

Speech by Bob Fryar, Executive Vice President, safety and operational risk, BP at the Piper 25 conference Aberdeen, UK, 18 June, 2013



Good morning and thank you for the kind introduction.

It is a real honour to be here today and to be part of this occasion to mark the 25th anniversary of the Piper Alpha accident.

This event really does give the opportunity to reflect, review, and reenergize: to reflect on what took place, to review what has happened since, and re-energize our efforts to prevent accidents and ensure people go home safe from work.

I read an article that Malcolm Webb wrote a few weeks ago. He emphasised the fact that this event is also a real opportunity to learn. I agree with that and on BP's behalf I certainly want to contribute to the learning opportunity. I will try to do that in two ways. First, I would like to share some personal observations on Piper Alpha and events since then. Second, I would like to share some of what we in BP have been doing since the Deepwater Horizon accident in 2010. We believe that what we are doing is further strengthening our global deepwater capability but, as you will see, much of what we are doing is company-wide rather than specific to deepwater or even to upstream.

Every company is in a different position, with different history, systems and portfolio. We are focussing on areas that we believe are important, but we do not claim to have all the answers. However, I hope that some of what I share with you today will be useful.



I thought I would start with just a few of my own reflections on Piper Alpha.

When this accident happened, I was still very new to the industry. I had only worked in it for a couple of years. As for most people, the thing that stood out to me with great sadness was the loss of life and the impact that the accident had on so many families and communities.

It also tragically reinforced the fact that we work in a hazardous industry. Our task is to bring energy to people around the world. That task is full of hazards and risks that must be understood and managed at all times.

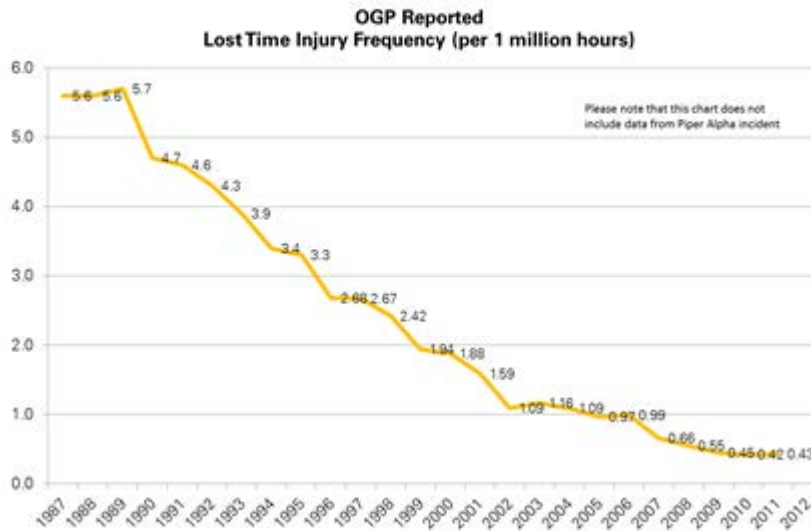
Since that time I have worked in operations for most of my career, and I have therefore been able to see and be part of the industry's response to this incident. I have worked in BP's North America Gas business, the deepwater Gulf of Mexico team, in Trinidad and Tobago, in deepwater Angola. In all of those businesses, I have felt the positive response to Piper Alpha.

This shows up in changes in the way work is controlled, how engineering is used to prevent fires and explosions, and many other areas.

The response from industry and government was very effective. Lord Cullen produced a landmark report and the accident acted as a real catalyst for change.

Despite all of these improvements, the fact is that in general the hazards and risks haven't changed. They are still there. What changes is the way we relate to those hazards and risks as we learn and improve over time.

The Past 25 years: North Sea Industry Performance



And when you look at lost time frequency in the UK offshore over the last 25 years, there has been real improvement.

From looking at the results, three things jump out for me.

First, while I recognise we are only looking at one metric, continuous improvement seems to have occurred over the last 25 years. Rarely do you see a subsequent year frequency exceed the preceding year. This improvement has substantially reduced the number of people being hurt, which is a goal we all share.

