Cover Slide 1	Good morning/afternoon. My name is Jon Lay, and in addition to being the Global Emergency Preparedness and Response Manager for ExxonMobil I have had the privilege over the last four years to have chaired the IOGP/IPIECA Joint Industry Project on Oil Spill Response. But first a few words about the theme of this symposium. The title of the 2016 PAJ Oil Spill Symposium is "Maintaining Future Oil Spill Response Preparedness". When the organizers thought of this title I think they were being polite. If I was being direct - which sometimes I am known to be – I might change the title to "Maintaining Future Oil Spill Response Preparedness in a mini ice-age" because that, in truth, is what we face. We face an environment where investment for Oil Spill Preparedness and Response is limited because of the current crude price scenario, and as responders and planners, we face an equally challenging situation where the threat of a major Oil Spill has slipped down the "worry list" of executive managements in the face of other concerns such as Climate Change. Not that Climate Change isn't important and real, but it must not be permitted to distract us from the urgency and immediacy of planning to prevent, and if necessary respond to a major oil spill. Over the next half an hour I will be giving you an overview of the work we have been doing in Phase I of the JIP, much of which is relevant to working effectively in these challenging times.
Slide 2	For those of you who are unfamiliar with IOGP and IPIECA, I will be describing who they are, the actions we have taken on spill response through the JIP since the Montara and Macondo incidents, how we see the future on response issues, and where we believe that there is an opportunity for industry and regulators to work together, globally, to put in place consistent, agreed, and effective standards for oil spill response preparedness.

Slide 3	Firstly, an explanation of who the global Oil and Gas Industry associations IPIECA and IOGP are. IPIECA is the global association for environmental and social issues for both the upstream and downstream oil and gas industry. It is a non-advocacy Association formed in 1974 following the launch of UNEP; membership covers over half of the world's oil production. The International Oil and Gas Producers Association (IOGP) works on behalf of the world's oil and gas companies and organizations to promote safe, responsible and sustainable exploration and production IOGP encompasses most of the world's leading publicly-traded, private and state-owned oil and gas companies, industry associations and upstream service companies. The principal difference between the two associations is that IOGP is exclusively upstream, and IPIECA covers only environmental and social issues, but for both upstream and downstream; IOGP has an advocacy & lobbying mandate, while IPIECA concentrates on technical advocacy and best practice on environmental and social issues.

Slide 4	The blow out and fire leading to the destruction of the West Atlas platform in the Timor Sea, and the Macondo – perhaps better known as the Deepwater Horizon - incident occurred within months of each other. These are two dates that we will never forget in our industry and the events on those dates changed the way that we thought about upstream prevention and response forever. Lives were lost and pollution was caused and the industry made the collective declaration that this must never be allowed to happen again. For the global associations this meant getting to grips with the root causes of the accidents and then looking at the gaps – and seeing how we can fill them by augmenting best practices on Prevention, Intervention, and Response.
Slide 5	IOGP formed the “GIRG” - the Global Industry Response Group – which identified five key capability areas, of which three – Prevention and Drilling Safety, Capping and Containment, and Oil Spill Response, were felt to be the most important for developing best practices and capabilities.

Slide 6	As a result of "GIRG", IOGP formed this three-part structure Industry Response Group project. Those of you who are familiar with the "bow – tie" concept will immediately understand that the left hand side of this diagram represents the left hand side of the bow – tie (prevention) while the two columns on the right hand side represent intervention and response. So we have Prevention… better capabilities and practice in well engineering design, creation of training and examination programs on well operations, etc. We have Intervention… production of four very large capping stack devices located in Stavanger (Norway), Rio de Janeiro (Brazil), Cape Town (South Africa) and Singapore – these are equipped with a variety of adaptors that can fit 95% of all wellheads. This is only one of many different capping stack systems that are available round the world. When it came to response, the project that IPIECA was asked to handle on the basis of their expertise in Oil Spill Response… the Oil Spill Response Joint Industry Project or "JIP" This was designed as a three year project (2012 – 2014) addressing nineteen recommendations for improving spill response developed following the Montara and Macondo incidents. During the project we were asked to take on a substantial amount of new work so we are only now finishing Phase I of this project We have nineteen oil industry members in phase 1, including INPEX from Japan, and while dispersant issues are being addressed in about 20% of the JIP work streams, the project covers many other important aspects as well.

