SSP Offshore

Well Containment

April 2011

NATIONAL OCEAN INDUSTRIES ASSOCIATION

REDEFINING THE FPSO

Well Containment - Points to Discuss

- Lessons Learned in the Aftermath of the Deepwater Horizon Incident
- The Containment Solutions :
  - Interim
  - MWCS and the MCV solution
  - Limitations of Current Initiatives
- SSP - a Long Term Solution that's US designed and built
- Q&A

Worst Oil Spill in the GoM to date…..

Source: Public Domain

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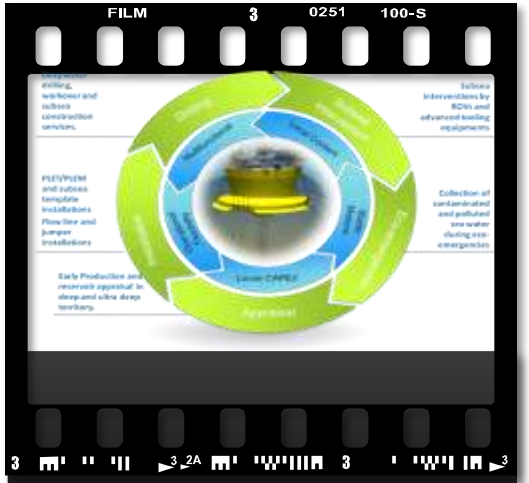
Deepwater Horizon – the Aftermath

- Reorganization of the former Minerals Management Service (MMS), into the Bureau of Ocean Energy Management, Regulation and Enforcement (**BOEMRE**).
- Establishment of a **Restoration Plan** to address long term recovery and restoration efforts in the GoM.
- Creation of the **Marine Well Containment Company** by Chevron, ConocoPhillips, ExxonMobil and Shell to address future well containment needs.
- Report by the **National Commission on the BP Deepwater Horizon Oil Spill**…
- The American Petroleum Institute (API) formally endorsed the industry's steps to create a **Center for Offshore Safety.**



4/ 2010 – Deepwater Horizon Incident

7/ 2010 – Creation of Marine Well Containment Company

2/ 2011 – Completion of Spill Containment System BoD

2/ 2011 – Helix presents Containment System

3/ 2011 – API Approves Industry Center for Offshore Safety

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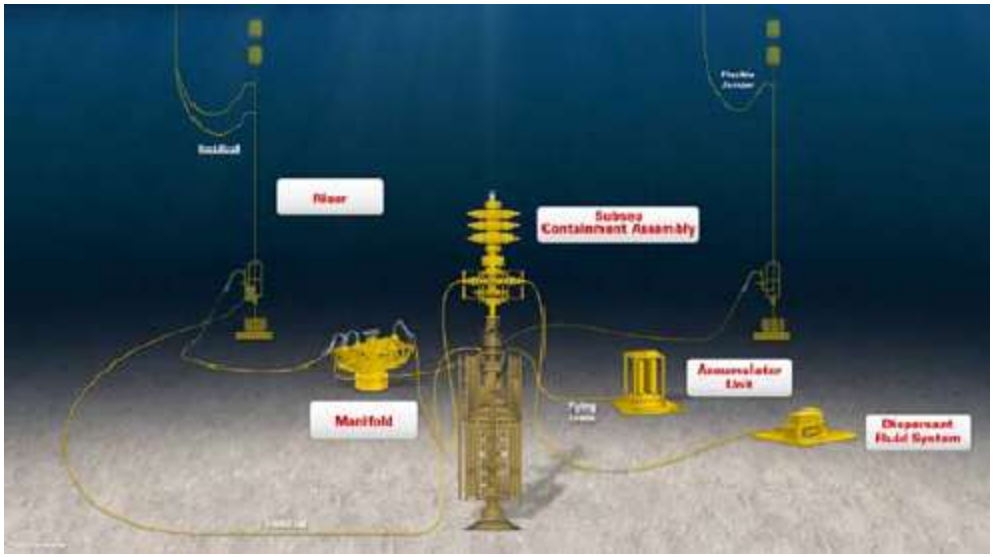
Interim Solutions

"Interim Response, prior to MWCS readinesss, capabilities are handled by the Interim Containment Response System….such as Mobile Offshore Drilling Units, Early Well Test Vessels and Oil Spill Response vessels. The MWCS will provide the equipment required to connect these vessels…"

Source: MWCS Project Design Basis

Interim Solutions include existing marine and SURF equipment used (or designed to be used) on the Macondo Well which are therefore available for use at this time.