The second thing that you can see from the data is that there are some changes in the slope of the line. Where there have been big reductions in the lost time injury frequency, many times this is associated with a particular event.

The Step Change in Safety campaign, for example, was launched in 1997 and was an effort to refocus the industry. They set an ambitious target of a 50% improvement in the safety performance of the industry in the UK over the next 3 years. I believe it made a real difference.

Like the Piper Alpha accident and the Cullen report, Step Change in Safety served as a driver to make real safety improvements in a relatively short period of time. These examples show that industry-wide effort and commitment can take us forward. And the good news is that these improvements have been sustainable.

However, the third thing that you can see from the data is that for the last several years, we are in a flat spot.

As Malcolm has observed, the purpose of the time spent together this week should be to re-energize ourselves and the industry to make a fresh effort to reduce still further the safety and environmental risks associated with the possibility of a major

accident in our industry. And the flattening out of the data suggests that this is a good time to be making that renewed commitment.

We all have our own personal reasons for making that commitment afresh. One of mine is that my eldest son will start his first job in this industry in two weeks' time.

But also, as for others in BP and across the industry, it is the memory of friends and colleagues lost in tragic accidents such as Piper Alpha and Deepwater Horizon. And a determination to do everything in our power to avoid further loss of life and environmental damage.

Today is primarily about remembering Piper Alpha, but, when we review progress since 1988, it is inevitable that people will focus on the accident we and others experienced three years ago, Deepwater Horizon.



So let me briefly look back to 20 April 2010. That was the day when the Deepwater Horizon rig experienced a blowout as its crew was working on the temporary abandonment of the Macondo well. 126 people were on board.

Hydrocarbons escaped from the well resulting in explosions and a fire that burned for two days until the rig sank.

Tragically, 11 men lost their lives and others were injured. Hydrocarbons continued to flow from the well for 87 days.

We deeply regret our role in this accident. Several organizations have conducted investigations and published reports. These include our own BP investigation and the report of the President's National Commission. All official reports and our own internal investigation concluded that the accident was the result of multiple causes, involving multiple parties.

Several factors stand out in the findings of these reports.

The cement at the bottom of the well did not seal off the hydrocarbons in the formation.

The negative pressure test carried out to check that the well was sealed was misinterpreted.

And the blow-out preventer did not seal the well at the seabed. It is clear that the blind shear rams failed to seal.



Before I look at what we're doing across the company, let me say a few words about the response to the oil spill itself.

Our intention in the response was to step up and do what was right – going well beyond the statutory legal obligations - so we put a huge amount of resource into it.

It was a complex and massive undertaking. Plugging the leak meant working with robot submarines to apply containment equipment to a high pressure well a mile below the ocean. No one had done that before.

Cleaning up the spill meant a huge effort with thousands of people and vessels as well as airplanes and the largest deployment of boom ever – approximately 13.5 million feet.

At the time, I was running our deepwater business in Angola and I was one of many leaders from around BP who flew to the Gulf. I spent 4 months working on the response, and I will always remember the dedication of the people and the response of the industry and community as well as our own company.

When I arrived, shortly after the accident occurred, my first task was to call other companies to seek their help. I remember making phone calls in the morning, and, by the afternoon, we had experts from Anadarko, Shell, Exxon and others in the office helping us. Additionally, other companies called and asked how they could help. BP deeply appreciates how people offered their assistance, and the difference they made.

And as I mentioned earlier, the experience generated a deep desire across the team to learn from the accident and to seek to prevent the repetition of such a tragedy.



I also want to mention the community's part in the response. The majority of the people who took part in the response came from the local community. I grew up in Louisiana and have lived on the Gulf Coast for almost 40 years. I am really proud to say that I am from the community that responded in the ways that folks from the Gulf Coast did.

Because of the accident, a number of these folks and businesses were affected. And we have committed to compensate folks who suffered damages resulting from the spill. As well as spending more than \$14 billion in operational response and clean-up costs, BP has paid more than \$10 billion in claims, settlements and other payments.



- **Deepwater capability in wells** – including implementing the Bly Report
- **Operating Systematically** - the company-wide foundation of a safe and successful business

I would like to turn now to talk more broadly about the areas that we are focusing on across the company. As I said before, we do not claim to have all the answers, but I hope that some of this may be useful.