Slide 7	The outputs from the JIP can be placed into four categories: - Firstly, Good Practice Guidance: we have written 24 Good Practice Guides and in Phase II we are doing their translations. These documents will replace the existing IPIECA Oil Spill Response report series - Secondly, short technical reports in the "JIP" series, developed to communicate technical good practice or to make it accessible to external parties. - Thirdly, pure research & longer technical documents which are detailed technical research and information - And lastly, "outreach" materials, videos/animations, and what we call "Glance/Scan" materials which are short briefing PowerPoints and briefing papers highlighting key topics
Slide 8	So what have we done? - With regard to dispersants we recognize that dispersant isn't always the answer in every spill. But where it can help – or even be the prime response tool, we believe that both regulators and industry have to understand both its advantages and limitations. - With the help of SINTEF we have created a system that attempts to simulate the behaviour of oil and dispersant at depth. In this computer controlled system you can vary the Dispersant to Oil ratio and other system conditions to evaluate the effectiveness of dispersant action. The droplet size is measured by Laser interferometry and the system can test one dispersant / oil combination every fifteen minutes. - Using dispersant on a Macondo type blowout is different to a shipping spill, which has a finite quantity of oil and a set weathering duration. Despite the establishment of an industry global dispersant stockpile of 5,000 cubic metres the logistics of getting the dispersant to the theatre of operations can be challenging and so we have developed guidance on logistics and

	dispersant planning. - We've also developed guidance on Post-spill monitoring using the SMART protocol and where we believe it should and should not be used.
Slide 9	We've also seen that in many developing countries there is confusion on the difference between and the complexities of licensing and regulation. The document you see here leads the reader through the fundamentals of dispersant licensing and approvals and while it is targeted at developing countries it may also be of use to countries with established programs.
Slide 10	Across industry there are a total of at least 12 In-Situ Burning or "ISB" projects taking place between ourselves, the IOGP Arctic JIP, and the work being coordinated by the American Petroleum Industry in DC. This slide summarizes that work.
Slide 11	One of the early pieces of work we carried out was on Risk Assessment and Response Planning for Offshore platforms which answers the question "How much spill response equipment do I really need for offshore operations?" This is based on principles developed in Norway and used very effectively there for several years. Built for us by DNV GL in Oslo it conforms into the current appetite for risk based solutions, especially in Europe. Members have trialled this in several countries and while the process is complex, by the end of the process you really will understand your risk profile much better in terms of your response needs. The document contains worked examples to help you understand the steps involved.

Slide 12	As you can see from this slide, we have also produced Guidance on the following: - Aerial dispersant spraying from a Jet platform - The possible legal structures for companies wishing to cooperate on Mutual aid arrangements around the world - The importance of knowing the spill response characteristics of oil that you produce, store, or transport ahead of any possible incident, and - On evaluating the response effectiveness of Oil Spill Response Organizations or "OSROs"
Slide 13	We have worked with the IOGP Geomatics and Metocean groups to produce guidance on in-water surveillance of hydrocarbon releases, satellite remote sensing, and modelling and while this is very important, probably the most ground-breaking piece of work has been Work Package 5 which is described in this slide. Those of you who read the Macondo "Incident Specific Preparedness Review" (ISPR) prepared by the US Coast Guard following the Macondo incident may remember that one of the findings was that there was a lack of a Common Operating Picture system that could be integrated into the response organization. We've put in place open standards for communications between the situation on the ground and the command centre and this has been adopted as a Recommended Practice by several key organizations – for example the Open Geospatial Consortium.
Slide 14	Probably the biggest effort of the JIP in terms of cost, but more importantly sweat equity, is the production of 24 Good Practice Guides or "GPGs" on various aspects of Oil Spill Response. Twenty-two of these are completed in Phase I (Eighteen fully published and available and a further four under comment) and we envisage a further three being completed as part of Phase II.

Slide 15	So here is the list of all 24 GPGs as they currently exist. We may add one more document – Environmental Assessment and Restoration - and are looking at what is currently out there before making a decision on whether to write that final document or not. Some of you will know there is already a UNEP-IMO document on that topic already and we are keen not to duplicate the document unless we feel it needs to be re-written with a focus for industry. We feel that these documents will end up being regarded as the legacy of the work we are doing on various aspects of Oil Spill Response.
Slide 16	Being that these GPGs are so important, we wanted to answer the question you are probably asking which is: "How do these GPG's and guidance documents help us in satisfying regulator principles and expectations?" so we have mapped the GPGs to the principles published by the "IOPER" who are the International Offshore Petroleum Environment Regulators forum, who we have been working with very closely.
Slide 17	The first of these principles are that response capability should be fit for purpose. The key to defining "fit for purpose" is understanding scenarios, which lead to understanding risks and defining needs As an example, I point to the JIP publication "Risk Assessment and Response Planning for offshore installations" which presents a detailed methodology for an operator to carry out an assessment of response resource needs and capability and to prove to themselves and the regulator that they have the ability to cascade resources in to the spill area This provides a validated link into a step-wise contingency planning process, which is how the industry is – or should be - consistently planning for upstream OSR

