# *Preparation: Paves the Path to Success*

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(OPENING SLIDE)
Good morning. My name is Don Toenshoff, Jr. I am the Executive Vice President of the Marine Spill Response Corporation, MSRC, in the United States. I have enjoyed this position since 1996 prior to which I worked in various aspects of the oil and tanker industry.

I would like to thank the leadership of the Petroleum Association of Japan for your gracious hospitality and invitation to discuss oil spill preparedness over the next several days. Having been on your invite list before, I appreciate this opportunity to share our respective stories of oil spill response. It is opportunities for discussion, such as this Symposium, where we build relationships that drive all to future successes. I am sure you will agree that the theme of this year's Oil Spill Symposium, *Preparedness for a Major Oil Spill Incident*, will lead to an opportunity to garner these relationships.

Finally, before I start, I wish to thank and recognize PAJ's great team of translators who will work tirelessly with me to translate my New York English into understandable Nihon-Go. My promise to them, and to you, will be to speak SLOOWLY and try not to use too many US centric oil spill response acronyms. This said, as I am from the New York City area, I am not too sure how successful we will be, but I will try!

**(SLIDE 2)**
Today, I would like to take the opportunity to discuss my viewpoints on oil spill response preparedness and how MSRC embraced many of these concepts in our response to the Deepwater Horizon spill response effort.

In particular, I look to discuss the following points:

- The Deepwater Horizon (DWH) Incident
- MSRC Response to the DWH
- My thesis on “Preparation: Paves the Path to Success” and “The 6 P’s
- A historic view of the MSRC foundation: Pre-DWH
- An introduction to how MSRC has expanded post-DWH
- And Finally, some closing thoughts and observations for us all to take away as a result of this Symposium

**(SLIDE 3)**
As of now, we all know the background on the Deepwater Horizon Incident. The drill ship was drilling an exploratory well in Mississippi Canyon 252 (MC-252), or about 40nm (about 64km) offshore Louisiana

At 21:45 hrs, or 9:45 pm local time on 20 April 2010, there was a blow back of some sort with a resulting explosion and fire. After a massive search & rescue operation, it was determined that 11 workers were regrettablylost in the explosion and fire.

Upon being notified of the incident, BP initiatedits oil spill response plan. MSRC is identified as an “ensured by contract” spill responder in accordance with the various planning requirements of the Oil Pollution Act of 1990. While the MSRC response was focused on oil recovery, BP’s response included many aspects outside the physical oil spill response.

**(SLIDE 4)**
Some photos of the last days of the Deepwater Horizon which eventually sank in about 5,000 feet (1524m) of water on the morning of 22 April 2010.

**(SLIDE 5)**
Given the scope of the DWH response, many tactics and tools were used in four states along the Gulf of Mexico (Louisiana, Mississippi, Alabama, and Florida – not shown in this graphic).

As you can see, the response operation was very busy and included objectives beyond “oil recovery” operations. All objectives workedin concert; a sizeable task. As you will note, surveillance tactics utilized both satellite and aircraft. Various sampling techniques were used to monitor air, water and biomass.Beaches were prepared for possible impact and were cleaned, as needed, both pre- and post-impact. Controlled burning and dispersant operations were conducted safely and effectively.

Source control operations were significant and outside the scope of this discussion. What I find personally amazing is that at 5,000 feet depth, water pressure is over 2,300 pounds per square inch, or 154 bar. Amazing technology to be able to operate, remotely, at that depth and pressure.

Not to overlook the details, and recognizing that this snapshot was at one point in time, you can surely see what is being presented here is a large, wide, deep and complex organization that spans several hundreds of kilometers of potentially impacted areas. Or to put into another perspective the size of the spill was approximately 6,500 square kilometers, or three-times the area of the greater Tokyo metropolis.

**(SLIDE 6)**
A snapshot satellite photo of DWH spill taken on May 24, 2010, or about a month after the explosion.

**(SLIDE 7)**

As previously mentioned, during the morningof 22 April, the Deepwater Horizon sank in 5,000 feet of water(~1,524m). Shortly thereafter, the first report of oil sheen on water was observed. Over these several days, BP continued to ramp up its response.

Shortly thereafter, the US President declares DWH a “Spill of National Significance” (SONS). As a sidebar note on the value of “Preparedness”, by pure coincidence it was only 4-weeks prior to the DWH that the US Government practiced a SONS oil spill drill in Maine.This SONS drill did offer an opportunity to “dry run” a scenario, to address topics and put “oil spill response” on the table at all levels of Government up to the President of the US (POTUS). Iwould be hard pressed to say that this coincidental drill did not provide any value.

