matter how received, receives exactly the same weight in our evaluation.

Thank you. In a few minutes we'll begin.

MR. BROMWICH: Good morning. My name is Michael Bromwich. I'm the Director of the Bureau of Ocean Energy Management Regulation and Enforcement.

We're here in Pensacola, Florida for our third public forum on offshore drilling. Our first forum was last week in New Orleans, where we focused on spill containment.

Yesterday in Mobile, Alabama we focused on spill response, with some attention given to spill containment.

Today's session will be focused on drilling safety, which is a central issue as

we move forward and try to make sure that when deepwater drilling resumes, it's done

with adequate precautions and safeguards.

What I'd like to do is just outline what we're going to be doing this morning and then get right to it.

I'll be giving a brief slide presentation just to set the background and the context. We'll then have a panel of experts on drilling safety. We'll then have a second panel on drilling safety. And then our third panel after a break will be composed of public officials from the Greater Pensacola and surrounding areas.

So why don't we go ahead and get started. As I outlined, these forums are taking place over an extended period of time. We started last week. There will be eight of them all-told. They will last through mid-September.

And the purpose is, as I was directed by Secretary Salazar, to collect relevant information on the three subjects that served as the underpinnings of his July 12th moratorium announcement.

And as I said, they are drilling workplace safety, wild well intervention and spill containment techniques, and development

of oil spill response capabilities for offshore drilling and production facilities.

What we're doing is gathering information that are going to feed into the Secretary's decision whether to modify or shorten the moratorium, which is currently scheduled to expire on November 30th of this year.

These are public events. We are gathering information from experts, from people from the academic world, from industry, as well as people from the environmental community, and public officials.

The public is invited to submit comments through our Web site, which appears at the bottom of this first slide.

Just by way of background, I think people have become very well aware over the last several months since the Deepwater Horizon blowout of the importance of deepwater drilling.

There are literally tens of thousands of workers who are employed in the Gulf of Mexico in the offshore oil and gas industry and support industries as well.

As we all know, I think at this point, domestic energy production is very important to the health of our national economy, to our energy independence, as well as to our national security.

And the centrality of the Gulf of Mexico to all of that cannot be lost. It accounts for 30 percent of domestic oil production and approximately 12 percent of domestic natural gas production.

We've become all too aware of the risks of deepwater drilling. The central event in the last four months was obviously the tragic deaths of the 11 people on the Deepwater Horizon rigs.

It's been said before but it can't be said too many times: Our sympathies go out to their families and loved ones.

Deepwater spills have a devastating impact not only potentially on people on the rig, obviously, but they have an impact

potentially on the fishing and shrimping industries, on tourism, on wildlife, on the ocean and coastal environments, as well as on local communities.

We've seen all too clearly the impact

of the Deepwater Horizon spill. We had, as I mentioned before, the tragic deaths of the 11 rig workers. But beyond that, the spill has had a dramatic affect on the coastal environments and the ocean in the Gulf of Mexico.

Literally hundreds of miles of shoreline and wetlands in the Gulf States have been affected, in some cases substantially so, by the Deepwater Horizon spill.

And we've heard in our panels and in the media that the entire Gulf ecosystem has been and will be affected for some period of time. That includes marine plankton, fish and shellfish, birds, marine mammals, and other wildlife.

The Deepwater Horizon spill has also had a major impact on various industries, including fishing, shrimping, tourism,

commercial, retail, and a wealth of other industries in the Gulf of Mexico region. That sets the broad context.

Let's talk a little bit more specifically about the subject matter of today's session, which is safety issues and

safety lessons.

The Deepwater Horizon incident has done a lot of things, but it's certainly highlighted the need to improve industry's offshore drilling safety practices and procedures.

As I'm sure you all know, there are a number of investigations currently ongoing, one being jointly conducted by my agency and the Coast Guard, as well as others, including the President's Commission, that have been looking and will be looking at the various issues that led to the Deepwater Horizon blowout.

The causes of the blowout have not yet been determined, but many issues have already emerged, including the following: First, well design and construction. The type of casing used by BP on the Deepwater Horizon

rig and the process of cementing that well have been questioned and have been criticized.

In addition, questions have been raised about the well control equipment that was used. In particular, the blowout preventer failed to function properly.

We have come to learn that there are heightened safety risks with respect to certain types of blowout preventers. And those safety risks vary significantly, depending on the type of blowout preventer that's used.

For example, surface blowout preventers on fixed, bottom-resting fixtures, which are used in shallow water drilling, carry the lowest risk profile because the well head and the blowout preventer are accessible to intervention with surface equipment.

By contrast, subsea blowout preventers are more difficult to repair while attached to the well, as we've learned all too clearly from the Deepwater Horizon incident.

Surface BOPs on floating facilities also present significant risks because

high-pressure risers and casings from the sea floor to the rig can be exposed to water, called dynamic stresses.

Now, we obviously want to hear industry and expert input on the best ways to address these and other safety risks that are related to blowout preventers.

Our agency has worked diligently since

the Deepwater Horizon blowout to enhance the existing safety regulations that exist.

Just a couple of items. On April 30th a safety alert went out from our agency that contained a number of preliminary recommendations to operators and drilling operators who work in the Gulf of Mexico.

Next, notice to lessees five, NTL-5 as it's known, implemented certain safety measures that were outlined in the Department of Interior's 30-day report to the President.

And those included, as you can see the list here, certification requirements for blowout preventers, requirements related to intervention capabilities of secondary control systems such as ROVs, deadman systems, and auto shear requirements, casing

and cement design and casing installation procedures, compliance certifications and improvements of offshore inspection and regulation programs.

In addition, as we previously announced, there will be an interim final rule that will be issued in the relatively near future that will establish additional safety measures that are in response in part

to the recommendations in the 30-day safety report to the President.

Because of the risks both to life, property and our environment, we have to improve drilling safety practices and equipment. I think that's acknowledged by everyone. That's the framing presentation that I wanted to provide.

Let me move to our first panel. But before I do that, let me introduce my colleagues from BOEM who will participate with me in listening to the presentations and asking questions.

To my immediate left is Lars Herbst. Lars is the Regional Director of the Gulf of Mexico Region. He is a petroleum engineer by

training. He has led the Gulf Region since 2007, and he has served in various capacities in our organization with distinction since 1983.

Sitting to Lars's left is Bill Hauser. Bill is the Chief of the Rules and Standards branch of our organization. He's served in various headquarters capacities for approximately 20 years. And earlier in his career he served as a petroleum engineer in

the Alaska Region. So both men have a tremendous wealth of experience in drilling-related matters and in drilling safety in particular.

We have three distinguished panelists to help us sort through some of the difficult and important issues on drilling safety. Let me introduce them briefly.

First in the first chair among our panel is Bob Bemis. Bob is the Vice President of Environmental, Health & Safety at Noble Energy. His background is that he has a bachelor's in geological engineering from the University of Minnesota School of Mines and holds an MBA from Oklahoma City

University.

Sitting to his left is Ford Brett. Mr. Brett is the President of Petro Skills. He's President and the Managing Director of Petro Skills and the CEO of Oil & Gas Consultants International, which is the world's largest petroleum training organization.

And last but not least is Darryl Bourgoyne. Darryl is Instructor of Director Well Facility at the Craft & Hawkins Department of Petroleum Engineering at

Louisiana State University.

So we're very lucky to have these three gentlemen to provide us with some insights on drilling safety. We look forward to their presentations and then to asking some questions after those presentations.

What I think we'll do, as we've done in previously panels, is we'll have all three presentations proceed and we'll hold our questions until all three of you are done. Thank you.

MR. BEMIS: On behalf of Noble Energy, I would like to thank Director Bromwich and the Bureau of Ocean Energy Management for

inviting us to present and participate in this forum today.

This morning I want to talk about and address deepwater drilling risk management and safety.

I want to provide a brief overview of the difficult types of deepwater drilling and discuss efforts to make these operations safe through risk mitigation and management.

And finally, I would recommend a consideration of additional operations that could be commenced, in an effort to put rigs

and services back to work in the Gulf of Mexico.

This slide is a slide that I just wanted to put up, with three different definitions of risk. Note on the slide the words "possibility, chance and exposure." These words by definition indicate that we can never drive a system to zero risk.

So the question becomes, how do we treat the risk? These are the four basic elements of how risk is managed and treated. The avoidance is, let's not do it at all. In one aspect the moratorium is in effect an

avoidance of drilling deepwater wells until we can feel they're safe.

Optimization is the process that companies go through in various ways to risk manage and get the risk down to a tolerable level.

Transfer is insurance and other methods to transfer the risk or share the risk by joint venture.

And retention is the acceptable level of risk that a company is willing to move forward to commence operations.

Risk has to be managed. Failure to

manage risk often means that risk will manage us. There's unintended consequences.

As we have entered into the moratorium, we have in one sense stopped a lot of drilling, to take this time-out. But in another sense there's unintended consequences that come along with that and loss of jobs, loss of domestic production, royalties for federal, state and local governments, and loss of allocation of resources from operations.

So the goal should be to determine an

appropriate level of risk acceptable and then design mitigation and management systems to move forward with our operations.

These are currently a list of deepwater operations that are exempt from the moratorium. In reviewing these, there is a very common theme in these exemptions.

Reservoir data and formation pressures are known. We have factual data with which to design and mitigate our risk around our operations.

All operations in deepwater are not the same. And I want to share a little bit of an example here with deepwater exploration

wells.

An exploration well is designed and characterized by seismic and other geological models. Reservoir pressure and hydrocarbon compositions are estimated from analogous reservoirs.

The range of uncertainty is only as good as the model calibration. A deepwater appraisal or development well includes sidetracks development and production wells. These well designs are characterized by

actual data acquired during the exploration phase of drilling.

Factual data. Reservoir pressures and hydrocarbon compositions are known from sampling, logging and physical characteristics that we can measure. Realtime drilling data is used to calibrate the seismic models, thus reducing the uncertainty.

There are some estimates by drilling experts that would suggest that you can reduce the risk of a developed well, as compared to an exploration well, by up to 70 percent by just having that knowledge.

So that being said, what have we

learned? Do we have enough information to commence additional deepwater operations?

We're hearing information learned from the testimony and investigation of the Deepwater Horizon events to date that is still ongoing, but what we are hearing is that this is not one individual failure of a piece of equipment. This is a number of decisions and consequences that happened that lined up to create this very devastating

event.

The added safety measures required under NTL-2010 and 05 and 06, which requires additional information to the MMS on exploration plans, development plans and such, have added another level of safety into the system.

The rigs are now going through this process. We have certified blowout preventers. We have ensured that the equipment is functional. We have tested backup systems.

A culture needs to be emphasized in deepwater that's 24-hour-a-day, seven-days-a-week, 365-days-a-year culture. This culture needs to be not a support to the

organization but actually part of the business decisions that the organization has.

There's been rigorous BOEM rig inspections. I believe all the deepwater rigs have been inspected, gone through. Gaps that have been identified are either being closed or have been closed.

The NTL calls for third-party reviews of well designs, which we believe is an

excellent way to get another set of eyes on the well design and compare that back to the safety equipment and the drilling equipment that's being used on the wells.

And then many companies -- Noble is one -- are doing internal reviews of company deepwater operations. We don't just operate in the Gulf of Mexico. We operate throughout the world. We have deepwater operations in Africa. We are moving deepwater operations into the Mediterranean. And we treat our operations across the world in the same manner.

Many of the practices in this NTL, as far as the certification of BOPs when they're pulled, we do as a routine nature.

Higher-risk operations should be

evaluated on a well-by-well basis, pending the findings of the Presidential Commission.

Exploration wells to previously undrilled reservoirs are a higher risk. High-pressure, high-temperature wells in those environments are a higher risk. Well interventions or wells that would be deepened to undrilled reservoirs pose a higher risk.

I wanted to share a minute and go back to this risk optimization. Many companies go through a process. Some call it safety case. There are a number of different vernaculars and descriptions for this.

But at Noble we have drilling and workover risk reviews. There's one going on for us in Spain right now. This is a process where all the drilling crews, the service companies, supervisors get together. And we either drill a well on paper over a three-day period of time or we complete the well on paper.

We identify risks. We assign those risks. We drive those risks down to the lowest tolerable possibility. We talk about roles and responsibilities. We emphasize stop-work.

When everyone leaves this meeting, there is no doubt who is in charge and what is to be done. This defines our management of change. This defines our risk mitigation techniques.

The contractor lays out his safety program. We lay out our safety program. And

together we bridge what needs to be done in each situation.

Other risk mitigation tactics. Noble has and has had in place a number of years -- and many other companies in the deepwater, especially that work on the international operations have developed environmental, health and safety management plans.

Ours is a 14-element plan with a continuance improvement idea that guides our company worldwide on how we're going to handle environmental health and safety issues.

This highlights safety process, management of change, work processes that have to be done and how it works. This is gone through on the drill well on paper.

And again, we think that the third-party engineering review, in addition

to them understanding what our expectations are also remove an element of risk.

Time is of the essence. Rigs and service companies have been idle for over three months. This does not add to safety. This takes away from safety.

It's like an athlete who needs a warmup before he goes. We have rigs stacked. Noble is working with some of our contractors to maintain the crews so that we can -- when we go back to work we have that expertise.

Gulf of Mexico operators are currently planning 2011 and 2012 capital expenditures. The moratorium and changing regulatory environment raise uncertainty in Gulf of Mexico investments right now.