First I will talk about our work on deepwater capability in wells, notably on implementing the recommendations from the Bly report.

Then I will go on to talk about what we are doing company-wide, with an emphasis on systematic operating which we believe also benefits our global deepwater operations.



- 26 recommendations
- More than 190 deliverables
- 14 recommendations completed by end of 2012
- Independent Expert appointed by BP Board in June 2012



Following the accident, Mark Bly, who was my predecessor as Head of the Safety and Operational Risk function, led the BP internal investigation of the accident, which was conducted by a team including internal and external expertise.

The resulting Bly Report included 26 recommendations addressing important areas of deepwater drilling, including cementing guidelines, equipment certification, assuring the competence of individuals, and testing of blow-out preventers.

The recommendations directly addressed the findings of the investigation. For example, they recommend a review of all cementing contractors and new mandatory practices for cementing.

They recommended revising the relevant BP engineering technical practice to include more details on negative pressure tests, including areas such as success criteria, responsibilities of personnel and configuration of valve positions.

With regard to blow-out preventers, the recommendations contained new provisions on maintenance, testing and design.

The implementation of these recommendations is an ongoing major programme of work within BP. Each recommendation has to be applied across multiple locations – and many require new processes or agreements with contractors.

We have broken down each of the recommendations into defined and measurable deliverable actions. The closure of the recommendations is verified by our Safety and Operational Risk audit team, which worked with the Bly report program team to make sure that the deliverables flowing from the recommendations would be verifiable. Closure is also verified by an independent expert who was appointed by BP's Board of Directors in June 2012.

Fourteen of the 26 recommendations are now complete.



- Specialist global teams
 - Functional excellence
 - Standardization
- Further enhancing well control capabilities
 - Hiring
 - Training
 - Assessment
- Global Wells Institute
 - Further enhance & embed technical, managerial, leadership capabilities
- State-of-the-art well simulator (Houston)



As well as implementing the recommendations of the report, we have also taken a number of broader measures to further support safety and risk management in our upstream organisation.

One of the first things that we did was to look at the organisation itself. We wanted our upstream organization to be structured in a way that would encourage the building of capability and the consistent application of standards across the world, wherever they apply.

We did this by moving from an asset model to a functional model. What does that mean? It means that, instead of organizing the company in regional teams, we organized our upstream in centralized functions that bring together the people who do the same jobs around the world. All the explorers report to the head of exploration. All the people who build new projects report to the head of the Global Projects Organization. The people involved in drilling, completions and interventions all report to the head of the Global Wells Organization.

A benefit of this is that we can build on our expertise within the teams to deliver excellence in each function and also drive standardization more readily where we wish to do so, with each team using standard procedures. We believe these procedures contribute to consistent implementation and safer execution of work.

We also have looked at capability development within the framework of the new functional organisations. Part of this is about technical specialist capability. In our global wells organisation, we have brought deep expertise in house. We now have 12 cementing specialists in the company, as well as the cementing contractors we work with. We also have a team of 30 dedicated solely to BOP reliability.

But maintaining and enhancing capability is also about training. We have set up the Global Wells Institute, which brings all our Wells training under one roof. The

institute emphasises practical, experiential learning and a big part of that learning occurs in the state of the art well simulator area which we have commissioned. The simulators are used by BP personnel as well as by the contractors who actually drill the wells and who ultimately are responsible for well control. I'm told that the room contains the world's largest collection of drilling simulators in one space. The simulators replicate three major operations: the offshore environment, land-based drilling, and workovers. This simulator allows for the observation and assessment of individuals as they manage hypothetical well control incident scenarios.



- Further enhanced drilling standards
- Houston Monitoring Centre - Onshore experts liaise with offshore crews by video, teams review data



Of course, plant and equipment is also important. As well as introducing this new kit for training, we have also taken action with regard to the equipment and technology we use in actual deepwater drilling.

We have reviewed our requirements for drilling rigs in service on BP-operated wells. Any proposed departures from those requirements need approval from the appropriate person in our Safety & Operational Risk organisation – what we call S&OR. I'll be saying a little more about S&OR shortly.