On 15 July, or on day 87-day, the “capping stack” was successfully installed. This cut off the flow of fresh oil. While the response was far from over, this was a significant sign of progress.

Finally, on 19 September, or on day 153, a relief well hits its target and kills the “Macondo Well”.

**(SLIDE 8)**

**DWH Incident: Immediate Aftermath**

The DWH incident was a “rule changer”, not unlike many spill responses in past decades such as *Torrey Canyon*, *Amoco Cadiz*, the Prince William Sound spill, the *Prestige*, *Erika*and *Nahodka*oil spills. The Deepwater Horizon has and will continue to change US Energy policy for the foreseeable future.

Most notably, shortly after the DWH incident, a moratorium was issued to halt drilling of any new wells offshore US. This moratorium was in effect until mid-October 2010, but it did have its economic and political fall out.

Public perception and awareness of the spill was at an unprecedented level. In an attempt to feed 24/7 news and cable, any “news” became “the truth”.

Social medium (Twitter, Facebook and others) were key drivers of public sentiment and provided a means for every account holder to “post” a position on line. Often times, these “posts” would go viral through the Internet as the “truth”.

This unprecedented use of technology and communications was challenging to the responding organization as often the desire for “news” and viewer ratings would come at the expense of credible reporting. As one case in point, I often watched the late evening news where various “oil spill response experts” were interviewed on TV and would often make various claims. What I found personally disturbing, was that with over 20-years in oil spill response in many cases I have never heard of these “experts” nor what organization they represented! While our industry is significant, it is really not that large. As I have often told those who ask, the real “experts” were on the job, on BP’s payroll working to solve the issue.

Finally, the DWH was a catalyst for new oil spill response planning requirements and Agency oversight. The previous U.S. Department of Interior, Minerals Management Services (MMS) was dis-banded, re-organized and has emerged into the Bureau of Safety and Environmental Enforcement. Led by retired US Coast Guard Admiral James Watson, BSEE will be responsible for promoting safety, protecting the environment and conserving resources through the vigorous regulatory oversight and enforcement of offshore operations on the U.S. Outer Continental Shelf.

As I stated: a Rule Changer.

**(SLIDE 9)**
**MSRC Role in DWH Response:**
As with any event, spill or project, it is important to recognize the role and the perspective of the participant. With that, I would like to offer MSRC’s resume’ on the DWH:

- MSRC was the single largest oil spill response contractor on the DWH. We are listed in BP’s Federal Oil Spill Response Plans as its Oil Spill Removal Organization, or OSRO, and as such, we received one of the first calls.

- MSRC provided services including:
  - Mechanical recovery; offshore, near shore and inland operating environments
  - Aerial Dispersant Services from our Mississippi response base and airport
  - In situ burn systems that we held in stock
  - Emergency Communications Services, and
  - MSRC was a General Contractor for hiring of various subcontractors

**(SLIDE 10)**

Equally as important (and maybe more so), it is critical to recognize what we did NOT do. MSRC was not involved in:

- Relief well drilling activities. This technology is totally outside of our skill set.
- Subsea Well Control Efforts (including source dispersant operations). Same.
- Drafting of Federal Response Plan or Spill Management. In this case, spill management also includes various activities such as natural resource damage assessments; claims management; hiring of the DWH fishing fleet as vessels of opportunity; financial management of spill ops and numerous other responsibilities associated with setting up of a multi-billion dollar organization,

**(SLIDE 11)**

**MSRC Mechanical Recovery Response:**

Core to our role in Mechanical Recovery Response, the following MSRC assets were deployed:

- 12 “Responder” Class Oil Spill Response Vessels (OSRVs). This number includes 2 California based OSRVs which were sailed via the Panama Canal to the spill site in a previously unprecedented move
- 3 Ocean-going barges
- 22 Shallow Water Barges
- 6 Fast Response Vessels
- 71 Marine Assets

- 42 Skimmers
- ~65,000 ft. (~20,000m)of boom

**(SLIDE 12)**
**MSRC Dispersant Services:**
The MSRC contracted aerial dispersant operations was a key contributor to the response.

