



MMS *Gulf of Mexico*

Opportunities

and

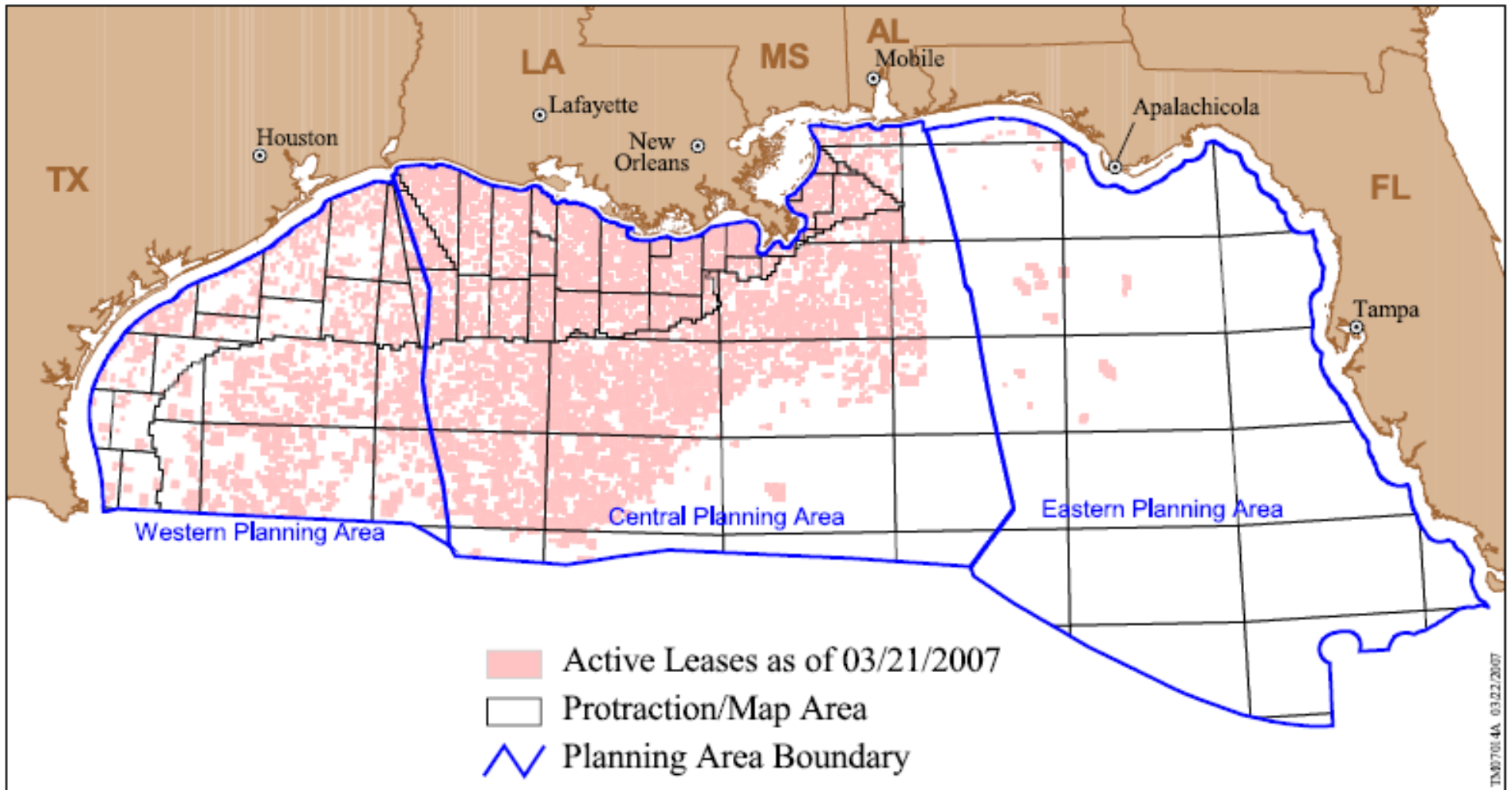
Challenges

B. J. Kruse III, P.E.
Chief, OSTs
MMS, Gulf of Mexico

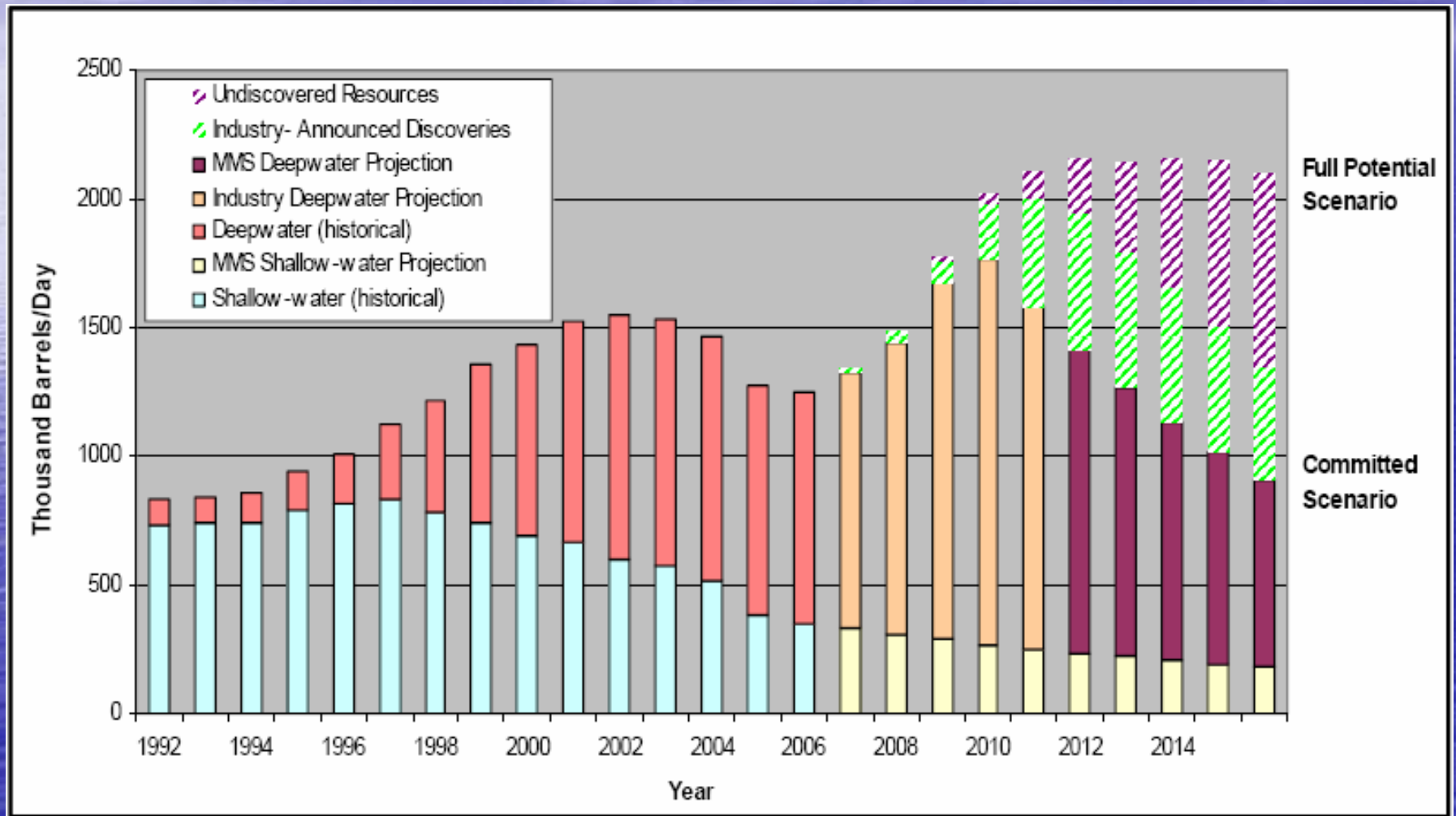
Outline

- Current Activities Overview
 - Status of GOM OCS
 - Energy Policy Act 2005
 - GOM Energy Security Act 2006
 - Trends
- New 5 year lease program
- Challenges
- 2005 Hurricane Season and Beyond