The Marine Well Containment System and Helix

MWCS

Available 2012
Fully operational in weeks

2 x MCV's with capacity of 50,000 stbpd throughout each

Deepwater functionality (up to 10,000ft)

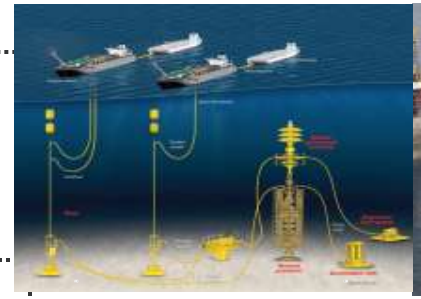
Includes a 15kpsi single ram capping stack & dispersant injection capability

MCV's built in Japan Delivery 2011

2 x MCV's with 700,000 stb storage capacity each

10 year storm – maximum on station capabilities

MARINE WELL CONTAINMENT SYSTEM



HELIX SYSTEM

Chevron ConocoPhillips ExxonMobil Shell bhpbilliton Apache Anadarko

HELIX

Quick Containment Solutions

HELIX

Available NOW
Fully operational in weeks

Capacity of 45,000 stlpd throughput

WD up to 8,000ft

Requires 2 vessels: one producer + one multiservice vessel.

Built overseas

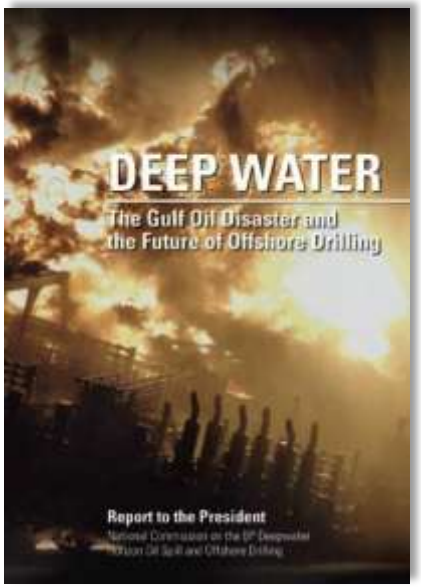
Storage of 55,000 stb liquids

Source: Public Domain

Limitations of the Current Spill Initiatives

According to the December 2010 "National Commission of the BP Deepwater Horizon Oil Spill Report":