I can speak to this operation, as one of my many responsibilities at MSRC was the program manager in the development of this capability. In this role, I personally managed the operation in our Stennis, Mississippi home airfield with over 877 safe and effective air flights conducted under the direction of the US Coast Guard.

Our operation focused on several components:
First, our contracted King Air 90 spray plane based at Stennis Airfield in Mississippi was immediately activated upon notice from BP. Concurrently, the MSRC contracted C-130 spray plane based in Coolidge, Arizona was immediately activated andphysically flown to Stennis Airport to await orders.

MSRC coordinated all dispersant logistic services for Stennis based aircraft including an additional 3spray C-130s from industry. As a result of the SONS order, the U.S. Air Force supplied 4 spray C-130s, which were assigned to work with industry. At the end of spray ops, the Stennis operation applied~801,000 gallons of dispersant at the direction of the US Coast Guard and was hailed as a success.

What will be a key theme later in this discussion is the role of Commitment as a key success factor in oil spill response preparedness. As a prime example, the dispersant capability utilized in DWH was developed in absence of any Regulatory requirement. In 2003, MSRC Customers authorized us to study alternatives to older airframes, and then funded a program that kicked off in 2006. This new program utilized newer airframes. Were it not for this leadership by MSRC funding Customers, the dispersant operation in DWH would have been a much different operation.

**(SLIDE 13)**

**MSRC In Situ Burn Support:**

Prior to DWH, MSRC owned 9 in-situ burn kits that were used by other response contractors in the DWH response. We also supplied support personnel. The response's burning operation totaled 411 burns with various sources of burn booms. The manufacturers of these burn systems worked overtime building systems for the response.

What has been recognized as a core issue is that there is a long lead time to manufacture burn systems. As I will discuss later, this is a critical inventory item to stock for a future response organization is able to utilize this tool.

**(SLIDE 14)**

**Emergency Communications Response:**

Communications arekey to any response effort. Very quickly, local phone service and cell towers are often overwhelmed with the volume of calls and data. Often times, you are operating in "out of the way" or marginal areas.

On DWH, MSRC provided five (of our seven total) Emergency Satellite Communications Packages.

In addition to these packages, which are stored in ISO containers, 30 MSRC communications and IT personnel responded. These 30 personnel were augmented by 46 additional trained contractors to bring the total to 76 IT & comms experts.

Our scope of services included Full deployment and Telephone and Data Internet support via DEDCIATED satellite link that MSRC leases on an annual basis

I'll speak to this capability in more detail later.

**(SLIDE 15)**

**MSRC General Contractor Services**

Finally, MSRC engaged52 Contractor companies, or our *STARs* contractors (Spill Team Area Responders). A total of 7,278*STARs* contract personnel were deployed at the peak of activities.

*STARs* contractor services included:

- Safety
- Shoreline Clean-up (pre and post impact) … Often times pre-impact cleanup does not merit much attention however it is a core success factor. It is relatively easy to pick up branches, trash and seaweed from a beach that has not seen oil impact. Once oiled, it is much, much more cumbersome and challenging (and expensive).
- Boom deployment
- Skimming operations
- OSRV Back-deck Operations
- Shallow Water Response Operations
- Logistics Support

**(SLIDE 16)**

**Preparing for a Spill: The 6 "P's**

With this background behind, we get to the crux of the matter.

When asked to speak to this Symposium, I saw (and applauded) your theme being "Preparedness for a Major Oil Spill Incident".

How timely and pertinent!

In recognition of the Symposium's theme, I have titled my presentation:

***"Preparation: Paves the Path to Success"***

Or, possibly stated another way:

***"Proper Planning & PreparationPrevents Poor Performance"***

Of course, the key question is "How do you get there?" Over the next minutes, I will attempt to provide you highlights of my perspective of how MSRC met the challenge of the Deepwater Horizon response.

**(SLIDE 17)**

**Preparing for the spill: The 6 "P's"**

Key to any successful operation, military, business venture or spill response project isCommitment.

Commitment of Customers/Members for your services
Commitment for Capital to buy equipment
Commitment to a robust but not excessive Operating Budget
Commitment to hire, train and retain personnel
Commitment to support a long-term readiness posture given relative infrequency of spill responses of the size of DWH. This includes maintenance, Quality Assurance drills and Quality Control Inspections
Commitment for new initiatives, such as certified dispersant spray aircraft, which I will discuss in more detail
Commitment to train, drill and pull all these aspects together *BEFORE*oil spills onto the water

In MSRC, we have had this commitment since the company's founding in 1990. Our customers, who make up the membership of the Marine Preservation Association, have spent considerably over the past 22-years to develop, retain and enhance a solid spill response organization --- often a capability that far exceeds what has been accepted by the US Coast Guard, US EPA and other regulatory agencies as an acceptable level of resources.