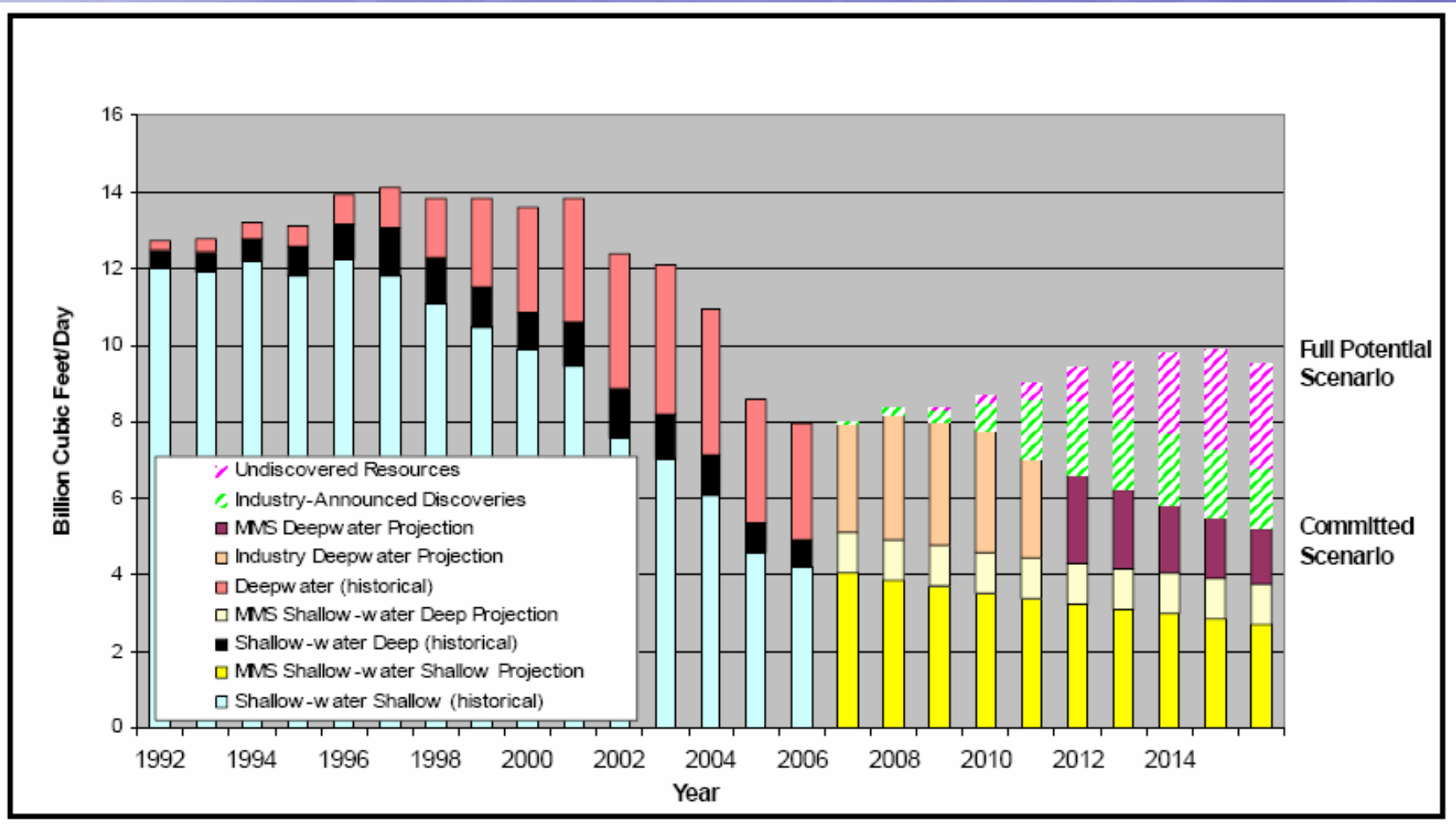
CURRENT ACTIVE LEASES



Gulf of Mexico Oil Production Forecast



Gulf of Mexico Gas Production Forecast




Gulf Deepwater Development Continues to Expand

- 12th year of major expansion
- 107 projects in production at start of 2006
- 7 new production projects in 2006
- 3 very large projects to start production in 2007-2008

