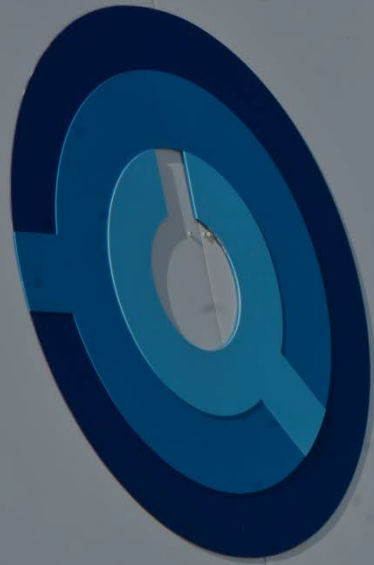


Marine Well Containment Company

Outer Continental Shelf Summer Seminar

June 4, 2015



**MARINE WELL
CONTAINMENT**
C O M P A N Y

INTRODUCTION

Why We're Here

In order to receive a permit to drill in the U.S. Gulf of Mexico, regulations require operators to have the ability to deploy containment resources for a loss of well control.



Operators must have a well containment plan that includes:

- Responsible Party Checklist – planned actions and resources to respond to a loss of well control
- Coverage from a well containment equipment provider (i.e. MWCC Covered Well Addendum)

About Us

- Leading deepwater well containment system and technology provider for U.S. Gulf of Mexico
- Expertise in subsea containment and incident response training
- Independent company with 10 members who represent a majority of the deepwater wells drilled in the U.S. Gulf of Mexico
- Investment of more than \$1 billion into containment system
- System available to all operators in the U.S. Gulf of Mexico as a member or as a non-member (per well basis)

ExxonMobil



ConocoPhillips



Apache

Anadarko

bhpbilliton





Our Approach

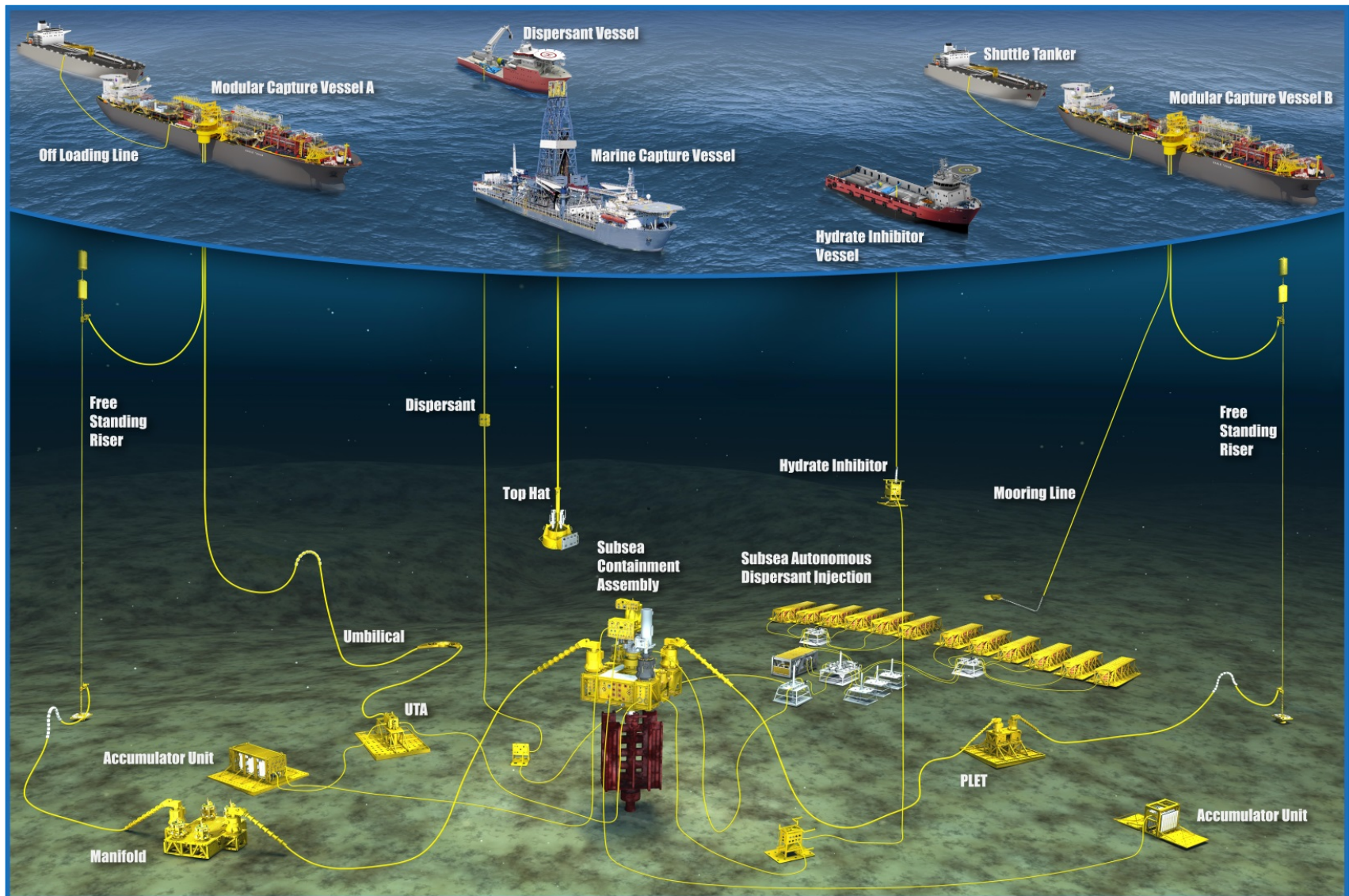
Providing dedicated equipment, a capable organization and comprehensive training necessary to mount an effective response