But we are mindful that technology, plant and equipment can serve us in many ways. Strengthening deepwater capability is not all about the kit that actually does the drilling. We have also set out to use technology to enhance our integrated decision-making on drilling and wells.

In Houston we have created a Monitoring Center that enables offshore crews to consult in real time with onshore experts – viewing the same data and linked by video. While the responsibility for well monitoring remains with the rig crew, having a monitoring center means more people can be available as resources in a given circumstance. We believe this can lead to more considered decisions by those who have ultimate accountability. And, of course, I should be clear that accountability for the final decision will always remain with the rig crew – the Monitoring Center is about informed decisions, not collective decisions.

Spill Response



- International - Global Industry Response Group
 - OGP – IADC Well Expert Committee
 - Subsea Well Response Project with Oil Spill Response Limited
 - IPIECA - OGP Joint Industry Project on Oil Spill Response
- Regional – Examples
 - American Petroleum Institute (API) /Joint Industry Task Forces
 - Oil & Gas UK - Oil Spill Prevention & Response Advisory Group
 - Australia: APPEA & AIP

Obviously our top priority is to prevent accidents but part of building deepwater capability is to be prepared for the worst. Since 2010 there has been a strong industry-wide programme of activity in the area of spill response.

At the international level, the Global Industry Response Group was set up and has launched several work-streams. One is looking at data from incidents and communicating good practice, so the entire industry can learn together. Another relates to developing a well capping toolbox. Another is focused on response in general – capturing the lessons we learned in areas such as relief well drilling and crisis management.

BP has built its own capping stack and other containment equipment. It is stored in Houston but can be mobilised worldwide quickly.

Here in Britain, Oil & Gas UK has taken the lead and worked with the Oil Spill Prevention and Response Advisory Group to develop a response toolkit that includes a capping device. So we are seeing a number of these devices positioned around the world.



- **Deepwater capability in wells** – including implementing the Bly Report
- **Operating Systematically** - the company-wide foundation of a safe and successful business

So hopefully that has given some flavour of how we have responded to the Deepwater Horizon accident across our global wells organisation.

We want to operate systematically everywhere, not just in deepwater, but onshore, downstream and in all parts of our business.

So I would like to share with you briefly how we are systematically approaching safety and operational risk at the company level. I believe these initiatives are making an important contribution to the safety of our deepwater operations.



- Expert, independent view of risk
- Roles are to:
 - Set requirements
 - Conduct risk-based assurance and audits
 - Provide technical expertise
 - Intervene if required to cause corrective action



Following the Deepwater Horizon accident, we established a Safety and Operational Risk organization – “S&OR”. As I mentioned, Mark Bly initially headed the organization and I have recently taken over from Mark.

The S&OR organization helps us provide an expert view of safety and risk that is independent of the business and its line management.

The S&OR team is made up of hundreds of professionals whose focus is on safety and operational risk. Many of these professionals are based around the world alongside our operating businesses. For example, we have an independent S&OR team right here in Aberdeen - not part of our North Sea business, but part of the S&OR organisation that I lead.

I should stress that the existence of S&OR does not absolve the line managers of responsibility for safety and operational risk. Indeed we make it crystal clear that the line is accountable for safety. The people who do the work must shoulder that accountability but we – S&OR – are here to help them manage the risks effectively and to conduct risk-based assurance. Yes, and to challenge them where necessary.

The organization has very clear roles:

- setting clear Safety and Operational Risk requirements
- maintaining its independent view of risk – in particular by conducting assurance and audits on the work of the line organization
- providing deep technical expertise. This includes expertise in engineering, security, safety (both personal safety and process safety), health and the environment; and, if necessary, intervening to cause corrective action based on our independent view.



Continuing principles



We believe that systematic operating is the foundation of a safe and strong BP – it drives both efficiency and safety, and therefore long-term value – a safe business is a successful business.

We've been taking action to implement three enduring principles which, we believe, together add to a framework for safe, reliable and efficient operations. Under these principles, we are pursuing five specific areas of focus that relate to them and which dictate our programmes of work and activity.