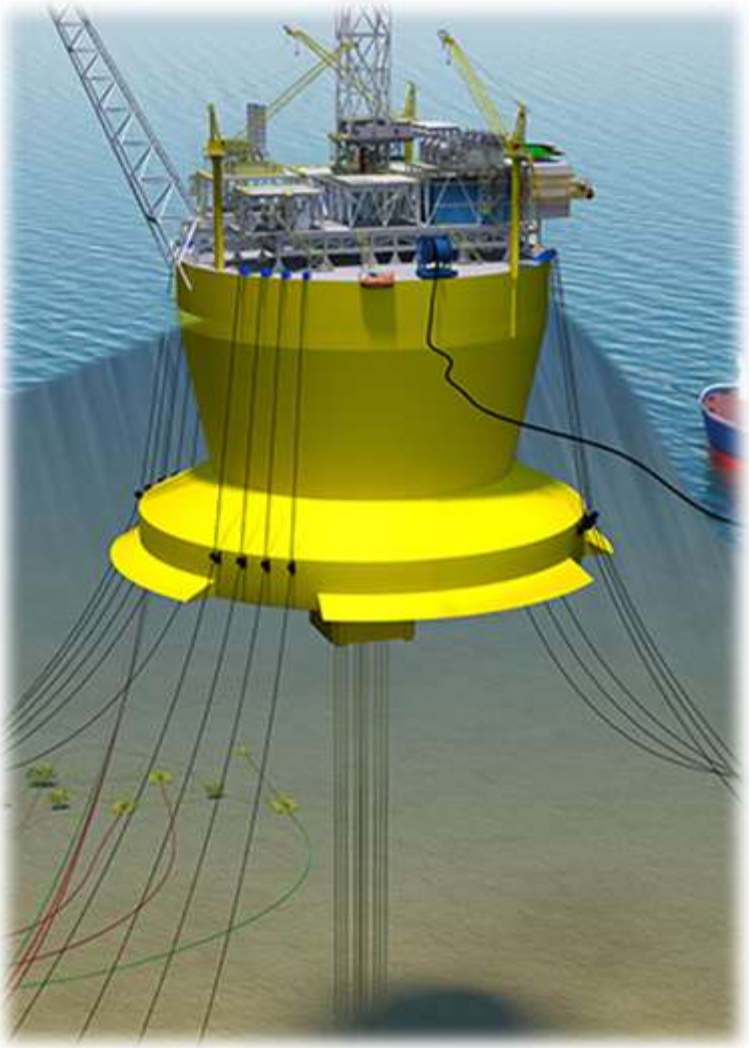
- The systems are not designed to contain all possible catastrophic failures.
- The current systems would not be able to contain a spill of the type that occurred in the GoM in 1979 during the Ixtoc oil spill.
- No planned capabilities to go past 10,000ft.
- These systems are "*not structured to ensure the long-term ability to innovate and adapt over time to the next frontiers and technologies*".



Source: National Commission of the BP Deepwater Horizon Spill Report, Dec 2010, Section 8, p. 244.

The SSP Solution – Well Test and Early Production

- The Stabilized Service Platform (SSP) is a hybrid floating production unit with capabilities that go above and beyond any other type of unit available today.
- An ***SSP320 Plus*** can accommodate drilling equipment, dry-tree's, SCR's, 150,000 bopd process and up to 2.0 mmstb oil storage.
- It has motions comparable to a SPAR and tank test results demonstrate an ability to survive a 1000 yr (Hurricane) storm.
- As a shared Early Production Unit in the GoM it can enhance reservoir perfomance and be available for IMMEDIATE use as a Well Containment Vessel.
- No turret needed and direct offloading to shuttle tankers.
- **MWCC and its participating members have access to an adaptable, multifunctional unit that can handle deep water oil spill emergencies Immediately.**



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MWCS complemented with an SSP Solution

Fully operational in weeks

2 x MCV's with capacity of 50,000 stbpd throughout each

Deepwater functionality (up to 10,000ft)

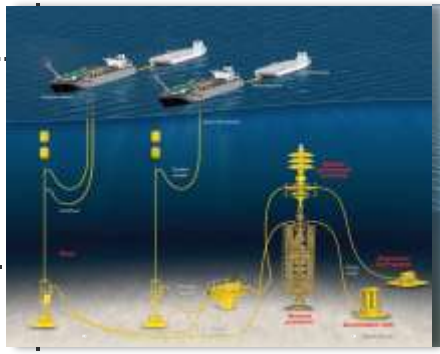
Capable of handing wide range of well designs and equipment

Built Overseas

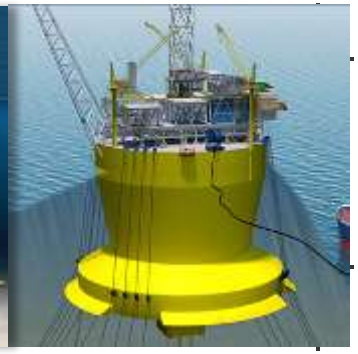
1.5 mmstb storage (combined – 3 vessels)

MWCS - 10 year storm (maximum on station capabilities)

MARINE WELL CONTAINMENT SYSTEM



SSP



Fully operational in **DAYS**

150,000 stbpd in **ONE** vessel

Feasible for deep and ultra deep waters (> **15,000ft**)