We don't need people on the rigs worried about what's happening at home: Relatives being laid off, who's going to pay the bills. I personally experienced that within the last week visiting one of our rigs.

Current decisions to redeploy capital, personnel and equipment are under consideration. Independents have announced they're leaving the Gulf. Rigs have

announced their leaving the Gulf. This is a loss of expertise and technology that we cannot afford and does not add to safe operations.

Gulf of Mexico production will continue

to decline as a result of the moratorium. Deepwater projects are three- to five-year projects. The results of what we do today, the consequences may not be seen in production reduction, the loss of income and equipment for three to five years.

So where does this bring us? Recommendations. We feel following the newly established practices outlined by the Bureau, in conjunction with the inspections, working closely with the permitting people, that certain operations could commence before the end of the Presidential Commission.

We definitely need to uphold the standard regulations and industry best practices, but we need to commence additional deepwater operations. And what would that include?

Well, if we go back to what was exempted from the moratorium, there were wells with known reservoir pressures and

parameters. We could potentially consider opening up appraisal development production wells with these known reservoir characteristics.

We do believe the evaluation of higher-risk operations and exploration drilling should be looked at on a well-by-well basis until we get the findings of the Presidential Commission.

Yesterday Congress reconvened in Washington to vote on a $26 billion package to save 160,000 jobs. If we do not act prudently and swiftly, this moratorium could cause a loss of over 200,000 jobs over the next few years.

The Bureau has put forth new rules. They will put forth other rules. The industry will work with them to raise the standards of safety.

Equipment and crews have been inspected. It's time to consider the partial lifting of the moratorium. We can do it safely. We can put rigs back to work. And we will continue to work for safe operations in the Gulf of Mexico. Thank you.

MR. BROMWICH: Thank you.

Mr. Brett.

MR. BRETT: Good morning. I'd like to thank Director Bromwich for the opportunity

to speak today.

And I'd like to have a little bit of different take on this. First of all, I want to talk a little bit about my background, my biases and perspective, because it's a bit different than people who work for drilling contractors, drilling operators. And it provides a perspective that may be helpful.

I'd like to spend a little bit of time talking about history in terms of what have similar things like this taught us in the past, and what has the industry performance been in the past.

And basically what the point of this is that there have been situations like this before, and people have responded productively before. And the industry and government needs to do that, similar things. And I believe we're on track to do those kinds of things.

I'd like to summarize a little bit about what's kind of going on in response now. And there's been a number of things

that have happened in the past three months, and then finally my perspective on what we

should do to move forward.

There's a number of slides in this presentation that are available also in the appendices that detail many of these things I'm talking about. Okay.

From my perspective, I'm a professional engineer with 30 years' drilling experience. I consult in the area of drilling project and process management.

I'm Managing Director of an organization called Petro Skills, which is the world's largest petroleum training organization for petroleum technology.

For example, this year we've trained 15,000 people in 50 different countries, how to find oil, get it out of the ground.

Petro Skills is an industry consortium. It has 26 companies, members of this. And one of the purposes of this consortium is to create competency standards for technical professionals so that when we say someone actually knows how to do a particular job, well, how do we know they know how to do that?

25 I also am currently serving on the

1 Society of Petroleum Engineers Board of
2 Directors and am responsible for the
3 Society's drilling and completion activities.
4 But a point I want to make, in fairness
5 to my employer and site drilling engineers,
6 I'm speaking as an individual.
7 I'm a little bit more informed about
8 drilling and what goes on than most people in
9 the world, and I have less direct bias than
10 most people, since I'm not a contractor,
11 service provider, or so forth.
12 But I still have some personal biases
13 that I'd like to describe that describe my
14 history and what I think I bring to this.
15 The first thing is that BP and
16 Halliburton, people involved in this, are
17 members of our Petro Skills and our
18 customers, not our largest customers by any
19 stretch of the imaginations.
20 Another bias I have is I've been
21 involved in many drilling performance and
22 incident audits in the past, lots of them.
23 And there is set -- There is never -- And I
24 hate to use the word "never" but never is
25 there one root cause.

There's normally a combination of people, processes and equipment failures. And when you talk about equipment failures, they're almost at a deeper level, some related to people and process in the sense of maintenance, or so forth. And so it kind of boils down to people and process.

And, of course, we do need to withhold judgment until investigation is complete, but we want to kind of move productively forward in parallel.

But I find it difficult to believe there won't be a number of contributing causes. And I'll show you some examples of the things that do this.

And another thing about a kind of a personal bias. I was involved in implementing safety management systems in response to the Piper Alpha disaster. And my personal bias on this is an accident is when a meteorite hits your car. Anything else is human error.

And so, in other words, there are rarely, rarely unavoidable acts of God. People doing the right things in the right

way can prevent things from -- prevent bad things from happening.

And this is just one simple example of the influence diagram from the Piper Alpha disaster that shows a number of contributing factors, and so forth. It does not go back to one thing. It goes back to many things.

If you talk about it from a process improvement perspective and statistics, you know, in process improvement language, most deviations have special causes rather than common causes. There's not one special thing you fix. When everybody's done, there's a number of things that contribute.

And almost always -- Again, "always." I hate to say always. When things happen like this, there are situations where, gee, if we had -- if we just had not been so confident. You know, often a cavalier, this-can't-happen-to-me attitude is in play, where people think, hey, everything's great.

If there's one thing that has happened out of this tragedy -- and it is a tragedy -- that has gone away. And so people do believe this can happen.

Another thing about personal biases. I've served on the MMS National Academy of Engineering Review Committee for the MMS that was under way at the time of this.

We were kind of mid-study during the Macondo tragedy. And one of the things that was coming out of this is that we were getting ready to propose formal safety management systems, which is one of the things that the 30-day study has shown.

And I'm also a peer reviewer on this 30-day study and still believe that a blanket moratorium is ill-advised, for similar reasons to what Bob mentioned earlier.

A couple things more about history. There have been failures in processing systems throughout industry. One of the things I want to mention, though, is some things have gone right.

Since MMS was started in 1970, lost-time incidents have gone down by 97 percent. And so, in other words, when I joined the petroleum business, there were all kinds of people with missing fingers. Oh, well, that's just what happens.

That doesn't happen anymore. People are very interested in safety and are serious about it. And it's proven to be the fact that something has gone right in the past 20 or 30 years and that. But incidents have gone down 97 percent.

Safety records in the Gulf of Mexico are as safe as the North Sea. If you compare -- There's different ways to measure this. It's not clear that, hey, other people in the world do this a lot better than we do it in the Gulf of Mexico, in terms of from a safety perspective.

From a historical perspective, you know, things have gotten a lot better. We have a lot of experience doing things that are much, much more difficult than they were 30 years ago.

And all of this improvement has happened in the face of tremendous improvements in technology and doing things that even ten years ago we didn't think were possible.

And so some things have been going wrong, but there certainly -- everything

hasn't gone right because something went wrong.

And so we do know that something went wrong. And, you know, final judgment does need to be suspended until findings... until we understand the specific recommendations.

But as information is being discovered, it is increasingly clear that best practices were not followed, that well design was not robust as it could have been. It wasn't as fault-tolerant as it could have been. There were various errors in judgment. You know, warning signs were overlooked on the rig.

All these things are preventable and can be and should be prevented in the future. And so, in response -- And an interesting thing about this is if you look at this long list of things that's happened in the last three months, is, you know, a number of government reports and investigations are under way.

The USGS MMS, Marine Board of Inquiry going through all the details, the Presidential Commission. A number of things are going on in industry in the same way.

Industry associations are looking at, well, what can we do to look at equipment?

Groups of people right now are working on that, working on control response, operating procedures, containment, a number of things going on in industry and societies and activities.

And Chevon, Conoco, Exxon and Shell have worked on this containment response system, to make sure that -- The focus here today is prevention, but when something happens, to be able to contain it.

And so the interesting thing that I'm going to predict -- make a little prediction here about what I think will come out as a result of these studies -- is that we've kind of rediscovered the physics of safety.

Examples of studies like this in the past in the Three Mile Island incident in 1979, and the Piper Alpha disaster in 1988, where there was about $8 billion in 2010 dollars lost and 167 lives lost in the North Sea. People studied these things and kind of come up with similar things.

Jimmy Carter established the Kemeny

Commission to investigate the incident. And

what they did is, they recommended that the U.S. nuclear industry set up and police its own standard of excellence.

One of the things that we need to do in this is have specifically defined standards of excellence that people who are active in the industry create and understand and hold themselves accountable.

After the Piper Alpha disaster, the Cullen Commission investigated this, and came up with similar ideas about this idea of a safety case, where each company was -- had to demonstrate that it effectively had a safety management system in place for a particular offshore installation. This example that Bob mentioned here earlier is an example of Noble's doing that in their drilling activities.

Basically what this boils down to be is that safety is hard work, but it can actually be done when you understand the risks, what are they, what can we do to make sure that we prevent them, and have the robust system in place to ensure that they're all identified

for the way forward -- And this is a little bit of a joke. One joke I have is, I don't know what to call... BOEMre? BOEM...

MR. BROMWICH: There will be no more jokes about that.

(Laughter.)

MR. BROMWICH: BOEM.

MR. BRETT: BOEM. I didn't know if I should put the "re" on there or not.

Anyway, there's a couple of dos. I have some don'ts for the Bureau of Ocean Energy Management.

One is, of course, until the detailed findings indicate otherwise, implement the findings of this 30-day report, and that has been ongoing and is ongoing, the detailed recommendations the 30-day report, particularly instituting safety management and environmental management systems in these third-party examiner things.

And those are under way, and to my knowledge are progressing like they should. And I commend them for that.

There's a number of things that I think we should do in addition to this. One thing -- And this is a role that only

government can fill or is very difficult for anyone else to fill.

And that is, we need to collect and report statistics that the industry can use on how to improve. And this is routinely collect and report statistics in a meaningful way so we can understand BOP failure rates.

When kicks happen, what are the results of kicks? What is the process used to address them? Because this is one thing that's difficult for one organization to do. When one bad thing happens to me, it's so rare that I don't have a clear understanding of the statistics of the entire story.

Work very closely with these industry study groups to establish well-publicized BAST and safe technology for prevention. I have a couple of things listed down there, which include standards for project teams, robust decision-making processes and stopping.

Of course, continued work with industry

groups to ensure adequate containment. There are a number of industry initiatives under way that people are working very hard to make sure that we learn and improve from this.

And the Bureau of Ocean Energy Management should and will work closely with those, I'm sure.

Another thing that's important about this that I think is a personal perspective of mine is we need to understand -- and we haven't really done this before -- the environmental and economic impact of large spills in the Gulf.

We haven't had a large spill since Santa Barbara, a long, long time ago. And the question is, okay, what is the actual, the economic impact of this?

And there are several things. You know, there obviously is detrimental impact from the actual oil in the water, related to the plankton, and the shores, and the marine life, and fishing, and so forth.

There's also a loss to tourism, and there's a loss to tourism due to people being afraid to go on vacation in Pensacola,

Florida, when, in fact, hey, it's nice down here.

And so the losses that we're experiencing are related to actual facts and related to hype, I guess, if that's the right

word. What is the actual fact problem and what's the actual hype problem?

Another thing that we need to talk about, which I think is a question of this, and this is people who harm the environment need to be held accountable.

And related to this environmental impact of large spills, current fine is, as I understand it, $1,000 to $4,000 a barrel if it's negligence. Is it commensurate with the harm? It should be. And those seem to be, like, relatively large amounts of money, and in my opinion commensurate, but a study like this would help show that.

Finally, in terms of don't, there's some don'ts, I think. You know, one thing that people try to do -- And this is a thing that kind of is running through the society lately, I think, is everyone's trying to be smart.

Well, the first thing about being smart is don't be stupid. And so, the thing about that is don't create unnecessary variability that leads to risk.

There are -- You can show that steady state drilling activities are much safer than

starting-stopping, new rigs
starting-stopping, new rigs. We need to get back to normal operations as quickly as possible.

Another thing about this -- and this relates to the safety culture idea -- is that don't believe that a perfect set of rules will actually result in safety.

What results in safety is people following robust processes and not blindly checking boxes. Safety appearances versus safety facts. Oh, things are checked out. That must mean it's safe. Someone checked me and that's safe.

No. You need to be responsible for being safety -- for safe operations. And thinking I've been checked seems to make me feel safer, when in fact it does not.

And then the other -- My last point

will be, continue to work very closely with industry input because this is a relatively complicated problem. We need to get a lot of minds on this. And there are a number of industry activities under way that are moving forward.

So thank you very much.

MR. BROMWICH: Thank you.

Mr. Bourgoyne.

MR. BOURGOYNE: Thank you, Director Bromwich.

I guess I'd just like to start off speaking very briefly about the marine well containment system.

There's an initiative that was announced recently by Chevron, Conoco, Phillips, Exxon-Mobile and Shell. It was discussed at the August 4th forum in New Orleans. And as I understand it, it's a pre-engineered, pre-staged and demonstrated capability to quickly implement the methods that have eventually been successfully used on the Macondo well.

And one of the things I'd like to point out is that if this system is completely

effective, as envisioned, it cannot protect personnel or equipment during the initial blowout event, for example, the 11 lives lost in the Macondo blowout.

It is, however, a needed level of redundancy to reassure the public that an additional layer of environmental protection is in place and effective.