The first is about people – further deepening capabilities and maintaining a strong focus on safety; this very much includes the nature of leadership. So building organisational capability across BP and strengthening leadership and culture are two specific focus areas for us.

The second principle is about the actual system we use to drive systematic operating and to manage safety and operational risk - called our operating management system or OMS. So continuing to embed OMS and to enhance risk management are two further focus areas for us.

The third principle is about what we call assurance – essentially assuring ourselves as to whether capabilities are present and OMS is working to continuously strengthen our operations. This includes collating data (measurement and assessment) – and also inspecting, auditing, and checking. These are layers of assurance or 'checks and balances'. So this gives us a fifth focus area - strengthening our checks and balances. As you'll see, our global S&OR organisation has a key role to play in this area,

Let me tell you a little about each of these principles and some of what we're doing under each of them at the company level.



Safety lies at the heart of BP and at the heart of good business



- Expectations of leaders in the field
- New hires from other high hazard industries
- Enhanced individual performance management tool explicitly emphasizes safety, risk management and Values



Our CEO Bob Dudley has been really clear in his expectations of the company with respect to safety – that safety lies at the heart of BP and at the heart of good business. He has also been clear that he expects leaders to spend time in the field and maintain great sensitivity to risk.

In the last three years we have introduced several measures to further support and train our leaders.

I'll come to training in a moment, but it is also worth mentioning the way we are expecting leaders to spend time in the field and engage with staff on the front line. We are providing them with tools and guidance on how to do that effectively, giving them valuable insights into conformance, barriers and risk management in the operations for which they are responsible.

We have also enriched our leadership team with people who bring experience from other industries with strong records in managing high hazard operations.

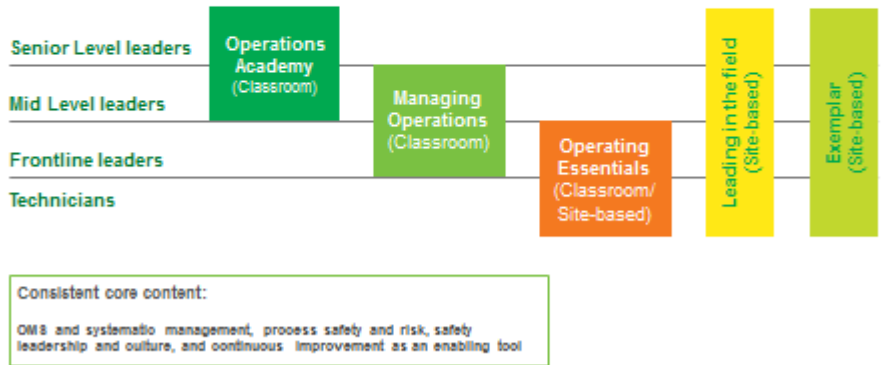
We have some former NASA astronauts – including one who worked on the Challenger Space Shuttle response. We have former nuclear industry professionals and military safety experts.

And as a voice of great wisdom on our Board we have Admiral Skip Bowman who is a former leader of the US Nuclear Submarine navy. That fleet has a safety record that is renowned worldwide, and Admiral Bowman brings us decades of experience in maintaining a successful safety culture. He has advised our safety leaders, monitored inspections and personally taught in one of our development programmes.

And performance contracts require every employee to set priorities relating to safety and risk management as well as behaviour that embodies our values of safety, respect, excellence, courage, one team.



Targeted capability programs are reinforcing Values and building leadership capacity to achieve consistently safe, compliant, reliable operations



Now let me talk about what we are doing in the area of capability. We want our leaders and operators to have the skills they need to do the job and lead systematic operations.

We have enhanced our programs to help equip people with the capabilities they need.

These programs reach from senior operations leaders down to the front line of the operating organization and those that supervise and conduct work. For example, our Operating Essentials program is for front line staff – delivered on site among teams – and more than 6000 folks attended last year. This is helping the front line develop skills in areas like continuous improvement techniques, Control of Work and Hazard Identification.

We’re now just piloting another program called Leading in the Field which is specifically about how leaders engage staff and inspect operations.



OMS is our framework for operations and driver for continuous improvement



So I've covered leadership and capability – which relate to our first principle about people and culture.