EQUIPMENT

Containment System Overview



MWCC's Capping Stacks



Subsea Containment Assembly (SCA)

- **Depth** – 10,000 feet
- **Temperature** – 250 degrees Fahrenheit
- **Pressure** – 15,000 pounds per square inch
- **Stack weight** – 170 tons



15k psi Capping Stack (Single Ram)

- **Depth** – 10,000 feet
- **Temperature** – 350 degrees Fahrenheit
- **Pressure** – 15,000 pounds per square inch
- **Stack weight** – 100 tons



10k psi Capping Stack (Dual Ram)

- **Depth** – 10,000 feet
- **Temperature** – 300 degrees Fahrenheit
- **Pressure** – 10,000 pounds per square inch
- **Stack weight** – 40 tons

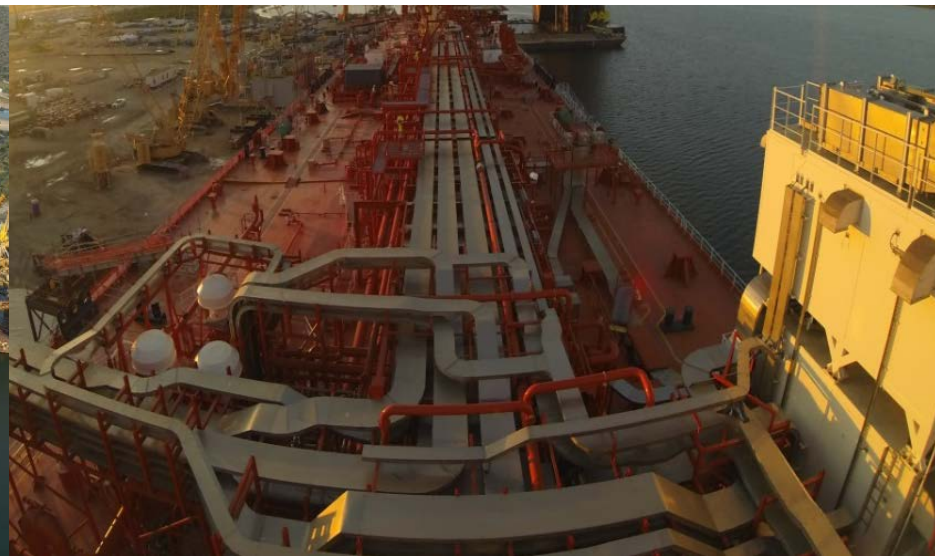
Modular Capture Vessels (MCVs)



- Two 800 ft. converted Aframax tankers
- Dynamic positioning (DP2)
- Each MCV can process up to 50,000 barrels of liquid per day
- Turret with quick disconnect capability