And I believe that every industry professional should -- and I definitely will -- endeavor to ensure that it's never needed again or never needed.

So to speak about drilling safety, I'm a well-control instructor at LSU. That's one of the classes that I teach. And so from my perspective, a lot of drilling safety is blowout prevention.

Speaking more generally, there are two broad categories of safety concerns, from a well-drilling perspective. One very broad category is operational safety. And that focuses on protecting the personnel from the equipment and operations, so it's more like personal safety, preventing accidents.

And then another broad category would

be well control. And that's basically blowout prevention, to eliminate or reduce the risk of the hazards presented by a blowout.

The general requirements are common to both categories. There are some general requirements. One is training. And training doesn't just -- isn't just checking off boxes. It's also a demonstration of

competence.

Another is planning. And it's not only on paper. It's actually ensuring that the right equipment is in place, the right procedures are available, and that everything is fit for a purpose.

And then the third and quite often the most difficult to measure, to ensure it's in place, is vigilance. Crews must monitor operations. They have to be able to identify and react to unexpected or unforeseen problems.

So drilling safety is not a new thing. I'm going to focus on, again, blowout. It's not a new thing. Historically the emphasis has been placed on prevention of blowouts.

By far it's the most effective means to protect personnel from the fire and explosion hazards posed by blowouts.

It's also the most effective means of prevention to protect the environment from oil spills. The strategy utilized has been to use redundant well-bore pressure-containment systems and well-control monitoring systems, so redundancy in these systems to contain and prevent a spill.

Spill containment methods other than booms and skimming were not extensively investigated before the Macondo blowout, nor developed or tested. And the design philosophy in my opinion is much like that of aircraft design. Resources and efforts are focused on crash prevention, not necessarily crashworthiness. Now, with this marine well-containment system, that's going to change.

So to move on from a drilling safety perspective, how could the Macondo tragedy have been prevented. The root causes or cause behind the blowout have yet to be determined, but there are inferences we can

make or things that we do know.

Multiple barriers to contain the oil and gas were not effective or they were not employed. We don't know which one. Were they not effective? They failed? Or were they not used? That has yet to be determined.

But there's several layers that were in place and are in place in all drilling operations. One would have been the primary barrier to flow, which was the cement casing

and casing sealing system. It clearly was not effective.

A secondary system that's in place or was in place is the annular blowout preventers, in combination with top-drive check valves and valvings, along with the pipe ram blowout preventers. So that was a secondary level of redundancy that either was not employed or was not effective.

And then a tertiary or final ultimate barrier or competency were the blind shear blowout preventers, and then even an emergency disconnect procedure could have been used.

So, you know, one of the first things you can look at is, well, if the primary barrier was effective, the other barriers become moot. And the whole purpose of this negative test that's under discussion was to prove that the primary barrier was effective.

So a question and investigation is going to be, was the primary -- was the primary barrier verified with the negative test.

And then secondarily to that is why did these secondary and tertiary barriers and

contingencies prove ineffective?

So there's essentially two questions, in my view, that the investigation is going to have to answer.

So back to our drilling safety. And I'm kind of focused on vigilance as being very important for drilling safety for my presentation.

Expert testimony to the Deepwater Horizon Joint Investigation Team on July 23rd indicates that none of the tests performed or verified integrity of the primary barriers were conclusive.

So at that point, when the test was being done, if the primary barrier would have been found to be ineffective, different actions would have been taken.

And the same expert testimony suggests that the well-monitoring equipment showed symptoms of an impending blowout as much as one hour before the shut-in was attempted.

So this kind of brought to my mind this disconnect that all industries have, not only the oil and gas industry have, but even the military, aviation. There's always been a disconnect between training and practice.

Training, I assume -- And I'm essentially positive that rig crews were well trained. Their training would have told them if they saw the symptoms of a blowout, they need to take action of shutting the well.

If they identified those symptoms and began attempting shutting the well an hour earlier, would they have been successful? So that would have been an opportunity to prevent the blowout. If it would have been successful, it may have just gone down in the morning report, and nothing more would have

been -- And Macondo would have been forgotten at that point.

Why wasn't it identified at this point? Perhaps we were a victim of our success. Training techniques, as previously stated, have improved. And as a result, the number of incidents has decreased.

And it's just plain human nature, a low occurrence risk, no matter how severe, is the most difficult to stay vigilant for. So as a large group or group of individuals, how do you stay vigilant for a low occurrence type of event?

So it brought me back to -- I'm a

teacher -- to thinking about, well, what if I had stated these symptoms, this datalog that indicates there were symptoms of an impending blowout to perhaps this rig crew in a training class? Would they have called for a shut-in at that point?

In class vigilance is very high. So I suspect, yes, a shut-in would have been called for because the focus in well-control training class is well control, and symptoms of a blowout can't be ignored.

And why would these symptoms or would some potential explanation for how the symptoms weren't identified.

Quite often the symptoms of a blowout have benign causes. Perhaps these professionals involved had seen many times the anomalies that I'm describing actually had benign causes and were not indications of an impending blowout.

I'm behind on my clicking, huh? So how can vigilance be maximized? Now that I've caught up. Unfortunately, I believe the loss of life and impact on livelihoods and the environmental impact of the Macondo incident will most likely prove to be the most

effective means of increasing vigilance or maximizing vigilance. That's just going to be a fact of life. Everybody in the oil field is going to be paying attention and at a much higher level now.

What could be done in addition to this? I'm suggesting that rigorous and complete datalogging of all deepwater rig operations in realtime could be of a real benefit.

For one thing, when I'm doing work or

working on something, if somebody's watching over my shoulder, I tend to perform more correctly. I tend to pay more attention.

These records could be available for review by regulators and even audited by third parties. These records... And they have to be more than just datalog.

It would have to be what the rig operations were or what the plans were, what the configuration of the rig was through time. And so these records could provide a basis for further investigation. Anomalies could be identified, and then further investigation to identify deficiencies could be pursued.

Something else that I thought of is a

crew-based training approach and an approach to competency testing. This disconnect between the classroom and the work environment is something that's very difficult to address.

And since rig systems and wells tend to be unique... Where am I? Yeah. And since rig systems and wells tends to be unique, the training needs to be as specific to those as

possible or at least the final training. And if it occurred on the rig, that would be very beneficial.

I think the military tends to recognize this. They tend to train their groups, their units as groups, and with the specific equipment and practicing the task that they will be implementing when they're deployed.

Finally, as with all things, dedicated resources are another way to improve. And here I'm speaking of vigilance or of drilling safety and specifically from a blowout prevention standpoint.

Some portion of the rig operational time could be dedicated to training and crew testing. The military, again, is a good example. Aircraft carriers don't just go

out. Everybody's not disbursed into training classes, and then they are assembled and deployed. There's actually a phase in which, before an aircraft carrier goes on duty. There's some training, some practice that's done.

Another step that could be taken is to actually suspend operations before drilling

into oil-bearing intervals. This would bring these doomsday scenarios freshly to mind, into the minds of the professionals working on that project.

And I would suggest even running through some scenarios would be very beneficial, particularly if senior rig management just observed that their hands were tied and junior people on the rig had to make decisions, which might actually occur in an emergency situation.

Also, during rig moves, the rig could conduct joint exercises with the marine well-containment system personnel and equipment.

There are possibilities, in the case of a blowout, that the rig is still on station, that the crew is still available. The marine

well-containment system would have to be aware of what equipment's on the rig anyway, what operations are there. So, some pre-drill, some pre-event drills, pre-work drills would be very beneficial to that.

And then, of course, require involvement of management-level supervisors,

bring to mind exactly what we're trying to prevent and make that a point on essentially well-by-well or perhaps field-by-field basis. Again, dedicating personnel to monitoring and evaluating well-control status.

I guess my vision here is, you don't want anybody multitasking this well control -- this well monitoring, if it's somebody's primary responsibility to advise, say, those operating the rig on what the well control status is. Another pair of eyes is very beneficial. It could -- It would also be a way of monitoring -- of keeping this datalog up to date.

This monitoring, this big brother, if you would, could raise flags if there's concerns with the operations. It would also... This person could be used to annotate the datalog so that if the rig was

lost, the response team would have an immediate resource to be able to... to know how to respond.

And then finally, in conclusion, no matter what the causes of the Macondo blowout are determined to be, it will be in all

likelihood found that there were many opportunities to prevent the incident.

I hesitate to call them causes. Quite often you can point to, well, the blind shear rams didn't work as planned, so therefore that's the fundamental cause.

But if the primary seal or the primary barrier deficiency was detected earlier, the blowout would have never occurred. So that would have been an opportunity to prevent it. Also detecting the kick symptoms earlier would have been an opportunity.

So how do we get people to... Or how do we ensure that professionals act on those opportunities?

Also, enhancements to drilling safety training practices should not be limited to classroom settings. I think that's kind of one of the... at least in the university environment, one of the problems we have is,

in the classroom we can address subject matter by subject matter; whereas, a rig is an integrated operation. Not only are there safety concerns and blowout prevention considerations, but there's logistical and

how we get the well drilled. There's a lot of real-world considerations intermingled in the operation.

And then finally I'd just like to make the point one more time that more complete datalog records need to be available for review and audit.

I, too, have been involved in incident investigations where contractors are trying to improve their practices. And quite often the sketchy nature of the records requires to actually interview people. Morning reports aren't quite sufficient to be able to identify problems. And such a datalog resource would be very valuable.

And that concludes my remarks.

MR. BROMWICH: Thank you very much.

What I'd like to do now is to address some questions to our panelists. I don't want to get too far off schedule, so I think we'll have to limit this to ten minutes or

so.

And the way I'd like to proceed is to first collect our questions for Mr. Bemis and then move on to Mr. Brett and then Mr.

Bourgoyne. So let me start.

Mr. Bemis, in your presentation you focused in one or more of your slides on the internal reviews that companies do of their deepwater operations.

How has your company's internal reviews changed in the wake of Deepwater Horizon? What additional steps and measures have you put in place in response to that event?

MR. BEMIS: Noble is an international operator. And as a result of some of the recommended safety changes through the NTLs, we now have incorporated those into our operations worldwide.

We try to establish best management practices and operate globally at the same consistency. So we have incorporated everything that we do here in the certification of the blowout preventers on our international operations as well.

MR. BROMWICH: Other than in response to the NTLs, what other steps have you taken

internally, as a result of your review of the Deepwater Horizon incident?

MR. BEMIS: We have additionally not

only reviewed some of our safety systems and communication systems, but we have taken a very hard look at our response systems as well.

And, in fact, as soon as this event happened, we immediately went to our emergency response situations. We drill on an annual basis. But we wanted to make sure that we were capturing not just the fact that we're drilling, that we're executing this.

Nothing's really changed on our drilling on paper or completion on paper. This is just a risk process that we go through and we consistently do that worldwide.

MR. BROMWICH: Second question I have for you is, you described the separate safety programs that companies that are jointly on the same rig have, and the bridge that they have, to make sure that there is consistency between that.

When Secretary Salazar and I visited one of the rigs in the Gulf recently, one of

the rigs we visited talked about a full integration of the safety systems and touted

the advantages of that over the separate safety systems using a bridge.

Are you familiar with that full integration model? And in your view does it have advantages over the separate safety systems and then bridging technique?

MR. BEMIS: Yes, it does. We work, again, internationally so safety case is very familiar to us.

The drilling contractors generally have their safety system. The operators have theirs. It's important to not just bridge those systems but to understand those systems. And that would be the integration that you're talking about. And again, we do that through the process of our well reviews.

Bridging documents are good for guidelines, but you have to be executable. You have to completely understand the system. So we believe that integration would be a benefit.

MR. BROMWICH: Okay. Lars.

MR. HERBST: Yes. Just a couple questions.

Mr. Bemis, thanks for the presentation

and the way you portrayed the risk analysis.

Some of the questions I have: The Bureau has put forward several steps already in notice to lessees, as far as safety improvements. Others may come in the way of following up on the 30-day report and in regulations.

Can you give some thoughts on some of those that may still be out there, as far as increasing the reliability of well preventer systems by adding a second blind shear or the increase of ROV actuation of many of the rams within the stack?

MR. BEMIS: As it pertains to the additional... the addition of another set of blind shear rams, I think it's important that we understand we do not have the root cause analysis yet of what happened with the stack that's on the bottom. Hopefully that will be pulled and we'll get some additional information.

We have looked into the addition of shear rams, and we have looked into the process of how that needs to work. We've been told by some manufacturers that that is

a rather complex system and could take up to 18 months to make these modifications.

We are currently working with some providers of ROV equipment, to look at the ROV pumps and how can we increase the size of those pumps to activate the equipment more rapidly down the hole.

One of the problems currently right now is that that process is a slow process. It is a backup system, if you will. So those are some efforts that are being done right now, not only by us but by the industry. So...

But as it pertains to the extra set of shear rams, I would yield to caution that we need to really understand what the failure process was.

MR. HERBST: Another question is, following up on the secondary control systems, there's been much out there about acoustic control systems for controlling the stacks.

Do you believe that's added value? The Bureau has always allowed acoustic systems. Not many operators use them. Would you

expand on that?

MR. BEMIS: This isn't an area of my expertise. We have studied acoustic systems, and we are re-looking at that right now.

I think that I would like to investigate some more additional information and data that we have. We do not necessarily use those on an international basis. There is some reliability problems.