With this commitment in place, then the goal is to build off a strong base of assets, as I will briefly discuss in the next several slides.

**(SLIDE 18)**

**MSRC Responder Class OSRV**
Core to the MSRC response infrastructure is the Responder Class Oil Spill Response Vessel (OSRV).

Built in the 1992 and 1993, MSRC owns and operates fifteen (15) of these vessels around the USA. Being single mission purpose (oil spill response), they are outfitted with many attributes capable of response offshore for upwards of 30-days.

These vessels operated flawlessly for extended periods of time in trying conditions on the DWH response.

In the interest of time, while I will not read to you the details of these vessels, you can see from the slide the highlights of their capability:

- 210 ft. (64m) length
- 12 knot speed of advance
- High capacity skimming systems
- 4,000 bbl. (636$m^3$) temporary storage
- 2 Oil water separators
- Berthing for 38
- Medical facility
- Helicopter deck
- Command and control capability
- Boom-oil containment
- Floating inventory of ocean boom for enhanced “U” skimming
- ~2,240m on Gulf of Mexico OSRVs post DWH

**(SLIDE 19)**
**Oil Spill Response Barges (OSRBs)**
Unique to MSRC is a fleet of 19 dedicated oil spill response barges. These barges are outfittedwith appropriate oil spill response auxiliary equipment such

as robust centralized hydraulic systems; cranes, ample deck lighting and other systems not normally found on commercial barges.

Being dedicated to oil spill response services, they are allowed to remain single hull and operate in the US.

As you will note on the photo, each barge is equipped to handle a skimmer and operate as a skimming barge. In certain locations that lack a Responder OSRV, skimming barges become the initial response asset. With adequate storage and a large working deck, they often are a very stable work platform.

**(SLIDE 20)**

**Protected Water Systems**

In addition to offshore response capability, it is often response in protected waters or shallow waters proximate to shore and docks that present challenges.

The MSRC Fast Response Vessel is designed to operate quickly and can get on location promptly.

MSRC designed and built 68 shallow water barge systems. Each pontoon is 8 feet (2.43m) wide and can transport over the US Highway system. We pin two pontoons together to make a stable work platform that is 16 feet (4.86m) wide and 48 feet (14.6m) long. They can operate in waters of less than 3 feet (<1m) and have 64$m^3$ of temporary storage. A workhorse of the MSRC response pool and have been used many times in sheltered waters.

**(SLIDE 21)**

Some additional photos of the FRVs and SBS in action.

**(SLIDE 22)**

**Dispersant services.**

As mentioned previously, in 2003, MSRC's customers challenged MSRC to develop a robust aerial dispersant program prior to any regulatory requirement.

In Fall 2006, the MSRC dispersant program was unsheathed. The program at that time consisted of a dedicated King Air strategically located in Stennis Airport, Mississippi supported by a C-130 based in Coolidge, Arizona.

With the aircraft came a training regimen, standard management processes and practices and a robust QualityAssurance program. More importantly, we formed teams with good, quality partners who embraced the “Can Do” concept of emergency response operations.

Thissystem was tested in a smaller spill response in 2009. This said, nothing prepared us for the challenges of DWH!

I have often opined that if you would have told me pre-2010 that we would coordinate an operation of four C-130 spray planes plus numerous other aircraft over an 89-day operation, I would have suggested you take some much needed rest!

However, it was due to the COMMITMENT of MSRC Customers who challenged us to expand (and then funded the expansion) that made the DWH aerial dispersant operation a success.

As of today, we have contracted two dedicated C-130s in Stennis & Mesa, Arizona, as well as four dedicated King Air spray aircraft in Maryland, Stennis, San Juan, Puerto Rico and the San Francisco Bay area. These aircraft stand ready 24/7 to respond anywhere within the MSRC Operations Area.

**(SLIDE 23)**

**Emergency Communications Services**

As briefly mentioned, communications are a critical and often overlooked success factor in any operation.

The MSRC comms suites provide satellite communications with phone and Internet capabilities. These are used in both spill and non-spill emergencies (such as post- hurricanes or in case of a fire).