MCV Response Model

- Operate in lightering service in the Gulf of Mexico
- Topside processing modules stored at shore base
- Processing equipment will be installed dockside
- Operate as capture vessel with reservist workforce



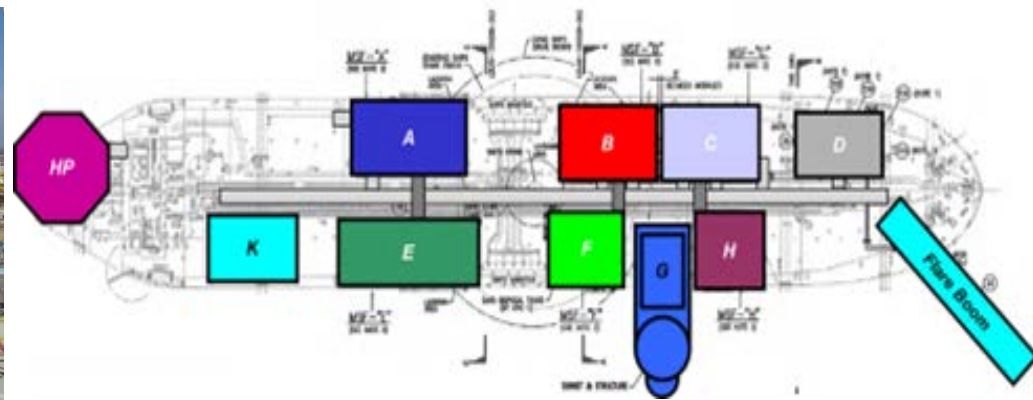
MCV Processing Equipment

- Processing equipment installed on structural support frames to create modular assemblies
 - Minimizes interconnect counts and required lifts
- Stored in “warm” mode to assure reliability and optimize commissioning



MCV Processing Equipment

- Sequenced module installation allows for safe simultaneous lifting and integration
- Optimized piping tie-in locations to create groupings of ‘hookup zones’
- Use of quick connection “plug-and-play” for electrical and instrumentation terminations



System Integration Test (SIT)

This is the only deepwater oil & gas project that has a goal of never seeing First Oil...but we must be ready!

Questions to answer:

- Can it run?
- Are there obvious bottlenecks?
- Are the alarm management systems effective?
- Does the system have integrity?
- Do the safety systems work?
- Do the topsides integrate w/ the marine systems?



SIT Main Objective

Verify overall MCV integrated system functionality by operating the system in different operating modes



Industry Firsts for Containment System

- **First** production system designed for long term storage & use at multiple sites
- **Unique** quick disconnect turret-buoy
- **Deepest** subsea flexibles ever supplied for production
- **Deepest** subsea dynamic umbilical ever built (10,000 ft. water depth)



Industry Firsts for Containment System

- **Deepest** production risers ever built (10,000 ft. water depth)
- **Shallowest** free-standing risers ever built (2,000 ft. water depth)
- **First** free-standing risers adjustable for water depths





KEY CONTRACTORS

Major Contract Partners



Provides MCV outfitting, equipment, storage, preservation and maintenance services



Provides deployment planning, installation oversight, storage and maintenance for most subsea systems



Provides Reservist Response Team to operate processing equipment on MCVs during a response