The MMS has done some reports on that that have highlighted that. I think the development of new technology and equipment along that line will result, as what's happened here in the Gulf.

MR. HERBST: Okay. Finally, one last question. You identified what you believe are some wells that could be drilled with the same risk profile of what is currently exempted from the moratorial suspension of deepwater drilling operations.

Are there any other operations related to exploratory wells that you believe could go forward that would have a similar low risk profile to those you identified?

MR. BEMIS: Well -- And I think that I

referred to the exploration wells on a case-by-case basis. I think we have to be careful to note that there are different pressures, different temperatures, different operating environments in the deepwater.

Higher-pressure wells inherently have a greater sense of risk than a lower-pressure well. So I think exploration wells need to be evaluated on a case-by-case basis to better ascertain that risk to move forward.

So I think that pending the findings of the Presidential Commission, which I'm sure will help direct new regulations, I think that that would still have to be done on a case-by-case basis.

MR. HERBST: Thank you.

MR. BROMWICH: And just to clarify, you mentioned a couple of times pending the findings of the Presidential Commission.

One of you had a slide up there that showed that there are a large number of investigative bodies. And as you know, the current moratorium is scheduled to expire on November 30th.

My understanding is that the

President's Commission is not going to move forward until sometime in January.

This enterprise is about trying to move forward and gather the information necessary so that decisions can be made certainly by November 30th and likely before then that will allow certain deepwater drilling to proceed.

So I just want to make it clear that decisions of the Secretary are not dependent on findings of the President's Commission and will not be tied to that timetable.

We will welcome any information the President's Commission is in a position to provide between now and November 30th, but we're not going to wait for those findings. I just want to make that clear.

MR. BEMIS: Okay. Thank you.

MR. HAUSER: And just a couple follow-up questions. You had mentioned maybe a 70 percent reduction in risk from development-type wells or appraisal wells versus the exploration of high-risk wells.

Do you have any of that data to show that risk or reduction in kicks?

MR. BEMIS: I don't know that I have the tangible data, other than the fact that in discussing this with our drilling operations and other drilling departments, you get between a 50 and a 70 percent, and I've heard even greater numbers. So I'm not aware of any specific study that's done that.

I will, however, say that it's analogous to taking a trip that it's your first destination. You sit down and you lay a map out. And you say, I'm going to go from point "A" to point "B," and I'm going to take this journey.

And along the way you're going to find traffic barriers, and you're going to find a lot of issues versus plugging in your coordinates to a GPS and actually having additional data of where your barriers are, and moving ahead that way.

So the information to calibrate the models is tremendous. There's technologies out there right now that we use that we actually can look ahead of where we're drilling once we get tied into the seismic.

We have seismic tools that go down a

hole that can actually predict where and what formations we're going to be drilling into that help us respond. So the calibration of those models is, I think, key to risk reduction.

MR. HAUSER: One last item. You talk about drilling the well on paper and how you do all of that. How do you take that exercise and then integrate it to the rig operations with all the rig personnel?

MR. BEMIS: Well, first the rig personnel are involved in that.

MR. HAUSER: Okay.

MR. BEMIS: This could be involved with hundreds of people during different sections of the process. This is a multi-process, and it allows us to not only identify the risks but work through management mitigation schemes and then assign the higher risk to an accountable party that needs to follow that along. And I think that's the key thing.

You can go through these processes. You can have all these plans in place. But if it becomes a check-the-box and not an active part of your culture, you will not be

as successful.

So the assignment, the accountability, the idea that if stop-work needs to happen, anyone on that rig can stop work. That's a difficult thing for some people to do, but we clearly lay that expectation out, who's in charge. We encourage that. So...

MR. HAUSER: Thank you.

MR. BROMWICH: I have one question for Mr. Brett. Mr. Brett, in your presentation you gave as an example of the way other tragedies and accidents have been handled in the nuclear industry.

And specifically you focused on Three Mile Island and the commission that was set up to examine that and the recommendations that flowed from that.

And as I understood it, what has happened there in the nuclear industry is the creation and policing of standards of excellence that are enforced and regulated by members of the industry themselves; is that right.

MR. BRETT: Yeah. There is a role for government oversight. And so this does not

say, let the industry just go do what the

industry wants to do. There are government oversights making sure that they uphold those standards.

But what are we supposed to do, and what's the right way to do a particular job or to... In our case, you know, what's the proper casing design? People that know how to do that work in these companies. Ask them.

MR. BROMWICH: No; I'm interested. And it's been suggested by a number of people over the last six weeks that this is a model that ought to be explored.

There are differences between the nuclear industry and structure from the petroleum industry, oil and gas exploration industry, in particular. And the nuclear industry is primarily local monopolies, whereas this is an intensely competitive industry.

Do you think the model, the nuclear regulatory model, with sort of self and reciprocal inspections, with a government overlay, but focused on self and reciprocal

inspections would work in this industry?

MR. BRETT: What we do... The

interesting differences about the petroleum business -- You're talking about the local monopoly or not.

The interesting thing about the oil companies is they are competitors but they are also partners. And so... And by the way, as this lesson has taught us, it's in nobody's interest if anyone has something like this, you know. So nobody wants something like this to happen, no matter who does it.

My personal experience is with developing common competency standards among 26 oil companies. And it turns out that you can get technical professionals in a room and have them come up with common competency standards among competitors, when they look at it from a perspective of what's the right thing to do and just kind of what is the physics of doing this telling us to do.

And so in my opinion, this local monopoly versus competitive situation can be overcome. And so an analogous situation

would be possible.

MR. BROMWICH: Thank you.

MR. HERBST: Just a couple quick

questions. Appreciate the presentation.

You touched on a couple items about different regulatory bases, one being more performance based. And I don't know if you hit on it too much, but one being more prescriptive based; in other words, adding another blind shear ram or testing frequencies or whatever.

And this is something that's argued in the media quite a bit, as to whether the position of the Bureau should be one of more prescriptive or one more performance based.

If you could add some thoughts on that. Is it one or the other or what is the appropriate mix in your mind.

MR. BRETT: Well, I think there's a... Well, if it's not performance based, then what tends to happen over time is people get the perception that it's been checked so it's okay. And so if it's checked it's okay. Then I'll just continue and go ahead. It's somebody else's responsibility.

Safety... One of the big lessons that has been learned over the past 30 years is safety is not an add-on activity. It's something that you do as part of the job.

And if it's not a performance-based criteria, then it becomes a separate thing, check the box. And people tend to lose sight of it.

There is a role in quality assurance processes for checking and for assuring, but the purpose of that is to hit a performance standard. And so, what leads should be the performance standard.

And the checking that occurs... You know, a trivial example: How many life rings are on the rig or something like that can happen and should happen. But, oh, I have a number of life rings properly on the rig, and so it's therefore safe. Well, that's not going to be the case. So the performance standard needs to be what people are held accountable for, in my opinion.

MR. HERBST: And just a quick follow-up on that, as it relates to government oversight. There's been much discussion that

there should be more presence from the Bureau inspectors on each rig. And again, your thoughts on that. Does that lead to that same check box undoubtedly that the government's looked at it and therefore

people would relax?

MR. BRETT: Yeah. What should happen is the solution should be -- is not more people would make it happen better. More people are not doing the right things in the right way. It won't happen.

Start with the performance standards and work backwards. And the number of people that you need to do that properly is the number of people you need to do that properly instead of saying, you know, two people per rig, five people per rig, half a person per rig. That will make us safe. That's not the right way to go.

Start with what needs to occur and work backwards. And if there's a person per rig or four people per rig, that's the answer. If it's a half a person per rig or a tenth of a person per rig, that's the answer.

MR. HERBST: Thank you.

MR. HAUSER: One last question. We have regulations that are performance based and prescriptive also for training requirements.

One of the areas as a regulator that I've struggled with is how we determine

competency out there. Any advice on how we can regulate that?

MR. BRETT: Yes. There's a number of different -- People can do this. And I'll just give you one example. There's a number of organizations that do this, so this is not a commercial, but we do this kind of stuff as well.

There are ways to have site-specific description of competencies required to perform the job safely. And you can have a way of having those assured by third parties. And then you have a way of determining whether the people have the competencies to do that.

And I'll give you an example of one. Exxon Chemicals night shift operator. If you do not demonstrate the ability to shut down the control -- shut down the plant every six

months, you can't get in the control room. And that type of thing is possible.

So what must people know to do their work, and can we assure ourselves that that person or, as Darryl just mentioned, organization or group of people can do that job properly, and you can track and assure

those competencies. And so, in other words, that technology and knowhow to do that exists.

MR. HAUSER: Thank you.

MR. BROMWICH: I don't have any questions for Mr. Bourgoyne.

Lars, do you have any?

MR. HERBST: One quick one, Mr. Bourgoyne. You've been involved with well-control training for a number of years. And I think there's been a lot of focus on drilling, what I'd call drilling well control.

Some could argue that this was not necessarily a drilling accident; it was an abandonment accident because of the operations that were going on at the time.

And you talked about vigilance in your

presentation. Is there something that should be added to deepwater well-control training so that there's more vigilance and understanding of what the well may be telling you during those operations, identifying kicks in flow of fluid under those operations and not to be relaxed, be more vigilant?

MR. BOURGOYNE: You know, I guess I've

covered vigilance quite a bit in my training experience. You know, the principles involved in deepwater are the same as in shallow water. Kick detection is very similar. Some of the details are different, but the fundamental principles are the same.

And, you know, the hard part isn't necessarily having the knowledge to identify the problem. It's, oh, there is that problem again. Let me run it to ground and make sure that it's really not an indication of an impending blowout. It's really just the derrick men transferring mud from one pit to another.

I think the trend has been less and less -- and we've kind of done this in our own classes, to focus on these classic

drilling kick occurrences. Those have actually decreased substantially. Seems like everybody's very vigilant when they're drilling new intervals.

Quite often in some of the past informal investigations I've been involved in they've involved running casing. And the comments you hear coming back in the interview quite often is, well, we've already

drilled it. We know the mud was enough. And it's just -- It's really a battle with human nature, in my opinion, in trying to eliminate this disconnect, well, we can relax -- at what point can we relax?

And, you know, maybe there's a role for big brother to be in there to -- would be part of my supposition. At least if there's some datalogging going on, it seems like whenever you have to write on a report, you make sure it's done correctly. And you're very -- Seems like vigilant reporting leads to vigilance in some cases.

MR. HERBST: All right. Thank you.

MR. HAUSER: One question. You mentioned a dedicated person to monitor

well-control status, one of your recommendations.

MR. BOURGOYNE: That's correct.

MR. HAUSER: Any thoughts on whether that should be a company person, independent third party?

MR. BOURGOYNE: I was thinking that it would probably fit best with this marine well-containment company that's been proposed as an independent, dispassionate third party.

You know, there's been some talk about whistleblowers and whistleblower rules. That would actually be, I think, the most effective path. It would be somebody who's involved in the operation.

You know, in my vision is minute-by-minute communication with the driller. There might be an earpiece that the driller's using to say, okay, I'm opening the blowout preventers so that this person would know. I mean, that's a line of communication with a dispassionate third party, that if there are problems on the rig, it opens up a line. And that third party could even raise a red flag outside of this company chain of

command, you know, in first political, sensitive manner. And if more aggressiveness is required, you know, of course, professional ethics kick in at that point.

MR. HAUSER: This third party, then, could be remote, then?

MR. BOURGOYNE: I would recommend that it is remote. You know, part of the human experience is we're effected by the group we're in. So that would limit some of that. And it also provides this professional --

this person who has knowledge of the operations, if the rig is lost.

So, you know, in my vision say another Macondo occurred. This remote person has the most up-to-date information on the operations ongoing. That's the first person the response team is going to rely on in formulating a response.

MR. HAUSER: Thank you.

MR. BROMWICH: I want to thank all three of you for your presentations. They were thoughtful. They were informative. And think they really significantly advance the state of our knowledge on some of these

issues. We're obviously wrestling with them every day. But to have the kind of outside and experienced perspective that you bring is extremely useful.

So thank you very much. We really appreciate it.

We'll go ahead and move directly to our second panel, then.

Okay. Let's begin our second panel. We're joined by four very experienced and knowledgeable people, who can help us further expand our knowledge on some of these joint

safety issues.

Let me give brief introductions to them, and then we'll move directly to their presentations.

Sitting closest to me on the panel is Chris Nelson. Chris is drilling manager with Newfield Exploration. He is a 1982 graduate of the Colorado School of Mines, with a bachelor of science in petroleum engineering. He has 28 years of experience working for exploration and production companies, focusing on the drilling function.

Sitting next to his left is Mr. Conley

Perry, who has a bachelor of science degree in mechanical engineering from the University of Texas. He spent 26 years of his distinguished career with NASA in a variety of capacities. And then following that, from 2000 to 2003, he was the contract program manager for safety and fire services at the NASA Johnson Space Center.

Since 2003 Mr. Perry has had his own engineering consulting company, which specializes in technical and safety related training, mechanical systems design and testing, and simulation systems design

testing and operations.

Sitting to his immediate left is Mike Van Gemert. Mike is with West Engineering Services, where he is involved in manager systems and controls.

He currently leads the systems and controls business unit at West, which is a firm that's heavily involved in a variety of safety-related tasks, including the NTL recertifications that have been required by some of this agency's recent regulations.

Finally Ross Frazer, to Mike's left,

was ATP Oil & Gas Corporation. He is the Vice President of Engineering and has been with the company since August of 2000.