The best way to describe the capability is that you can set these suites up in a remote field with a tent. With the Suite comes 96- individual phones (with an individual phone number), connect via satellite and you can easily call someone here in Tokyo. This is accomplished using satellite bandwidth that is dedicated to and paid for by MSRC.

As mentioned, we also have 30 full-time communications and IT experts on staff.

**(SLIDE 24)**
**MSRC Services - Spill Response**
Finally, **THE** single core component to any successful response?

*Trained & Qualified Personnel*

MSRC personnel have experience on over 700 spills in last 20 years.

As a result of this experience, we have embraced and developed an extensive use of proven MSRC Health & Safety procedures, training protocols, management systems & procedures.

Much of what was utilized in DWH was garnered as a result of extensive GOM experience including multiple responses during Hurricanes *Katrina/Rita* (2005).

As part of the MSRC process, “Lessons Learned” from a response arerecycled back into the organization.

In my opinion, this process of internal critique (what worked, what did not work, and what can be enhanced) provides a forum for continuous improvement in an ever-changing dynamic world.

**(SLIDE 25)**
**Post-DWH Expansion: The MSRC Deep Blue Program**

With a US Presidential moratorium in place prohibiting the drilling of new wells, MSRC's funding members challenged MSRC to quickly expand response capability for our Gulf of Mexico Operations.

In short order, MSRC set off a worldwide procurement of various asset types.

This geographic expansion was termed: "Deep Blue"

**(SLIDE 26)**

**Conversion of Platform Supply Vessels (PSVs) for dual service Oil Spill Response**

One major component of Deep Blue was the identification, contracting and conversion of Platform Support Vessels, PSVs, for dual service Oil Spill Response and PSV.

At the end of the day, MSRC entered into contractual arrangements with two partners, Hornbeck Offshore Services, for two PSVs and Edison Chouest Offshore, for three PSVs.

These PSVs are in routine daily service to the oil patch. Under charter to various oil companies, they routinely support exploration and production operations delivering mud, cement, food, fuel, stores and drilling supplies (pipe, etc.) to rigs up to 200-miles offshore.

Each vessel was outfitted with a skimmer (either a LAMOR or Crucial); boom (continuous inflation boom provided by Engineered Fabrics in the USA); a WEEDO Craft to assist in forming a "J" and low visibility capability which I will explain in more detail.

As part of the conversion, tanks were converted for recovered oil service. These tanks range in size from 8,000 barrels to about 24,000 barrels recovered oil.

While not expected to be a "First Strike" response asset, the PSVs do provide additional depth if needed for a larger response.

The above said, I am pleased to advise that all five of these PSVs are now operational.

**(SLIDE 27)**
**Converted Deep Blue Dual Mission PSVs:**
Some photos for discussion.

The top left is a short from the aft deck of the *ALYSSA CHOUEST* PSV looking forward, the newest vessel to the group.

As you can see, the WEEDO daughter craft is located on the Port side, and the LAMOR skimmer is located on the Starboard side on a raised platform over the Boom Reel.

Top Right is a close up of the LAMOR skimmer and Bottom right is the 9.1m WEEDO Tug.

Finally, bottom left is the Starboard side of the *Alyssa Chouest*. Of interest, the structure forward of the LAMOR skimmer is a Remotely Operated Vehicle (ROV). Not an MSRC piece of equipment, but an indication of the technology that has gone into the design of this boat.

**(SLIDE 28)**
**MSRC Deep Blue Program: Skimmers**
As part of the MSRC Deep Blue procurement, we purchased numerous high capacity, high efficiency skimmers.

Skimmers were purchased for the five PSVs and Skimming Barges.

The skimmer to the bottom right is a CRUCIAL 88 “Fuzzy Disk” skimmer built in Louisiana.

The skimmer to the left is a LAMOR LFF-100 skimmer. Of interest, as part of an on-going MSRC recapitalization project, we have since removed Transrec 350 skimmers from two of our Responders, the Louisiana Responder and the Deep Blue Responder, and have replaced them with LAMOR systems to see how they operate and work. This will be an item for future recapitalization in the 2014 & 2015 timeframe.

**(SLIDE 29)**

**MSRC Deep Blue Program: Ocean Boom**

We procured ~69,000' or over 21 kilometers of Ocean rated boom
As mentioned, about 8,000 feet (about 2,400m) was special designed continuous inflation boom for the PSVs built by EFC.