The second principle is about applying the BP Operating Management System or OMS.

OMS is the foundation of our operations. It is a framework that sets out what has to be done – and also how – and it has an annual cycle designed to drive continuous improvement.

First of all, the 'what part of OMS' is shown on the left - it has 8 elements – leadership, organization, risk, procedures, assets, optimization, privilege to operate and results.

Each element contains a series of statements on what each operation must do – from leaders providing clear direction through to collecting and learning from performance data. Where necessary, the statements are backed up by standards and procedures that set out how to meet them.

The 'how part' of OMS is the performance improvement cycle or PIC cycle (on the right of the slide). It is designed to run at least annually and is based on the International Standards Organisation: Plan-Perform-Measure-Improve cycle. Its purpose is to identify, prioritise and implement planned improvements.

OMS is used at all our operations sites - meaning that they are using it to progressively align their existing procedures and practices with the high level statements set out in OMS. We have created ways whereby sites can learn from each other, including a program called EXEMPLAR which brings specialist coaches onto sites to help them accelerate in particular areas of OMS.



A single BP-wide framework of risk management

- **Annual risk review process**, down to facility level
- Process confirms the controls in place & sets priorities for further risk reduction or elimination
- **Accountabilities** for risk reduction actions are clear and actions tracked



Our fourth focus area is risk assessment and risk management. Let me now briefly explain how we manage safety and operational risks.

As well as the many procedures used at the frontline to manage individual risks on a daily basis, we have a single BP-wide required framework within which risks are identified, understood, managed, reduced and if possible eliminated.

Every BP operation performs an annual review of the risks it faces, refreshed as necessary during the year if there are substantial changes in circumstances. The operation confirms that controls are in place and sets priorities for further reduction or elimination. The output of the work can be captured in a matrix where risks are plotted to show both their potential severity and probability.

In the 2013 risk process, more than 50 businesses comprising many hundreds of facilities – in other words all of BP’s operations - are completing risk assessments and risk action plan reviews, and these will become inputs to their 2014 plan.

This is very powerful; it allows us to set accountabilities for specific risk reduction actions, track the completion of those actions, and confirm when risks have been reduced or eliminated entirely.

As I travel around the world to our various operating sites, I talk to folks at the front line who have embraced this systematic approach to understand their risks, the necessary barriers or controls in place and the health of those barriers. And I can see that this helps them to manage, and in some cases to eliminate, the specific point risks that we have in our assets. The front line is very engaged in this process.

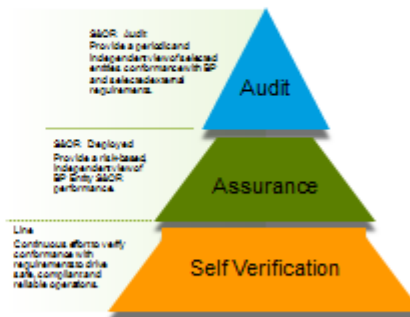
One of the tools we find effective is the bowtie tool – many of you will be familiar with this tool. On the left it shows the barriers we create to prevent incidents – and on the right, the things we do to mitigate the impact if an incident occurs. It helps users to understand and manage both prevention barriers and mitigation barriers in

place for each risk. This contributes to a deep and consistent understanding of the specific risks and can be used to help drive risk down.



A strong three tier approach to safety and operational risk assurance is in place and improving

- Operating organizations are expected to perform self-assessment, self audit to confirm OMS conformance
- Deployed S&OR works side by side with operating organization to provide on-going assurance checks and input
- Robust, independent S&OR auditing provides periodic checks on system health and compliance
- Further layers provided by Internal Audit, and executive and board level processes



The last principle and focus area is Checks and Balances. This is about inspection, checking, audit – what we generically call ‘assurance’. When it comes to safety, as long as you are careful to maintain clear accountabilities and a clear sense of ownership by decision-makers, two heads can be better than one and three can be better than two.

So we have a 3 tier approach to assurance.