He has approximately 32 years of experience with independent companies in the drilling and oil and gas industries.

So, gentlemen, welcome. We look forward to your presentations. And Mr. Nelson, why don't you begin.

MR. NELSON: Okay. Thank you for the chance to speak today.

I come from the side of the industry that deals with drilling wells on a daily basis. We interact with the field through

our staff.

I started on the rigs, so I've had experience out there dealing with drilling wells and being the company representative out there responsible for day-to-day operations, and then progressed to the office side, where, you know, we are doing the well designs and basically implementing the well procedures.

Just as an overview here, I'd like to say, you know, because I have been doing this

for quite some time, the process that the industry uses has been established and working for decades, basically, in the well construction side.

I mean, in the Gulf of Mexico alone, tens of thousands of wells have been drilled, using the current process out there, without a significant incident.

Obviously, after you have an incident like the Horizon, you have to take lessons learned from that and kind of review. And we have done that as an industry, from the public information and the government as well, and see what we can take going forward.

But I'd have to say that a lot of what

we're seeing, you know, we're not rewriting the way we drill wells today. I mean, we're taking the process that has been proven and trying to strengthen it so that, you know, we can avoid an incident like this.

And the primary tool that we have in doing this is well design and well construction done properly because in reality, the emergency functions of a BOP are the last thing that the industry wants to

have to rely on. But when we do, of course, we need it to work properly.

So with that, I'll kind of go through the overview or the process that we use. And, of course, training has been talked a lot about here and making sure that your people have adequate training, you know, to implement this stuff is paramount to, you know, making sure you don't have issues.

Let's see which direction do I need to point here. Oops. Got too far.

Basically, you know, we start with the well design. It involves many individuals within your company, the geologists, the geophysicists, the reservoir engineers. They all are putting forth information that the

drilling engineers use to come up with a well design and the primary well-control consideration that we use to ensure that the well-construction equipment that we select can contain the well pressures that are expected in that process.

From that detailed design, we do a step-by-step drilling procedure. And basically that is a guideline for the people

on the rig site to construct the well according to the well design.

In that same process within our well design, we have to select equipment that will also fit that criteria, meet the pressure requirements.

And that includes things like well-head equipment, casing, casing accessories, cement, drilling fluid. And then this equipment has to be inspected. I mean, just selecting the equipment, it's a manufacturing process so we have to be sure that that meets the criteria we need so that no manufacturing flaws could compromise the well integrity.

And this is kind of the summation, basically, of that process. We put together all these different pipe strings and cement,

each one of them up so that we can produce this well.

Rig equipment selection is a huge part of that. Every company on the operator's side goes through the same process. Basically, you want to make sure that the drilling rig package is capable of drilling the well that you need drilled, both from the

derrick capacity, down to the blowout preventers, to be sure that it can meet those well-pressure requirements.

We review drilling-rig personnel experience, to be sure that we don't have a rig full of all young people out there. We want to make sure there's the right mix of experience on the rig itself.

We review the work safety records. That's an online process. All the contractors have to submit their data so we can go out there.

We interview the company. We go through their safety records. We want to be sure that the contractors we choose do have the right attitude about safety.

And then again, we go to their compliance records as well. Has this rig in

the past had problems with, you know, regulatory compliance.

So we use this as a tool to help us as an industry have the right people, with the right experience, with the right equipment drilling our wells.

And this is an example. I mean, this

is a huge piece of equipment. It's very complicated. There are over a hundred people that are running this rig. So you can imagine with all these systems and all these people, everybody has to be familiar with their areas of responsibility for us, for them to be able to maintain the rig and us to be able to drill a well efficiently.

Now, another thing that's talked about and I hear a lot in the press and from yourselves as well, you know, is about information. And even in an exploration sense, when we're drilling wells, we have a lot of tools that have been developed over the, you know, last 10, 15 years especially that give us a lot of information while we are actually drilling the well.

So we have tools that while we are drilling the well this is sent up to the

surface so that people on the rig and people in the office have this information as we're drilling it.

We know what type of formation we're drilling in. We know what type of formation fluid is in that particular reservoir,

whether it's oil, water or gas. And we know -- We also have the ability to take pressures with these tools down a hole while we're drilling, and now today, even fluid samples.

So while we're drilling the well, we have a lot of tools that can help us confirm the well design as we drill it. And if things deviate from that, these are the types of tools that lead us to understand whether we need to make modifications to the original well design.

We also have pressure-well drilling tools in the hole, and that relays, too, as hydrostatic information so that we know... you know, it can give us clues as to whether the well is losing fluid out of the well or are we taking a kick. So we do not in any sense drill these wells blindly.

We not only have the offset information

that we have in a development sense when we are drilling but in an exploration sense. We can collect a lot of information as we drill these wells.

Obviously, one of the main focus points

after the incident is the blowout preventer. And we use the blowout preventer within the drilling process 99 percent of the time, is mainly to circulate out kicks and things of that function, which is fairly routine within the industry.

I mean, everybody goes through training. Everybody is at heightened alert. We have many monitoring systems on the rig site. Everybody is trained to respond to the indicators that come up while you're drilling the well that let you know you could be taking a kick, and we function test that piece of equipment every two weeks, basically, to make sure that that function works.

Now, there are also emergency functions on the BOP, such as the emergency disconnect, the deadman and the auto shear. In reality, those are never or very, very rarely ever used because it's mainly for an emergency

use.

But the critical factor here is, when we do need it, it needs to work. And that's a focus that has come up as a result of some

of the public information, anyway, that's being reviewed on the incident.

Now, this is a monstrosity. This thing can be between 50 and 60 feet and weigh between 600 and 700,000 pounds. And it is very complex.

It has, you know, an electrical aspect to it, a hydraulic aspect to it. And typically these BOPs are custom built to a particular rig. And because of the height and because of the weight, they're fit very specifically to each rig. And so modification to these can be complicated.

This tool, this blowout preventer tool, has been used for years and years within our industry. And I believe it is an adequate tool if it is properly maintained and tested, and the people on the rig are fully trained to know how to use it.

And that is, you know, one thing that we really need to emphasize going forward. Because this thing is so complex, we need to

be careful going forward on our recommendations of how we might modify this piece of equipment because I'm afraid we

already have something that's fairly complex. It already has susceptibility for failure potential.

And if we go and add on top of this, we're going to add the potential for confusing rig crews and making the system so complex that it can become very unfriendly, in a user sense, on the rig. So I think we need to be careful of how we do that.

One thing that I might add to that to give you an example of one of the concerns of where -- Let's just add another blind shear ram that's been discussed.

And I tried to come up with a basic analogy. And in my mind I would say, you know, every car has a brake system. And we have to maintain our brakes for them to work. If we don't maintain our system and we apply the brakes and we have a crash, the answer wasn't -- or the problem wasn't that it was a faulty piece of equipment or we need -- It's unreliable so we need another set of brakes.

I mean, we wouldn't go and put another

set of brakes and another brake pedal in our car just because, you know, we don't maintain

the first set properly. So I believe that the system we have, if maintained and tested properly, is a robust piece of equipment in the oil field.

And I'm going to reiterate here -- And I mentioned it earlier. I mean, we have used this process and this equipment to drill just within the OCS over 50,000 wells. And, you know, 4,000 of those have been in 1,000 feet of water or greater.

And without us definitively knowing what caused the blowout and the lack of the containment by the BOP, but reviewing the information, both within the industry and the DOI, you know, we believe through further verification requirements, we can further reduce the chances of another blowout.

And what I mean by that, I mean, we're going to take a time-out at this point. We have -- People are going through this BOP equipment very thoroughly right now. We have independent third parties going through all of this equipment right now.

And it's going to be, you know, a

chance to reset the bar and make sure our

equipment will function as designed before we resume drilling.

We've spoken quite a bit about NTL N05 that's been issued. It's currently being implemented by the industry right now. We feel like essentially the processes that we have out there in the industry right now that we're using to design and execute wells is a good system, had we don't have a baseline across the industry.

So every company is made up of different individuals with different experiences and different backgrounds. And for the industry to kind of come up with a common baseline, we have come up with this verification process on top of the process that we currently use today.

And so with that, we're addressing equipment and well designers, essentially. But independent verification is basically the main theme there.

And by implementing the requirements of NTL-N05, I believe that, you know, we will further enhance this capability to go forward without -- and have further reduced our

chances of having a blowout.

Some of the items on here, just to quickly go through because you've seen these before, but, you know, the BOP certification requirements.

Basically a third party. Again. You're going to see this as a common theme going through these items, is we're going to have a third party go through and verify that the BOP stack will operate as designed and any modifications there will not impact that operability. Every single well going forward will have a verification of BOP compatibility.

The secondary control systems that you guys have talked about... You know, we will... All of these actually are in place. And I must say a lot of the stuff that is covered in these NTLs is already covered in the CFR.

And so, again, between the industry's processes and procedures and inspections, the CFRs that cover a lot of this, we are now giving, you know, third-party confirmation of this. So we already have a lot of times ROV

intervention capabilities to close one set of blind shear rams and one set of pipe rams.

And then on a dynamically positioned rig we have automated emergency shutdown systems. And one of those requirements is that that system is fully self-contained in the BOP itself so that if some event occurs at the surface it will still function.

Verification that we get the blind shears to shear all the pipe work strings that we have in our well bore. Basically, that's including physical tests, along with some calculations and again verified by a third party.

And then finally the well design and construction for all wells is going to be certified by a Registered Professional Engineer.

And so I think with all of this extra layer, essentially, of verification on top of the standard process that we go through right now, it can give people a sense of confidence that we are meeting a minimal level going forward.

Training has been talked about

significantly, and also in relationship to the different phases within our operations.

As Lars mentioned, we have the drilling phase. We have an abandonment phase. We have a completion phase. Well, the focus has been very strong within our industry on the drilling side.

And so we need to also raise their awareness in the design phase. And we have had ample mechanical barriers in our system, and that they've been positively and negatively tested before we pull our BOP stack off.

And then also to provide adequate detail about how to conduct a negative pressure test within these procedures, and to have a complete guide and training for them to understand possible results that might come from these tests.

Let's see if I can get that to go.

And then to the well site personnel. Again, this is the vigilance that was talked about by Darryl, is that we need to make sure that our people are -- you know, have their awareness, I guess would be the best way to

say it for me, through all phases of the well operations. So we can't let our guard down at any particular time.

And that they need to make sure that some of the basics that we've talked about and have been brought up in all of these systems under balance, and you know, monitoring flow, I guess, basically, during any operation that you do.

And then again, to help them understand the negative pressure test, what they're doing and interpret the results.

And then one of the biggest things in training that I think needs to take place going forward is understanding their emergency functions and be sure everybody is completely familiar with all aspects of it and comfortable with their role in having to implement any one of those functions, should it be necessary.

Another thing to realize is that the industry has embraced trying to understand and also strengthen all of our processes that we have in drilling in putting a well plan together.

And from all parts of the industry, we've created these joint tasks forces that are looking at offshore equipment, offshore drilling procedures, subsea well control and containment and oil spill response. So there's an all-out push by all levels within the industry right now, through these task forces, to look at these issues.

My conclusions, again -- And I'm giving you a personal opinion here because I deal with this stuff on a daily basis. I feel like the reset point that has come forward through the NTL-05, which had industry input as well as input from many other experts and people within the industry, we have established a good level and a better risk profile from those lessons learned and implemented, even from what we know right now in the public information arena, to go forward.

And as my professional opinion, I feel like by us further applying all of the expertise within the industry, we'll be able to further minimize risk to people on the rigs and damage to the Gulf environment.

I think that's all I've got.

MR. BROMWICH: Thank you very much.

Mr. Perry.

MR. PERRY: Thank you.

Over the past ten years, I have had the opportunity to teach or provide classroom instruction to oil rig workers from each of the driller operations in the Gulf of Mexico and around the world.

And through that time I formed some opinions and concerns that I'd like to discuss with you today and also some additional recommendations that have already been voiced, but I'd like to strengthen what I've heard here today.

The first thing that I've noted during this tenure of ten years of instruction has been that when I get a class, the expertise level of that class ranges from a person who six months ago was a hotel manager to a person with 25 years of experience offshore.

So in that scenario the challenge becomes how do I provide useful instruction to the person who was a hotel manager, while keeping the 25-year veteran... being able to

teach him something useful as well.

But the bottom line to that is that what we need is a curriculum-based training program that takes advantage of and recognizes the experience or lack thereof of the people who go into the offshore industry.

The individuals involved are all willing people. They're not there to just sit through a class. They all want to gain useful information.

The 25-year veteran... I get comments that he didn't get much out of the class because I spent so much time in talking to a level that he was very familiar with.

So my recommendation in that is that we provide a curriculum based on experience and have a demonstrated capability of each individual that allows us to understand what that individual needs and then tailor our instructional materials to the needs of the individual. Without that, we don't seem to provide adequate instruction across the board to the people who need it.

The second thing that I've observed is a common theme that regardless of the level

of experience, there is a common weakness that I've noticed in everybody that comes

into my classes.

Many of my classes are well-controlled-type classes that require that the individual in the class understand electrical and hydraulic schematics.

There is a definite pattern. Probably a preponderance of the people in there cannot effectively interpret electrical or hydraulic schematics. So in some sense even a seasoned veteran needs to... We need to address the needs that they need to be trained on to adequately go out and do their jobs.