Can accommodate risers, **drilling, offloading and production**

Can be built in the USA – **Made in America**

Can store **2 mmstb**

SSP - 1000 year storm (hurricane) on station capabilities

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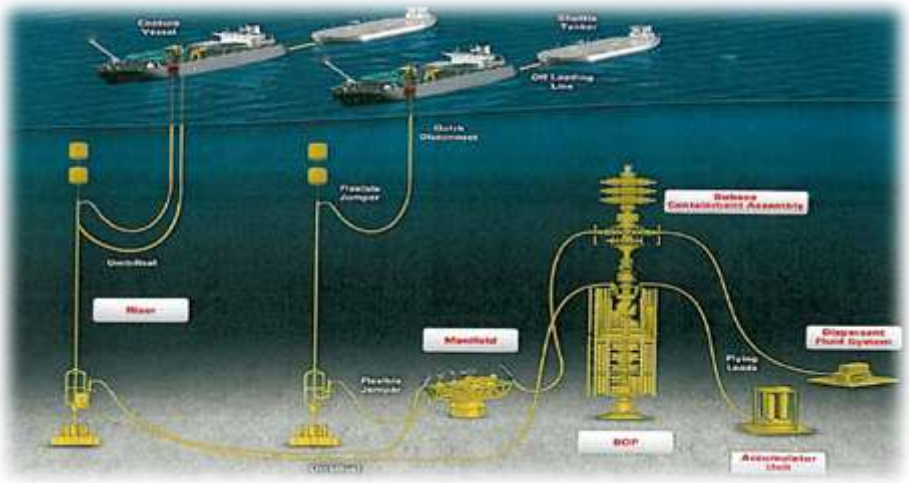
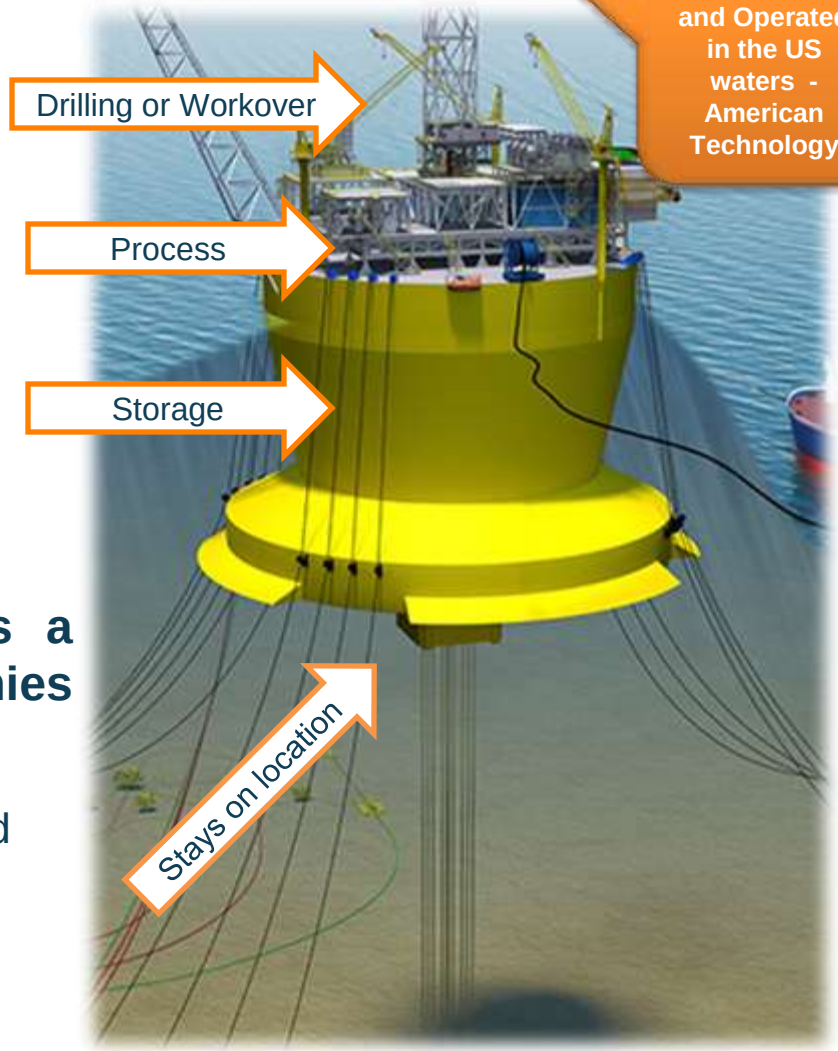
The SSP Solution – a Shared Facility