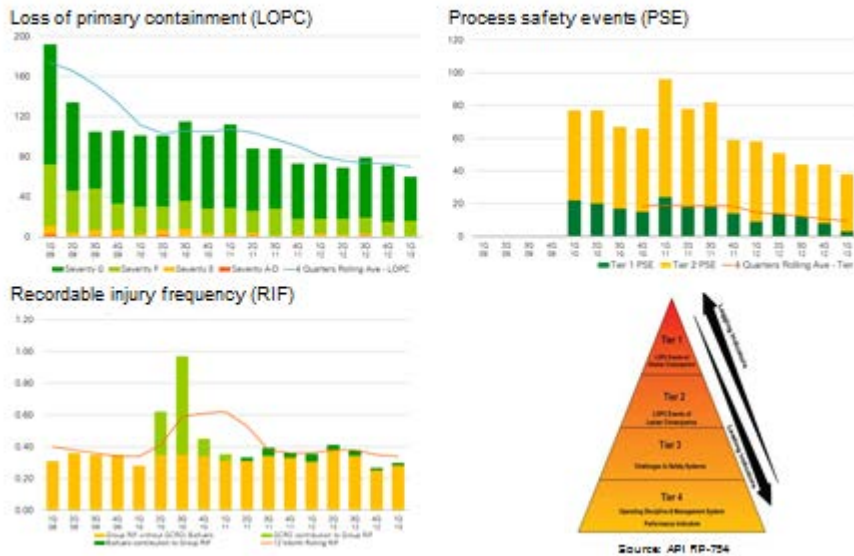
As the line is accountable for safety, they conduct self-verification to confirm whether they are conforming to OMS and their barriers are robust, and to enable them to take action as needed. This is the first tier.

Second, S&OR provides targeted, risk-based assurance by checking to see how the line is meeting requirements and maintaining and operating barriers. We do this on a structured way where we have a set topic, say control of work, where we see how well the line is demonstrating conformance. From looking across the company through these assessments, we can determine if there are points that need to be addressed across the company.

Last, we have audit. In addition to the company’s group internal audit team that looks beyond safety and operational risks, we have an audit team which sits inside S&OR and conducts a risk-based programme of regular safety and operations audits of the businesses operating on our OMS. We also audit third party rigs and ships to see if they meet our applicable standards.

If you’re wondering whether all of this is making a difference, let me tell you that I challenge myself on this every day.

Safety Performance



And I believe that it is. Here's one illustration of why I believe we're seeing improved outcomes. You can see from this slide some of key metrics and how we are performing – this is data for BP Group.

We continue to see downward trends in process safety events and losses of primary containment – LOPCs - which are essentially leaks.

In 2008 when we first put the LOPC metric in place we had 658 releases. Last year we had 292. That was a 19% reduction versus 2011.

Process safety events are categorized by tiers depending on their severity, with tier 1 being the most significant. For BP, we saw a 42% reduction in Tier 1 PSEs in 2012 on 2011.

Of course, while such data is encouraging, tracking this data is only part of BP's efforts to drive continuous improvement. But I believe the data suggest we are beginning to see the benefits of the various ongoing activities I've described. Even one LOPC can have high consequences, and any accident is one too many - and of course there is always more to be done.

Admiral Skip Bowman says "when you think things are going the best, you should be losing the most sleep". And of course that is a clear message about never being complacent.



- Leadership
- Systematic Operating
- Checks & Balances
- Vigilance



So that brings me to the end of my talk. I hope that from what I have shared with you that it is clear that safety and operational risk are truly at the heart of BP.

It all starts with leadership. From Bob Dudley our CEO on down, the tone, message and expectations are clear.

We have been working hard to implement the lessons of 2010. We are becoming even more systematic in how we operate. Our management system and risk process are key components to drive continuous improvement.

Our new Safety and Operational Risk organization is acting as an independent expert body in BP to help further improve the quality of operations

And while we believe these things are making a difference, we also know there is always more to do at BP and in the industry, and we must remain vigilant.

The Piper Alpha and Deepwater Horizon accidents remind us all of the consequences when things go wrong. They also provide lessons from which we all can learn and improve.

That is the challenge for all of us and why we are here today.

Thank you for your time this morning – I hope that some of this will be helpful to you. I also hope that the conference will reenergize us all individually and collectively. Thank you.