So my recommendation here is to develop this curriculum. And it's been stated before, that it needs to be competency driven.

When I teach a class, I teach -- I give a pretest to all the students to understand what their strengths and weaknesses are. At the end of the class, I give the exact same test again to understand what they've learned.

On the pretest I've been surprised at

some of the veterans who come in there, particularly in this area of reading and understanding drawings, at the level of

weakness that I see.

The other thing that I see is that -- excuse me. My allergies are acting up today -- is that the level of training provided, of course, includes on-the-job training, and it involves the original equipment manufacturers providing training on their specific equipment.

And that seems to be where most of the training is obtained. And that's fine for the individual who's working on a particular well using a particular original equipment manufacturer's equipment.

But when that individual now either leaves the company or goes to a different rig, they may have different equipment provided by a different manufacturer. And he's expected to perform equally well no matter where he goes.

Well, with the absence of generic-type training that encompasses the unique operability characteristics of each

manufacturer's equipment, you get a... I guess a loss of performance capability.

So the training needs to be broad enough to allow an individual to incorporate

training for each of the major manufacturers of equipment.

In this industry there are essentially three main manufacturers -- excuse me -- so it's not a far stretch to be able to encompass all of those major manufacturers' equipment in the training that we provide.

So my recommendation there is that while training at the original equipment manufacturer is good, that should not be sufficient to say someone is competent to go operate on every well and every manufacturer's equipment as proficiently as he does on the well where he got the training.

The next thing that I'd like to comment on is -- it's been mentioned by just about everybody here today -- the subject of risk management.

There are several controlling documents that I have read. The International

Association of Drilling Contractors has developed an excellent approach to health safety and environmental management in a document called A Health Safety and Environmental Case Guideline for Mobile

Offshore Drilling Units.

Now, contained in that document, it says that drilling contractors have historically managed HSE and operational risk in order to achieve a step-by-step improvement in safety and operational performance. They would have to formalize their long-term experience and work practices within a structured framework represented by a management system.

Now, you heard in an earlier set of remarks that companies are out doing that. And it's to their credit they're doing that. But what's missing there is a risk-management standard by which they should develop their risk-management system.

Currently each company is left to develop the risk management approach in accordance with a broad set of guidelines in this IADC document, and also in the

International Safety Management Document.

But they're lax in each of those specifics about risk management. And what I'm talking about there is a specific set of criteria that says based on an occurrence or a likelihood of an occurrence, what do you

do; who do you contact; who do you seek help from to resolve an issue; and what level of reporting do you need to do, perhaps to the company, perhaps to the Federal Government; but a set of rules that everyone can understand and develop risk-management systems around. That appears to be missing. And I just recommend that we look at that.

The final thing that I want to talk about is the third-party verification system. It's been talked about broadly today. And I want to add my voice to the support for it.

I think this third-party system -- excuse me -- should involve third-party overview of the development of drilling plans, configuration of each well; that is, the equipment configuration; and all of the -- including the safety documentation and have that subject matter expert on third

party follow a well from cradle to grave, if you will, so that that person can be called upon, through the risk management process, to come in and evaluate potential problems and aid in their solution.

So those are the three things that I wanted to bring to you today that I have

observed in my years of being in the classroom, and the lack of knowledge of risk management that I've seen, and the diversity of the students that are brought before me. Thank you.

MR. BROMWICH: Thank you very much. I appreciate it.

Mr. Van Gemert.

MR. VAN GEMERT: Thank you, Director Bromwich and panel.

As indicated, I'm Mike Van Gemert. I'm with West Engineering, the control -- Work in the systems and controls area.

Recently have been deeply involved with the NTL recertification mission to prepare our clients to once again attempt to go back on drilling again.

Our focus -- My focus in our group is

primarily around software systems, systems controls, that are relative to the BOP and integrated systems on rigs.

And today I think a lot of the -- a lot of the discussion through the committees, and so forth, is -- has been highly focused on hardware, hardware components, and that side of it.

However, I'm going to try and bring to light a little bit about the systems and how the systems and integration of systems really impacts the whole -- the whole visibility here, as well as the complexity of what we're trying to address.

Key points I want to try and hit through here are how systems considerations are critical for the safe and effective operation, review of operations to introduce risk assessment through the life cycle of the rig, and then review recommended architectures which address InfoSec and information security.

And this black box thing. I think there's a lot of discussion right now around black boxes. And that's not always a right

answer necessarily. There's -- There's probably a more disciplined way to approach the black box thought process, so...

MR. BROMWICH: It should be the arrow on the right. There you go.

MR. VAN GEMERT: First of all, I guess to translate my words into words that are more easy to understand, what are systems?

And a typical rig starts... Going to

display here of the generator in this case, to a controller which controls the generator, and the fuel to the fuel CT roller which is effectively the brain of -- of the control system.

And ultimately the picture to the right is what they would see on the bridge. Okay. And to Conley's point earlier, training and understanding what -- what they're -- they're really seeing and dealing with.

This particular situation, we had a client that didn't understand what they were seeing there. It said the watch dog alarm. They didn't realize that watch dog alarm was basically relative to information on that engine at the time.

So somewhere between that engine and the lack of understanding of the drawings we were able to see a breakdown in the process. So they were not responding in this case to RTDs, which would be in this case sensors on the engine giving a temperature indication.

Look underneath there. We see cables and terminations, and we see many vendors' products, for instance, in this -- in this configuration. The concern here is, that's a

lot of moving things. That's a lot of integrated parts, a lot of considerations.

So to Chris Nelson's point earlier, as we start adding more things to the architecture, more things on top of the system, we've also got to consider the added complexities from a systems and controls view as we go forward, and how it might interfere with other systems.

This is a holistic and oversimplified view of rig systems and how they all link together in some way or form or another.

Believe it or not, BOPs actually in some cases do have integration to the DP or vessel-positioning systems. They've actually

got integration into the fire emergency shutdown systems.

And in many cases there's a number of other monitoring systems that would be relative to consideration of BOP architecture.

Between the various components of the rig we typically have a command and a signal that go back and forth. We've got control processors. We've got human-machine interfaces, and we've got alarm panels.

All those are function consideration as we -- as we do an assessment. In fact, right now in the NTL we're -- we're going through each one of those and walking through each one of these components.

But as we go forward, and looking at regulatory objectives, it's probably important to take a look at how we're addressing systems and standards that we want to address systems to.

This is an example of understanding software systems and risk of systems. From a rig launch we have in this case several types of key control systems in a rig, but as the

life cycle of the product starts to wane or is no longer supported, it may induce other risks to other systems in the stack of integrated systems on a rig.

So in this case we have operating systems that are no longer supported. We have another company here that de-supported their product, which basically forces the company to operate with a non-supported software architecture.

Typically, a vendor, just like a land-based system, you're in active, you've

got a classic, you got limited, and you got obsolete.

There are rigs today out there that could potentially be entering into the obsolete phase. That's a consideration as we move forward. What is the relevance of the architecture and where are they at in the life cycle of the rig?

One of the other elements we want to try and look at is where would we look at for risk assessment within the life cycle of the rig. In this case in requirements review we can catch a lot of safety-related

considerations at the requirements review.

Looking at the complexity of the software in the system. We can look at how the systems are architected and the redundancy of systems, through the validation of setup in configurations, the validation of architecture.

When we do a failure mode that affects criticality analysis, basically we can try to predict and establish risk around failure modes within our architecture.

Again, this industry, we've looked at it primarily from a hardware standpoint. We

have not put a lot of time in the black box. And that's an area that currently West is spending a lot of -- a lot of capital currently, working with the industry to define the black box ethics.

And, of course, we get to configuration management. How are we managing our configuration? What are our risks if we change configuration? These are some relevant standards that we try to look to.

In our assessment activity we typically look at international standards whenever

possible. And, of course, we look at the relevant standards within the NTL in the course of this current scope.

Key here of the requirements review process is we get insight into the long-term stability and supportability of software-engineered systems.

We get confirmation of systems compliance mandates and philosophy for instance alarms and interlocks. We get failure modes identified in the confirmed systems life cycle.

So what we're -- we're getting with here is if we can engage early in the systems

design process and requirements or if a change to a system occurs these are the type of safety considerations we can give... realize.

In engineering phase, we look to establish a chain of information relative to system versions, software controls, documentation, meeting with developers and observing their internal quality process we establish explanation -- expectation for future reliability.

Construction. We take a look at the wire and cable work that's been done. We look at the standards that it was done to. Actually, we want to do OTER testing, which is opticable [sic] -- optical time domain reflectometry tools that actually can test the quality of the cable.

We find in failures on rigs, we often find bad cable technique or bad terminations that lead to issues with rig liability -- reliability of systems.

Capture internal initial setups and software versions, we note inconsistencies.

Acceptance. We validate the design, confirm final alarm mapping, software

configuration documentation and review of PLC code.

And InfoSec. Continued review of... incident investigation from a systems perspective, systems life cycle planning and compliance of safety systems.

And the reason I kind of drove through that whole litany of points there is, it all comes out in the end to operational issues.

In this case I've got real life

problems noted here that during a rig acceptance in the shipyard typically it's an expedited process. The rig was pushed out to meet a target objective, and in the end setups were not met. Backups were not done to proper configuration.

During rig acceptance a number of transient anomalies in the drilling systems were impeding success. Rig and vendor specialists were involved for several days to troubleshoot.

A recommendation of cable verification and certification uncovered several bad fiber terminations, crimped strands and incorrect wire maps on copper terminations.

Operator with several sister rigs

engaged a vendor to make minor changes on one of the systems. Thinking that that change was going to be acceptable, he went and laid his code on another rig and basically took the rig down for a day.

These are the kinds of things that are simple issues but need to be points of critical consideration to go forward.

And finally, as we go forward and look

at how do we best skin the architectural cat, if you will, there's a lot of requests currently for black boxes, management and documentation, so forth.

To really achieve that effectively, we probably need to take a look at the architecture that's serving the rig overall. And, of course, first of all, some information standard -- security standards in the process, but also as the ideas or the best of rig solutions are becoming available.

We need to look at what the disciplines are of the coding that was involved, making sure that those systems don't further cause degeneration or interaction or negative interaction with the other host systems on the rig.

This was a -- architecture that we at West have been working with, along with several other industry groups: Mimosa, IBM, Asitricity [sic].

And what we're trying to work through is define a technical standard that is supportable on the rig but also meets the growth objectives in some of the regulatory

challenges that we probably see on the Horizon. And that's... completion.

MR. BROMWICH: Thanks very much for your presentation. We appreciate it.

Mr. Frazer.

MR. FRAZER: Can I borrow that gizmo thing?

I want to thank you first for the opportunity to -- I want to thank you for the opportunity to join the discussion.

I'm going to try to go into some details of well design, without descending into third-order differential equations and putting everybody to sleep before --

MR. BROMWICH: I particularly would very much appreciate it.

MR. FRAZER: Okay. One of my objectives is to demonstrate how well we

understand the capability of the equipment we use, not only equipment but some of the consumables, such as mud and cement.

I would say that both sides of this podium are here for the same reason. We want to safely and efficiently produce oil and gas, not only in the Gulf of Mexico but all

over the world.

Now, no matter the location, you'll hear some echoing of what the three people who preceded me said. No matter what our location anywhere in the world, prudent well design centers on geomechanical characteristics of the proposed location.

What we want to do is, these are our -- That first item is our high-level objective. The second one is what I'm going to try to do here.

Back to the... what I said earlier. Technically the geomechanical characteristics are referred to as formation pressures and associated rock strengths. In our jargon those are termed core pressure and frac gradients.

This rather complicated plot is a summary of the data used in my company's

latest application for a permit to drill a well in 4,000 feet of water.

That well is actually a development -- It's actually in a development that we're already producing from and intend to hope to increase production.

And additionally we are actually modifying a well bore, rather than drilling a new well. But regardless of that, the same amount of work goes into the design.

This format normalizes core pressures and frac gradients from the mudline to total depth and puts a well design problem into something that's easily digestible by a drilling engineer.

And from this we design all our strings of casing to withstand the loads we expect mother earth is going to introduce and will put suitable kit at the top and the bottom of each casing string.

Now, this... The casing and the kit I referenced earlier can be designed, manufactured and installed according to well-known and accepted industry standards.

This is about the first third of the first page of eight pages that

cross-reference existing API standards with those that the International Standards Organization, the ISO, is developing.

Please note API has been and is still leading this effort. These specifications,

recommended practices and technical bulletins cover everything from how we measure oil, gas and water production to the more esoteric facets of gamma ray and neutron logging techniques.

It also covers everything in between, including design, fabrication and integrity management of high-pressure deepwater risers. And there's a bit of detail here. Our most recent deepwater project used high-pressure drilling and production risers. And those were designed, installed and fabricated according to guidelines provided by API and ISO, ASME, et cetera, et cetera.

Once we completed that part of it, we verified the design by performing... by taking what was calculated to be the most highly-stressed component, and then we tested it to failure.

Results were that our design exceeded the mandated 20-year service life by about 60

years. So we don't cut corners. It's not in our best interest to do that.

Moving on, the point is there are proven methods and equipment that's available

in the gear for containing, controlling the pressures encountered and drilling and completion.

And the drilling and completion in the things -- excuse me -- boils down to wellhead, cement, well-control equipment. Those are covered quite well in this family of documents.

Also, additionally, these documents are reviewed by users, fabricators and industry experts at least annually at an international conference that's hosted by API.