- **SSP floater deployed in the GoM as a shared facility servicing E&P companies (as required) means:**
  - NO idle time sitting in port waiting to be used
  - NO re-shuffling of emergency vessels from other countries for clean-up
  - **US Designed, Built and Manned**

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The SSP Solution - "MADE IN THE USA"

- SSP build does not require a dry dock.
- Can be fabricated on the Texas / Louisiana coast = **employment and money back into the communities most affected by the Deepwater Horizon incident.**
- Political WIN-WIN scenario: "**MADE IN AMERICA**" - jobs and revenue for the Gulf.

The SSP Solution = NO Idle Time

Established Frame Agreement

The incident rate is low, the financial burden, enormous…

Therefore

Asset costs can be effectively amortized among industry participants in times of non-emergency

100%

Early Production Capability

Proving reservoir performance and well deliverability as extended welltest unit in various locations outside pipelines infrastructure.

99%

Cost-Sharing

SSP utilization costs may be shared among participant E&P stakeholders based on long-term, FRAME AGREEMENT "day rates".

99%

Capture and Sale of Early Production

SSP can offload oil produced during testing to US shuttle tankers

99%

Containment System and deepwater emergency response unit

1%

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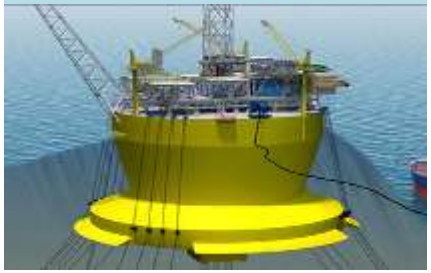
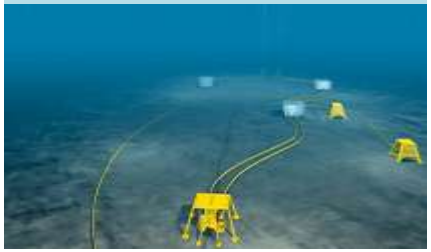
How does the SSP Compare?

1 CAPEX

2MMbbls Storage = Size of VLCC



Utilization cost may be balanced by drilling and early production activity



Station keeping capabilities:
-Full DP Class #3
-DP Assist
-Conventional Mooring System

=

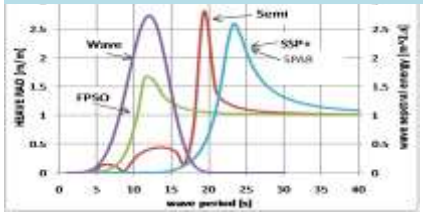
Competitive CAPEX

2 OPEX

Will be able to contain a surface spill

Well Intervention capabilities

SPAR Like Motions – Able to stay on location in post-Katrina hurricane conditions



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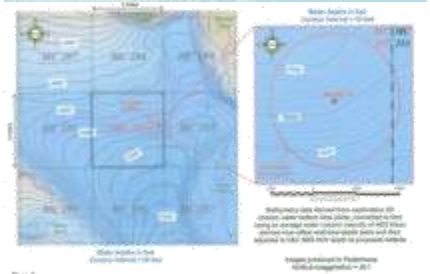
Significant Savings