Slide 18	…and as a second example I point to the work we have done as part of the "Surveillance, Modelling and Visualization" or SMV program of the JIP, where we assessed six scenarios to evaluate combinations of technologies to detect and monitor hydrocarbons in: - An onshore spill - A release at a coastal terminal - An oil tanker in transit offshore - An offshore platform oil and/or gas—both surface and subsurface accidental releases of finite amount - An offshore pipeline rupture - A deep water well blowout—Macondo-type continuous release For each of these we looked at SMV tools to help improve responses
Slide 19	A second IOPER principle is that response performance levels should be set to promote effective preparedness. Now our view is that there are some situations in which strict performance measures can directly correlate to effective responses – but there are relatively few of them. Identifying meaningful performance measures for preparedness is a challenge. Our preference is to focus on assessment rather than numerical measures Some examples: The US EDRC approach for mechanical recovery is flawed more than a few kilometers off shore Duplication of resources for each operator in the same basin is inefficient and counterproductive Data – driven NEBA assessments attempt to quantify qualitative decisions So…. If these are problematic, what does work?

Slide 20	An example of where performance and capability criteria DO work would be our assessment / audit document on response effectiveness of OSROs.. but even that is limited because while "box – ticking" is great at establishing whether the components are there… it is NOT effective at demonstrating whether they will work as intended in a real response - the only way to do this is through participation and observation in planning and exercises. So, join us on exercises! (you may not get a number but you will get a good idea whether we know what we're doing!) In our view, participating in exercises will also help demonstrate the need and value of pre-approvals in improving the speed and efficacy of response. We know how difficult it is for you regulators to pre-approve but we firmly believe that time is our biggest enemy and the politics during response approvals can mean you "lose the war" before you have even started. Finally, we also believe that an effective Incident Management System is an underrated component of success.
Slide 21 a, b, c, d	The next IOPER principle is that Response capability should be built to be adaptable and we point to the evolving JIP Tiered preparedness and Response model. With the specialized nature of today's equipment and services, as well as the variable location of operations, spills and their associated responses can no longer be classified based on volume. The Tiered Preparedness and Response model has evolved to reflect the realities of today's operational environment. This new model facilitates a tiered response by depicting which response capabilities are needed and in what timeframe.
Slide 22	[***Presenter will describe the model depicted on the slide***]

Slide 23	Location factors, amongst many others, must be taken into account when provisioning resources based on the principles of Tiered Preparedness and Response; for example a remote location in a country with access challenges (e.g. due to weather) even if it is nominally a Tier 1 location, will likely require a greater local capacity due to possible limitations (e.g. weather related) on equipment able to enter the country. Likewise, a coastal location near a Tier 3 response centre (e.g. OSRL Singapore) would require less equipment than a location that was remote.
Slide 24	So we have developed a new Tiered Preparedness and Response Model in which the 15 capabilities shown in the wheel essentially represent the scope of Tiered Preparedness and Response, however, they can be broken out in a variety of ways.
Slide 25	The final IOPER principle is that Response capability should be sustainable. Industry expects to utilize all sources of response capability - commercial as well as mutual resources, and that is why we recommend a scalable approach which allows for resources to cascade in from multiple international sources Plans should include sustaining a response through multiple IMS position backups and in terms of using commercial resources the GRN: Global Response Network of OSROs provides access to a broader pool of responders than industry alone. Industry expects to utilize all sources of response capability. When we say “response capability should be sustainable” it is important to note that we do not view “sustainability” as a national issue – it is much broader

Slide 26	So where do we have the opportunity to work together? For the regulators in this audience I want to suggest where, globally, there is scope for us to cooperate on the following: - The consistent use of global NEBA methodology – not Arctic NEBA, US NEBA, European NEBA, Japanese NEBA, etc. - Adoption of pre-approvals where supported by peacetime NEBA conclusions - Ready access to all response tools as supported by NEBA - Support for utilizing the most effective response tools first - Adoption of clear Tiered Preparedness and Response principles in planning
Slide 27	We also want to work with you on: - Supporting efforts to remove or reduce barriers (people, equipment, etc..) - Participating in exercises and drills - Adopting a risk – based approach to offshore response planning - Setting clear expectations for OSRO competency and capability - Setting realistic principles for exercise frequencies and the basics of Contingency Planning
Slide 28	I want to close by drawing your attention to our suite of Good Practice Guidance documents and showing you how they relate to the Tiered Preparedness and Response principles that we have developed. It has been a long four years but we have a lot of product at the end of it which we now need your help in "spreading the word" so that this material doesn't just sit on the shelf. Rather, we want it to become a mutual frame of reference and a basis for sensible regulation for both industry and the regulatory community alike. And that brings me back to my initial comments on the theme of this conference. I firmly believe that the only way forward for the industry in times like these is to work closely with regulators to find cost-effective solutions to preparedness and response challenges. Using the materials that we have developed in the JIP will help you achieve that goal. I wish you all a wonderful conference and thank

	you for your kind attention.