I think there is room to implement -- to address the implementation of some practices and standards.

And I know I speak for everyone in my peer group when I say we've already internally addressed the points in the MMS BOE safety alerts.

We've added our own take to that situation. And the message is that the offshore Gulf of Mexico has seen successful

drilling and evaluation over 60,000 offshore wells in state and federal waters.

The Macondo incident puts our mean time

between failure in about the ten to the minus five range. We're only requesting we be judged by the same standards as other industries that serve the public and the nation's energy needs, especially as it recovers from the deep recession.

Speaking again for my drilling brethren, we've all had firsthand demonstration of the fact that our safest operations are also our most productive and efficient, and that our most productive and efficient operation are our safest. Those two things go hand in hand.

So in that light, I think it can be seen that this industry and the Bureau of Ocean Energy are after the same thing.

Like Chris, I started out working on offshore rigs before I was sentenced to management.

So I want to close by saying that the people we lost in the explosion are the same type who helped me break out in this industry more than a quarter of a century ago. I

could not have reached that coming-of-age milestone if not for the efforts and

commitment of people just like them.

And I've been fortunate enough to work on equally exciting aspects of energy production in two hemispheres, but it's not been without the help of people just like them.

Every day I still get the privilege of dealing with women and men who are cut from the same cloth. So for that reason and others that are probably too personal to discuss in a forum such as this, I know I speak without fear of contradiction for everyone in the drilling industry when we say this accident resonates deeply with us and it's a lessen that's not going to be forgotten very soon.

Thank you again for the opportunity to join the discussion. This industry is now ready to go back to work alongside and with the BOE, to efficiently and safely produce energy our country needs from its waters and lands.

Thank you very much.

MR. BROMWICH: Thank you very much, Mr.

Frazer.

Let me go ahead and start the questions. And again, let's go panelist by panelist, if we can.

Mr. Nelson, you expressed some concern about adding complexity to the BOPs, through the addition of additional requirements.

Have you seen any of the suggestions or recommendations, either those that were incorporated in the 30-day safety report or elsewhere that causes you to be concerned that the risk is not worth adding the additional functionality?

MR. NELSON: Yes. In the 30-day report, like the addition of the blind shear ram, for example, discussion about an acoustic system... You know, the guys from West can also attest. It's just not a tack-on to a system that is currently functioning.

And I guess what my point is, I believe the BOP stack systems that are out there right now, once they go through their verification and testing, are adequate for what we do in the industry right now. And just adding redundancy may actually make the

situation worse, not better because it becomes more complex.

MR. BROMWICH: My other question for you is that you and some of your fellow panelists say that the industry is ready to go forward now. And yet you focused on the work that's currently being done by the joint industry task forces.

I assume that there's good work going on on those task forces; is that right?

MR. NELSON: Absolutely, and --

MR. BROMWICH: So shouldn't we wait to see what they produce at the end of August before we rush back to work?

MR. NELSON: Well, what I would say is that it's a review of everything that we're doing right now currently is our current practice. And I feel like it's just reinforcing and strengthening what we already have in place.

I mean, I feel like the industry has a good track record. And, you know, an incident with a very bad consequence may be clouding that to some extent.

And if we meet all of the requirements

in NTL-05, which I think are good, I think we've added that -- before we go back to work, we've added that later that would make everybody comfortable going back to work.

And then the work of the task force will just be added to that and stuff that we can implement down the road. But the immediate stuff that's addressed there is adequate to allow us to go back to work right now.

And as we generate the stuff in the task force, it's just not sitting in the task force right now. We're spreading that knowledge out to the industry right now.

MR. BROMWICH: Okay. But it's not been shared with our agency. So we've been told that August 25th is the date, and that's what we've been waiting for.

MR. NELSON: And that's --

MR. BROMWICH: Why there's this apparent conflict between let us go back to work now and we've got some great stuff we're going to make public on August 25th.

MR. FRAZER: Can I say one thing?

MR. BROMWICH: Sure.

MR. FRAZER: Part of that schedule is driven by legislative schedules, kind of --

MR. BROMWICH: I don't understand.

MR. FRAZER: Congress returns late August, early September. So the idea was, let's have something out that legislators can look at also.

MR. BROMWICH: Okay. We're not on break.

MR. FRAZER: I understand that.

MR. BROMWICH: We'll be happy to receive recommendations before then.

MR. NELSON: And we're not either. We're working full-out right now. And, in fact, I understand in your Houston stop all the task force will be presenting to --

MR. BROMWICH: Yes, they will. We're looking forward to it.

MR. NELSON: and they'll give you an update at that point in time.

MR. BROMWICH: Absolutely.

Thank you.

Lars.

MR. HERBST: Just another question along the line of the 30-day report. It

points at -- One thing it points out is well design. Again, I believe the industry task force is looking at that.

And there's been some interest in a particular incident with a Macondo well that potentially this design was not as good as other designs.

Are there things that the industry task force is looking at, as far as making recommendations, as far as not running full strings through productive intervals or not using somewhat of an expandable liners for productive intervals.

I know it's much more complex than that. It's combined to your cement job and everything else. But are there recommendations that we should be aware of that you're looking at?

MR. NELSON: The procedures task force is one of the one committees I'm not on. And yes, my understanding... Again, there is secondhand because I'm not involved in that committee directly... is that they are reviewing all of that, to enhance well-design recommendations, and things like that as

well.

But again, a choice was made by an operator to pre-complete that well as they did. And today the industry has options to do it another way that perhaps are -- you know, have less risk associated with it.

MR. HERBST: So again, that would be shared with --

MR. NELSON: Yes, that will be --

MR. HERBST: -- the BOEM before the suspension would be lifted.

MR. NELSON: Well, it's going to be shared at the earliest at this update that you're going to get in September. And, you know, my -- Obviously these task force are working full out right now and trying to get this stuff prepared. So as soon as it's ready, I'm sure they plan to forward it to you.

MR. BROMWICH: Great. Thank you. Bill.

MR. HAUSER: Yeah. One question. You mentioned the tools that are used while drilling and the transmittal back to... or while you're drilling. Is that information

transmitted back to shore?

MR. NELSON: It can be, yes.

MR. HAUSER: And is that a routine thing, that --

MR. NELSON: It is --

MR. HAUSER: -- most data is collected?

MR. NELSON: It is pretty routine, both from an operational standpoint. And obviously, from a geologist's standpoint, he's wanting to make sure that his proposal to you, that this is what you were going to encounter and at what depths is accurate. And it's coming in that way.

So if he uses that information to say, yes, everything is still according to plan or not. And then we get together afterwards and say, you know, do we need to make an adjustment to our well design, based on this realtime information we're collecting.

But, yes, it is -- I would say almost universally now that stuff is sent back realtime to the offices.

MR. HAUSER: Thank you.

MR. BROMWICH: Thank you.

Mr. Perry.

MR. PERRY: Yes, sir.

MR. BROMWICH: You had a number of very interesting and, frankly, a couple of disturbing observations that I wanted to ask you about and explore a little further.

First you said that one of the common weaknesses that you've seen in the training that you've provided over time is a lack of ability of some of your students, even those who are very experienced in the industry, to interpret electrical and hydraulic dynamics.

MR. PERRY: That's correct.

MR. BROMWICH: I think that's what you said.

What do we do about that? That sounds like a fairly significant problem.

MR. PERRY: Well, we... If you go back to the curriculum, one way that I could tell about the weaknesses shared between new hires and 25-year veterans is the pre-test.

On every pre-test that I give, I include, if you will, a schematic test question for both electrical and hydraulic schematics, so that I can judge the knowledge of everybody in the room. And I take that,

then. And as I go through the class, and I

know at what level I can teach.

And also during the class, for example, in a BOP hydraulic system course, as I pull the schematic up, I will ask a general question: Okay. Identify this component. To see in the room what level of competency that I have, again, so I know how to teach that schematic from that point on.

The answer is to go back to this demonstrated competency level, and where there is a lack demonstrated through testing or practical demonstration of whatever, from that you develop a curriculum for each individual, based on what your perceived need is that results from the testing from whatever source it comes.

MR. BROMWICH: But is it your sense that that's widespread in the industry right now or not?

MR. PERRY: I'm sorry?

MR. BROMWICH: Is that widespread in the industry right now or not, that identification?

MR. PERRY: No, it isn't.

We have helped... At West we have helped several companies develop competency

requirements, and then how do you go about demonstrating that they are or are not at that level of competency so that you can then judge what training would be required for that particular individual. But it's not industry-wide, no.

MR. BROMWICH: Another observation you made which had an impact on me was, you said that a lot of the training that is provided is provided by original equipment manufacturers.

MR. PERRY: That's correct.

MR. BROMWICH: Which is fine so long as the employee is working on a particular rig with that equipment.

MR. PERRY: That's correct.

MR. BROMWICH: But that the problem arises when a person is transferred to another rig which has a different equipment manufacturer.

MR. PERRY: That's correct.

MR. BROMWICH: Do you think the industry does a good enough job right now to

adjusting to those kinds of shifts? And if not, what can it do to improve things?

MR. PERRY: No, I don't think they do,

from the simple reasoning that if a person has gone through, for example, Cameron School for Cameron equipment in the blowout preventer world, and then that person transfers to a rig that has Schaefer equipment, the expectation is that the Cameron school was good enough and that the nuances between the two equipments are not significant enough to warrant them going back to the Schaefer school.

And it's been my experience that that is kind of a pitfall because there are several differences. They all operate more or less the same way, but the specific design of the hardware has enough subtle differences in it that they need the exposure to the differences in the equipment.

For example, in a... Let's call an SPM value, a subseam plate-mounted valve, the differences between the manufacturers are such that although they may look identical, one manufacturer... It doesn't make any

difference how you reassemble the ports when you do maintenance on it.

The other manufacturer, if you assemble the ports backwards, the valve won't

function. And that -- Those kinds of nuances are not taught, you know, other than in classes like I teach, where I take each of the manufacturers and lay them out and show them -- show the differences between them so that they are aware of it, no matter where they go.

MR. BROMWICH: My last question for you. You talked briefly about third-party verification systems.

MR. PERRY: Right.

MR. BROMWICH: And you suggested the possibility of third-party verification systems that would be, in your words, cradle to grave, from development of drilling plans through the development of each well, and then follow each well from cradle to grave. Are you aware of any company that currently does that, that has a third-party verifier from the beginning to end?

MR. PERRY: Yes. NASA.

MR. BROMWICH: Okay. Company, I said; not government agency.

MR. PERRY: My experience basically has been with NASA.

MR. BROMWICH: Okay.

MR. PERRY: And that's what we did.

MR. BROMWICH: Okay. Thank you very much.

MR. HERBST: No further questions.

MR. HAUSER: I had one question about third-party verification. We've got several items that require third-party verification. Should there be an overall third-party verification of a well design or the APD, something along those lines?

MR. PERRY: Yes.

MR. HAUSER: Versus multiple ones throughout the whole thing.

MR. PERRY: Yes.

MR. HAUSER: Thank you.

MR. PERRY: I would support a common approach to it. And also the need for the subject matter expert that is there when the drilling plan is developed, the safety certifications are developed.

That person needs to trace or stay on top of that well as it progresses through, you know, its drilling cycle. And therein plays in the risk management piece of my concern, is that without a set of criteria that identifies when you need to contact that

subject matter expert or that third-party verifier, the phone won't ring.

In other words, if the people out there do not have a set of criteria that says, well, if we have a risk assessment criticality one or two, then we don't have to call to shore.

But what I'm suggesting is that you set up a set of standards that's essentially a cookbook that says, if you encounter a critical risk, as identified in a standard set of risk management criteria, that there's no guesswork. You will call the subject matter experts and the OEMs and the companies required to adequately address that critical problem.

And in addition, you also notify the appropriate Federal agencies that that condition has occurred on this rig, so that

they're fully aware of it.

MR. HAUSER: That's it.

MR. BROMWICH: I don't have any questions for Mr. Van Gemert. Do you?

MR. HERBST: Yes, I do happen to have a couple.

One, I guess, in the work that you've

done to date on certification, are there concerns about single-point failure modes, whether electrical or hydraulic, between primary control systems and secondary control systems, and maybe even if you threw in acoustic control systems in that as well. If you could address those.

MR. VAN GEMERT: Yes, that's definitely been in our -- in our assessment test points, our work plan as we go through it. We go through the whole architecture of the system, confirming redundancy, look for similar points of failure. If we find -- And basically confirming back to OEM design standard to confirm it's operational to that standard.

MR. HERBST: Okay.

MR. VAN GEMERT: And as far as the

acoustics go, I think the jury... the industry is somewhat out on that. We have not seen good results back from testing operation from a strictly control standpoint.

In fact, one I recently did a week or so ago, we -- we pulled it -- pulled it out and found bad connectors and bad test results, bad boards. So there's -- there's

plenty of issues with acoustics. I -- I wouldn't let that as to -- as to -- a run of opportunity as the secondary system.

MR. HERBST: And those acoustic systems would be utilizing basically the same systems of hydraulic and electric. It's another means of actually doing actuation of the systems.

MR. VAN GEMERT: That's correct.

MR. PERRY: If I could comment on that, in a former life I did research with the Navy on sonar systems. One of the primary concerns we had and still have is the existence of thermal climes in the water that essentially it's a temperature inversion in the water.