3 NPV

SSP technology can improve well / reservoir knowledge



Can be built in the GoM = JOBS in Louisiana and Texas

The Unit can be shared among Operators

=

WIN-WIN Scenario for GoM

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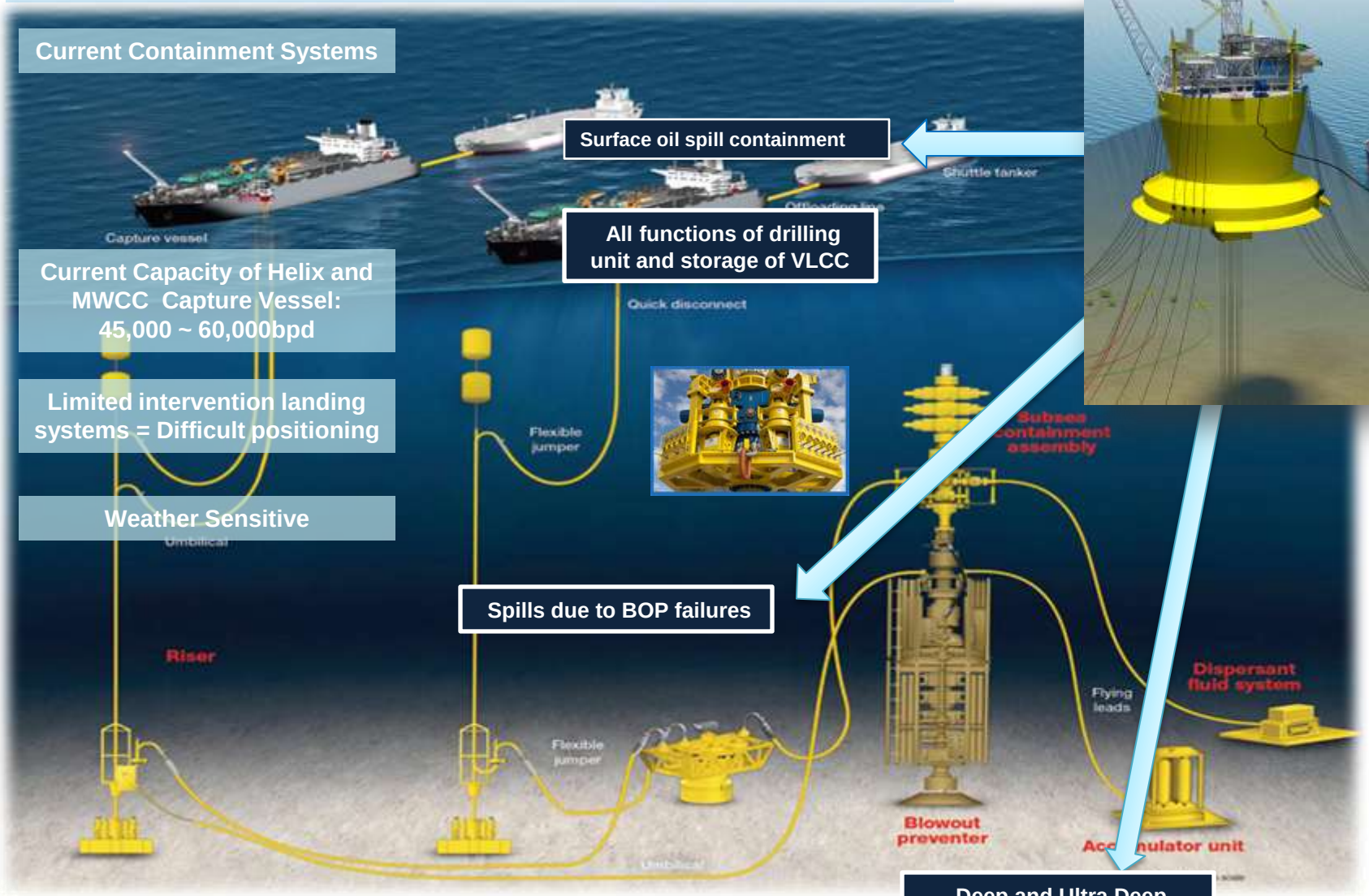
Ability to contain all kinds of oil spills



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Courtesy of the Marine Well Containment Company LLC

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