The balance was supplied by LAMOR via a Chinese manufacturer and was sized (overall height of 1.70m) to seamlessly commingle with the existing MSRC inventory.

While we looked at numerous other vendors, speed of delivery, past commitments & time was of the essence given the drilling moratorium and boom being a core Deep Blue objective. As such, the ability to deliver large quantities of boom in a relatively short period of time was a key driver in our decision making process.

Having personally vetted the production facilities for these two providers I was impressed with the quality of the boom that was built.

**(SLIDE 30)**

**MSRC Deep Blue Program: Ocean Boom on OSRVs**

We generally stored much of the new boom in the Gulf of Mexico on OSRVs, OSRBs and PSVs.

Each of our Gulf of Mexico Responder OSRVs were converted to carry on average about 7,350 feet, or 2,240m, of boom. These floating boom depots can

be used for enhanced skimming operation, booming off a stricken vessel or any other tactical or strategic requirement.

**(SLIDE 31)**

**MSRC Deep Blue Program: Low Visibility Capability**

Keying off the low visibility technology used in Norway by the Norwegian Clean Seas Association (NOFO), MSRC added low visibility capabilityto our Gulf area OSRVs, OSRBs and PSVs.

The first component is the Rutter Sigma S6 Oil Spill Detection X-Band radar system. Built in Newfoundland, Canada, this system is designed to identify possible oil on water targets at up to 5 or so nautical miles (depending upon height of eye over water), thus allowing a Response vessel to get relatively close to oil.

Supporting the Rutter system is a FLIR Infra Redcamera that will allow the operator on the Response vessel to target the relatively thicker oil versus relatively thinner oil. As you can see, I am using the term “relatively”, not absolutely, as IR will only allow you to see what is comparatively thicker, but will not provide you data on how thick, or recoverable, the oil is. That is the role for trained personnel!

As part of our embrace of best practices, MSRC will be expanding the installation of these systems to the eight (8) remaining “Responder” Class OSRVs on the East & West Coasts in 2012.

**(SLIDE 32)**

**MSRC Deep Blue Program: Low Visibility Capability on GoM Barges**

While installing a radar system on an oceangoing boat is relatively easy, arranging for the install on a barge without any bridge that will use a tugboat of opportunity presents other challenges.

As you can see from these photos, MSRC engineered an ISO command suite to contain allow visibility and basic satellite communications equipment.

Being self contained and portable, these systems can be transported over the road to other barges in other geographic areas if required.

**(SLIDE 33)**

**MSRC Deep Blue Program: Burn Kits**

As mentioned, burning was one of the main response tools used in the DWH. Prior to the spill, MSRC owned 4,500 feet of oil retardant burning boom. This was utilized in the response and additional systems were built.

Given relatively long lead times for building of fire retardant burn systems, MSRC procured 20,000' (6,098m) of new fire boom from DESMI subsidiary, Applied Fabrics based in the USA.

With this procurement, that was completed in Summer 2011, the MSRC fire boom inventory has increased to 22,500' or 6,860m. By our analysis, this likely makes MSRC the largest owner of fire boom systems in the world.

**(SLIDE 34)**

**MSRC Resources: Post Deep Blue Expansion**

In summary, post Deep Blue, MSRC, based on certain metrics, has likely become the largest oil spill response organization worldwide. It is ten times the size (equipment and personnel) of other US national response organizations.

Total initial capitalization, or Customer Commitment, is in the US$500 million range.

Finally, we have 453 dedicated and trained personnel standing ready to respond 24/7 based out of 36 manned sites, with a total of 85 equipment sites located around our area of Operations, which includes the Continental United States, Hawaii and the U.S. Caribbean.

While I will not recite the entire recap of assets in our roll up, you will surely agree this has been a sizeable commitment by our funding customers over the past 22 years.

Asset Roll-Up:

- 50 Oil Spill Response Vessels (OSRVs)
    - 15 - 210 ft. (64m) OSRVs
    - 5 - Fast Response Vessels (FRVs)
    - 5 - PSVs (85 – 113m)
- 19 Oil Spill Response Barges (OSRBs), with a capacity ranging from 12,000 – 68,000 bbls.
- 68 Shallow Water Skimming Barges
- 654, 000 ft. (~200,000m) of boom
- 293 Skimming Systems
- Low visibility electronics
    - Enhanced X-band radar
    - Infra red capability
- Fire Boom Systems
    - 22,500 ft. (6,860m) dedicated in-house
    - Access agreements for more when needed

**(SLIDE 35)**
**Regional Response Centers and Areas of Operations: Post Deep Blue**
….. And here is how the assets lay out, geographically, on a chart showing MSRC locations.