If you had one in the neighborhood of

your well and you need to use your acoustic system, the signal may just absolutely bounce off the thermal clime and will not be received. So that's a primary concern, especially in warm waters like the Gulf.

MR. HERBST: Okay. One other question. I believe that you had indicated was about not just looking at the hardware systems but looking at the control system logic and

software and coding, and that some of this works through stages of not being supported and moving towards becoming obsolete.

API, I believe, recommends re-certification three to five years. I know we've re-certified the stacks now. But moving forward is that three to five years, does that fit within the realm of what you're seeing control systems not being supported, perhaps, or becoming obsolete?

MR. VAN GEMERT: That's typically in play. Most of the vendors try to line their product up for at least a five-year run, as -- as we've seen pretty much so far.

However, there are situations where, for instance, VPD systems or, you know, your

vessel-positioning systems run on any Windows Operating System.

So your risk there becomes, okay, what vulnerabilities do I have if I cannot patch this to the Windows standard, rather than other considerations there.

Again this is... I try and take it down to that level. I know it's -- it's probably fairly low for the discussion here, but it's of a concern as far as

supportability as you go forward and also reliability of the systems.

MR. HERBST: Okay. Thank you.

MR. HAUSER: One more question on that same system. Is everybody doing a systems review like you went through?

MR. VAN GEMERT: Well, I think, here at West our charter was to raise this bar to -- We work quite a bit globally, so we do quite a bit with international standards, and so forth.

And we're finding, for instance, in the North Sea regions there's a stricter level of expectation around how our systems and controls are designed, implemented and

managed overall, things like safety, integrity level of the control system.

And there's a -- there's a prescribed risk process that you go through to define and -- and run to a safety level.

BOP systems based on these typical standards are typically sill two sill three as a rule. And what we try and do is take it -- take it to that -- that point and come around.

There are other companies, I think,

that are trying to... Realizing that this is in play. I came out of aviation originally so this is pretty much standard operating procedure for us within that world.

Here in the drilling industry, we're really going through what we saw back in the '80s and '90s in aviation, I think. And we found that our systems are getting more and more complex, and we need to get ahead of the system rather than behind the system.

And through these risk-based processes, and using tools like FMECAs and HAZOPs and whatnot, we're able to look at our control-level risks and increase reliability

of the rigs.

MR. HAUSER: Thank you.

MR. BROMWICH: I don't have any questions for Mr. Frazer. Do you?

MR. HERBST: Yes, I have a couple for Mr. Frazer.

One... In general this follows along maybe the answer we just heard. As it relates to the suspension of deepwater drilling operations, I recognize you've worked in the Gulf and in the North Sea as well.

Are there things that you would recommend as far as implementing that maybe a North Sea regulator is looking at and then somehow we're failing to look at here in the United States that would be key, that we would pick up and implement before going back to drilling in deepwater?

MR. FRAZER: No, I really don't think so. The... I haven't worked in the North Sea and been through safety cases for platforms, pipelines and... or platforms and wells.

The same work that's done is done to

the same standards. It's just that there is an additional level of, for lack of a better term, additional level of paper put on top of it with a third party.

I think there's value in a different set of eyes looking at a well design, for instance, in that you're going to pick something up.

I think, nine times out of ten the third-party review or peer review, whatever you want to call it, would show that the design is adequate, but that tenth time or that hundredth time it would just be some

little thing that would either make the operation more safe or more efficient. So from that standpoint, I think there's some value. Trying to figure out how to apply it is where our challenge is.

MR. HERBST: One other question relates to one of your facilities and operations here specifically in the Gulf, which is covered by this drilling suspension. And then that's a facility, a floating facility, with surface BOP stack system.

Trying to move forward on that, I

understand the facility that you have there has a subsea isolation device, essentially a means of blind shear, I believe, at the sea floor, in utilizing that with the high-pressure drilling riser.

That is not something that is currently a requirement in the U.S. by this Bureau. Is that a recommendation that you would make going forward with facilities of your type?

MR. FRAZER: Well, since we haven't drilled a well with it yet, this is somewhat premature.

We made the decision to put essentially a dual blind shear ram at the sea floor, as

well as having a high-pressure drilling riser, as well as having a surface stack, due to the fact that we saw the potential to have to drill from mud line to TD with our platform rig.

And we're concerned about riser wear. In the situation where the... when presented with these sorts of approaches again or these types of developments, given that it provides an additional level of assurance for -- and I have to be candid, and I may be pilloried by

some of my contemporaries about this -- for the cost that we found, to add that in deepwater development, I think it's a good idea. It's a prudent approach.

MR. HERBST: All right. Thank you.

MR. NELSON: Can I make one comment?

MR. BROMWICH: Sure.

MR. NELSON: Back to Bill on his question regarding, like, one third party that could be an overall verification party, I think you need to be careful there.

I think, you know, there's the rig and the rig contractor has, you know, a pretty intense system -- maintenance and systems management system. There may be problems

within those systems, but I mean, they're pretty intense.

And they need to take care of all the systems that are associated with that rig, which are not really within the realm of the operator's role and well construction.

And so there might be one or two people in the entire world that I would say I would trust them to be able to integrate all of that into one review. It would be pretty

intense.

I think what we could look at is the third-party verification within all the systems that you have on a rig, and then also an overall well construction type third party, which I think is somewhat addressed in the stuff that we have.

But, you know, from just seeing how it works day-to-day, I think it would be near impossible to have something that took everything into account. I just don't think there's that many experts.

And part of the problem that he may be seeing within our industry, you know, we have a huge gap between experience levels and being able to attract the right people that

want to work 24 hours a day out in the middle of the ocean, you know, is why we have such a wide range. But, you know, we're working on that, obviously.

MR. FRAZER: I'd like to comment on one thing Mr. Herbst asked earlier about the Macondo incident appears was not a drilling well control but more an abandonment well control.

My experience has been and I think the data supports that when we are doing -- actually when we're drilling higher-pressure -- wells known to be higher pressured or in a particular -- in a nonconventional sort of operation, people's awareness is heightened.

A lot of the drilling blowouts occurred during normal pressure sections of the hole because it was -- essentially the background had become transparent. Everyone was a bit complacent.

I think when -- And this is just my intuition right now because we do have to reserve judgment until all the data is there. But based on what has been released so far, it appeared that there was some complacency

involved in the... in the election to continue. That combined with some other things that compounded to result in the disaster. So I think you've got a point there that there's some attention that needs to be paid when you get to the end of the well.

MR. HERBST: Thank you.

MR. BROMWICH: Okay. Thanks very much. I appreciate all the presentations of all four panelists. It's been very helpful and very enlightening.

We'll take a brief ten-minute break right now. We'll resume with our third and final panel at ten minutes of the hour. Thanks very much.

(Brief recess.)

MR. BROMWICH: Okay. We're going to resume and conclude our forum today with brief, approximately five-minute presentations from two distinguished elected officials from the surrounding area.

Let me introduce them briefly. The first is Kevin White, who is closest to me, who is the Commissioner from Escambia County, Florida. I hope I pronounced that correctly.

COMMISSIONER WHITE: Yes, you did.

MR. BROMWICH: And then following Mr. White, Dr. P. C. Wu, who is a City Councilman from Pensacola.

So, gentlemen, we look forward to hearing your comments.

COMMISSIONER WHITE: P. C., I'll let

you go first.

COUNCILMAN WU: Okay. I was going to compose as Commissioner White spoke, but I'll be more than apt to go first.

First of all, we want to say on behalf of Mayor Wiggins, who was unable to be here today, welcome to the City of Pensacola.

MR. BROMWICH: Thank you very much.

COUNCILMAN WU: We're very, very happy and pleased to have you here in the City of Pensacola.

We're especially pleased because our greatest fear as we go forward is that as the news slowly backs away from the issue, that we're slowly, slowly going to be forgotten as we move forward. And I think, moving forward, we're probably going to need as much assistance as we ever had.

Basically, from what I understand,

y'all are looking for what our thoughts were on what happened and the reaction, and so forth. And I'll try to capsulize that in a very small and very brief-ful manner.

To start off with, I want to acknowledge the fact that the cleanup

responsibility and the response was the responsibility of the County Commission.

However, the Mayor and I did attend all the briefings. And we were at the emergency center every day.

Just a quick couple of observations that I had was ways things perhaps could be improved in the future.

What I notice is those folks that had the responsibility did not have the authority so that you had the people who were the closest to the situation really not being able to make the decisions that would impact things that were happening.

And I'll give you one example. As oil was approaching and getting closer, we felt that there was a need for more booms and more skimmers, and yet we did not have the ability to call that in because everything was coming through Unified Command.

It's understandable to want a chain of command that makes sense and is logical and have things flow, but the dilemma you have is that the people who knew the situation the very best really had the very least amount of

authority.

The second problem that I saw occur was what I would call communication problems. There was a daily briefing that Kevin -- Commissioner White and the others would attend about 3:30.

And I remember vividly sitting there one day. And at the end, very tail end of the conversation they said, oh, by the way, oil is getting ready to hit... Was it Perdido Key?

COMMISSIONER WHITE: Perdido key, yeah.

COUNCILMAN WU: And we're sitting there almost in a state of shock because here we are in the emergency operation center and no one had bothered to call us up and say, get yourself ready. You know, this is coming. You need to do A, B, C and D. You need to prepare X and Y. So the dilemma, you know, became... It was almost like an afterthought.

And one of the Commissioners said, by the way, I'm sorry. Did you say Perdido Key?

And they said, yes. Oil is getting ready to hit Perdido Key.

Well, that's a heck of a time to find out about it right when the oil is getting ready to wash up on the shores.

Now, having said all that, I have to also give a caveat, and that is that this being the largest natural disaster that we faced in ages, we were living through something -- And I make the analogy of living in a house, and building it and looking at the diagram as you went along.

My purpose is not to cast aspersion on anybody because I don't think anything that was done was done deviously or done with, you know, bad intent.

It's just a question of never ever having to be in this particular situation. And there was a lot that needed to be done, and there was a lot of folks who really didn't know what to do. So I don't know if that gets at what you're trying to get.

MR. BROMWICH: No; that's -- that's very helpful. And, in fact, we've heard from

a number of previous presenters that they were making it up as they go along, and they made some mistakes...

COUNCILMAN WU: Yes.

MR. BROMWICH: ...that they don't think they would repeat in the future. So it was the ultimate realtime learning exercise.

But thank you very much for your comments.

Commissioner White.

COMMISSIONER WHITE: Thank you. And P. C. said it pretty well, but P. C. is more politically correct than I am.

The whole situation with the Unified Command and BP and the Coast Guard sucked. It was a joke. There was no communication. They'd tell you one thing in the morning. It would be something different in the afternoon.

We'd put in a request for something. Take them two weeks to say yes or no, as simple as a boom or a skimmer. So that was very flustrating, especially for Commissioner Robinson and Commissioner Valentino who represent the coastal areas.

They caught a lot of flack over stuff

that -- They would give an answer in the morning press briefing. They'd get asked a

question. You found out an hour later that wasn't the correct answer. And that was very flustrating [sic].

In my opinion, the Coast Guard and BP were too close to each other. It's almost like they were in bed together. That's my opinion.

And like P. C. said, we were the ones who were responsible for everything but we could do nothing. We had no decision-making authority or anything. We had to rely on the Unified Command to tell us what we could and couldn't do.

And at one point -- P. C., you know this. We decided, the heck with it. We went and got our own booms and started booming ourselves because they wouldn't give us the approval to do anything.

And we kind of took the approach it's better to ask for forgiveness than it was for permission because asking for permission wasn't working.

And a lot of the communication was that BP would send a different rep every day to

the UC. So you'd have one there one day

saying we're going to do X, Y, Z. You'd have another one the next day saying completely the opposite. No. You're going to do this now. So it was very flustrating [sic].

But I appreciate y'all coming and hear us vent.

MR. BROMWICH: That's okay. I just have one question. Did the problems you've just identified, did they remain as bad from beginning to end or did things get better at some point?

COMMISSIONER WHITE: Probably the last 45 days before everything was calming down, it got better.

MR. BROMWICH: Okay. So it was particularly chaotic --

COMMISSIONER WHITE: Right.

MR. BROMWICH: -- and difficult at the beginning.

COMMISSIONER WHITE: Right.

It was some better. There's five of us on our board that... And usually the chair and the vice chair will do all the press conferences and stuff like that.

It got so bad that we all started

rotating ourselves. We got tired of getting beat up --

MR. BROMWICH: Right.

COMMISSIONER WHITE: -- for giving out wrong information.

MR. BROMWICH: Right. Right.

Well, listen. Thank you both very much. I appreciate your comments and your observations about what you've just been through.

With that, we'll conclude the third public forum on offshore drilling. We appreciate everybody's attendance and attention. And we'll resume these in a couple of weeks.

Thanks very much.

(Forum concluded at 12:04 p.m.)

CERTIFICATE OF REPORTER

STATE OF FLORIDA)
)
COUNTY OF ESCAMBIA)

I, DAVID A. DEIK, CP, CPE, Professional Court Reporter, certify that I was authorized to and did stenographically report the foregoing proceedings; and that the transcript is a true record and complete record of my stenographic notes.

I further certify that I am not a relative, employee, or attorney, or counsel to any of the parties, nor am I a relative or employee of any of the parties' attorney, or counsel connected with the action, nor am I financially interested in the action.

_____
DAVID A. DEIK, CP, CPE
Professional Court Reporter