Operates vessel capabilities of MCVs in Cap & Flow response

MCV Shore Base – Ingleside, TX



12 acre site for
warehouse and lay-
down yard

2,900 feet quayside



SURF Shore Base – Theodore, AL

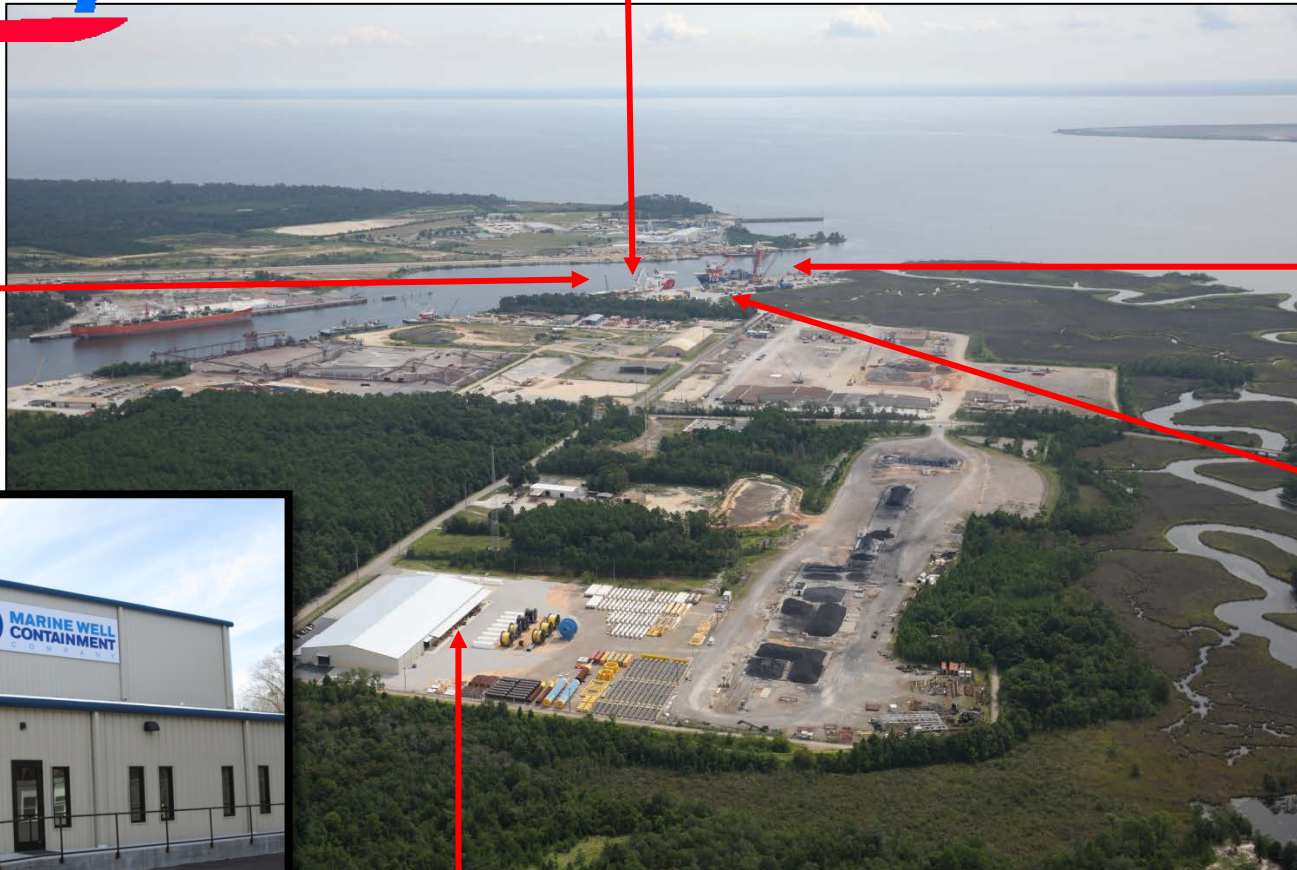
Technip

40 foot water
depth

17,000 feet
quayside

one 660-ton
crane and
two 300-ton
cranes

1.3 acres of
dockside
storage for
heavy
equipment



13 acre site for warehouse
and lay-down yard



Reservist Response Team

- Primarily based in southern Louisiana
- Comprehensive preparedness training and hands-on equipment familiarization
- If deployed, the reservists work on rotating shifts to operate and maintain the MCVs for the duration of the response



Vessel Operations



Top: Eagle Texas shown in lightering mode in the U.S. Gulf of Mexico

Bottom: Eagle Texas shown in MCV mode with modules installed

New Technology

Recent Additions in 2015:

- Design of dispersant monitoring equipment to meet regulatory expectations and requirements for the use of subsea dispersants
- A Subsea Pulling Device that can be used for straightening a subsea wellhead

Future Enhancements:

- Development of a 20,000 pounds per square inch capping stack to support member drilling programs as they advance into higher pressure reservoirs

Readiness and Training



MWCC Readiness

- Develop and maintain robust deployment plans
- Educate Response Team on deployment plans
- Test understanding through quarterly drills

RP Preparedness

- Notify members of updates to equipment/procedures
- Conduct trainings to ensure alignment
- Participate in drills to test effectiveness

Industry Awareness

- Educate regulators, key contractors and other impacted stakeholders on our system and changes

Questions?