**(SLIDE 36)**
**Closing Comments:**
Some closing thoughts on the Deepwater Horizon incident.

First, I think it is reasonably safe to say that the response effort was unprecedented, at least in my personal history.

This said if one were balanced in their review, it was a solid success.

Why do I say this?

First, operations were accomplished safely with minimal health and safety issues. Operations had many boats working in close proximity to each other. Planes engaged in dispersant operations flew over 877 safe flights. On top of it, the Gulf of Mexico is already relatively busy with some several thousand oil platforms, all being serviced by boats& helicopters in their day-to-day operations that basically went unimpeded.

Second: Operations were accomplished promptly.

There was minimal shoreline impact of oil. Yes, some areas were impacted. However, there was once concern that oil would migrate into the Atlantic Ocean via the Loop Current, and then enter the Gulf Stream and migrate up as far as New York! There were even some areas on the East Coast that were looking to buy boom for when the oil impacted their shorelines during the height of the summer tourism season. None of this ever materialized.

There were strong working relationships inside response organization. All were committed to mission and purpose.

There was excellent support, financial and working, from BP. The sense of camaraderie was evident.

Finally, but not the least of importance, BP acted responsibly and committed far beyond US Limits of Liability. Per the Oil Pollution Act of 1990, US Liability Limit for an operation such as the DWH is US$75-million. This would not have been adequate to cover the costs of response.

**(SLIDE 37)**
As food for thought to consider as we all Prepare for the next oil spill response, I pose some leading questions.

How should a spiller deal with perception of oiled beaches and tainted seafood, which led many to shy away from area? How does one address the economic impact of these perceptions?

It has been recognized that dispersants were successfully used. Per one recent calculation, dispersants knocked down double the amount of oil of mechanical recovery and burning combined.

Burning was also a recognized tool.

How do we, as industry, ensure that these tactics are available for use in future responses as a recognized "tool in the response toolbox"? How are the politics and lack of information regarding these tools addressed?

**(SLIDE 38)**
Some thoughts on Economic Costs.

BP is one of the largest companies in the world, I had heard it reported that it was number 7 at the time of the DWH as I recall. It also was significantly impacted by this spill.

Response costs are estimated in the US$-billions (US$17.7 billion as of 12/31/2010 per BP website). Third Party Damages and Penalties, if validated, could add additional sums.

"What if?" the spiller does NOT have the financial wherewithal to continue to act responsibly, as BP did? As mentioned, the US Limit of Liability was US$75-million. After that point, a planholder can technically "walk away".

Who would then ensure continuity of operations? How does a responsible responder ensure its fiscal continuity? Oil spills are terribly expensive and require significant cash flow. Employees need to be paid. Sub-Contractors need to be paid. Purchases of numerous support materials, fuels and consumables need to be made. What steps are to be taken? Who are to take them? And when?

In US, we have the Oil Spill Liability Trust Fund (OSLTF), which is capped at US$ 2 Billion. This fund is used to respond to smaller spills and allows the Federal On Scene Coordinator funding to get a job done. It would have been grossly inadequate to fund operations in case of a spill similar to DWH.

**(SLIDE 39)**
Finally, some challenges to ensure the long-term commitment by plan holders.

Every time you face a huge challenge, it is human nature, as time moves forward, to minimize the impact of that recent challenge. Same in emergency response. In the US, we saw it when dealing with terrorism and post-9/11 where a decade since those horrible days, many did not recognize the importance of the day.

We should all be similarly concerned post-DWH, where every day we look in the rear view mirror is one day further "since" and it is the tendency of human nature to minimize the impact of this spill.

How do we ensure readiness is not compromised? Or asked another way, how do we ensure that for the next major spill we embrace ……

***"Preparation: Paves the Path to Success"***

This conference, and others like it, provide an excellent forum to ensure that Lessons Learned are passed on; best practices are captured and Response Preparation for future spills is retained.

**(SLIDE 40)**
Thank you for your attention.

As this Symposium moves forward, you should challenge yourself to remember --

***"Proper Planning & Preparation***
***Prevents Poor Performance"***

---- and ask yourself, "what can I do in the interest of Preparation"