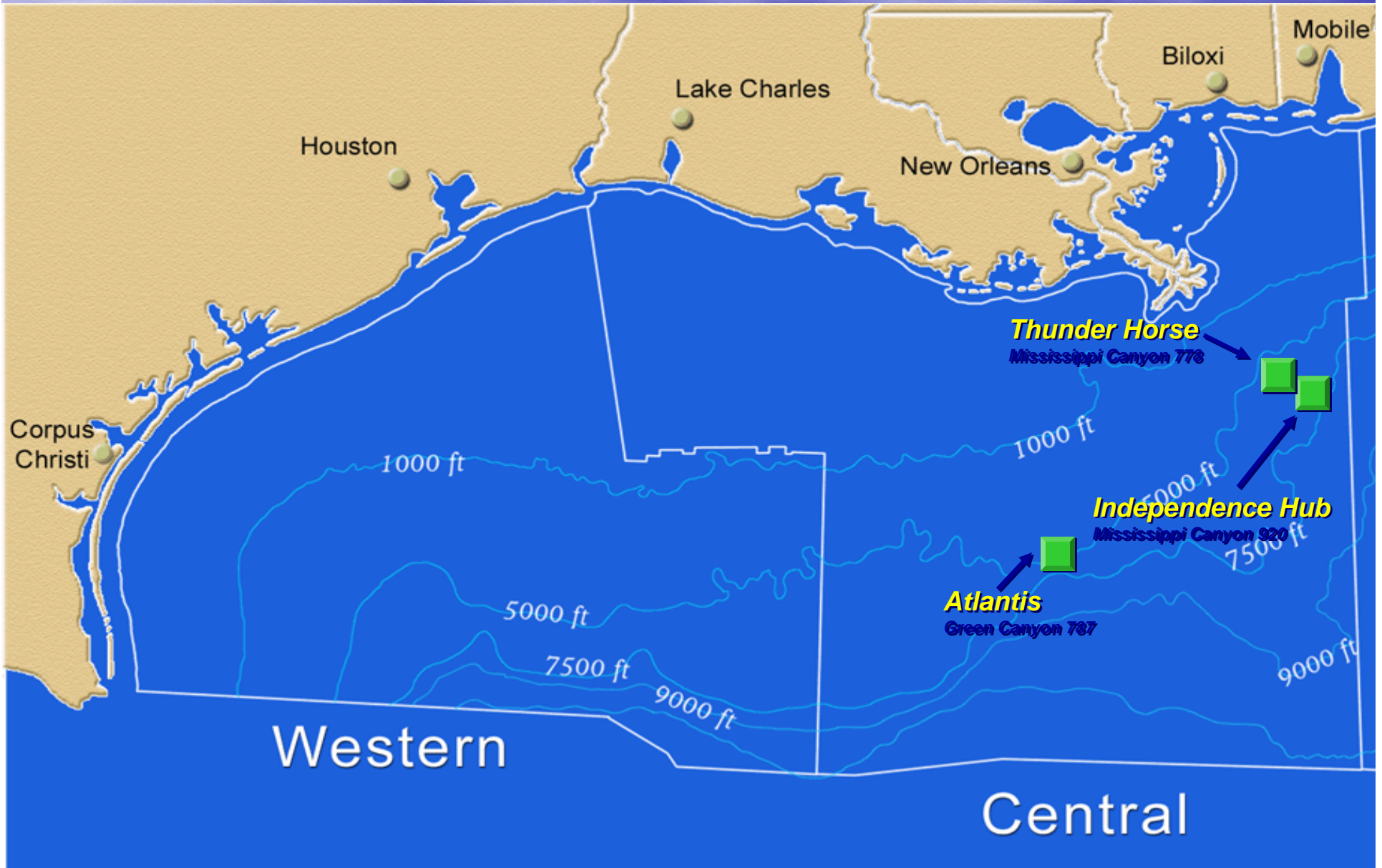
Gulf Deepwater Production Starts - 2006

Prospect	Operator	Area / block	Water Depth
Allegheny South	ENI	Green Canyon 298	3,307'
Constitution	Kerr McGee	Green Canyon 680	5,071'
Dawson Deep	Kerr McGee	Garden Banks 625	2,965'
Gomez	ATP	Mississippi Canyon 711	3,098'
K2 North	Anadarko	Green Canyon 518	4,049'
Lorien	Noble	Green Canyon 199	2,315'
Rigel	Dominion	Mississippi Canyon 252	5,225'
Seventeen Hands	Dominion	Mississippi Canyon 299	5,881'
SW Horseshoe	Walter	East Breaks 430	2,285'
Ticonderoga	Kerr McGee	Green Canyon 768	5,272'

Gulf Deepwater Potential Production Starts - 2007

Prospect	Operator	Area / block	Water Depth
Atlantis	BP	Green Canyon 699	6,133'
Atlas-Atlas NW / Ind. Hub	Anadarko	Lloyd Ridge 50	8,934'
Cheyenne / Ind. Hub	Anadarko	Lloyd Ridge 399	8,951' 
Cottonwood	Petrobras	Garden Banks 244	2,130'
Deimos	Shell	Mississippi Canyon 806	3,106'
GB 302	Walter	Garden Banks 302	2,410'
Ghenghis Khan	Anadarko	Green Canyon 652	4,300'
Jubilee / Ind. Hub	Anadarko	Atwater Valley 349	8,825'
MC 161	Walter	Mississippi Canyon 161	2,924'
Merganser / Ind. Hub	Anadarko	Atwater Valley 37	8,015'
Mondo NW / Ind. Hub	Anadarko	Lloyd Ridge 1	8,340'
Neptune	BHP	Atwater Valley 575	6,220'
Q / Ind. Hub	Hydro	Mississippi Canyon 961	7,925'
San Jacinto / Ind. Hub	Dominion	Desoto Canyon 618	7,850'
Spiderman / Ind. Hub	Anadarko	Desoto Canyon 621	8,087'
Vortex / Ind. Hub	Anadarko	Atwater Valley 261	8,344'

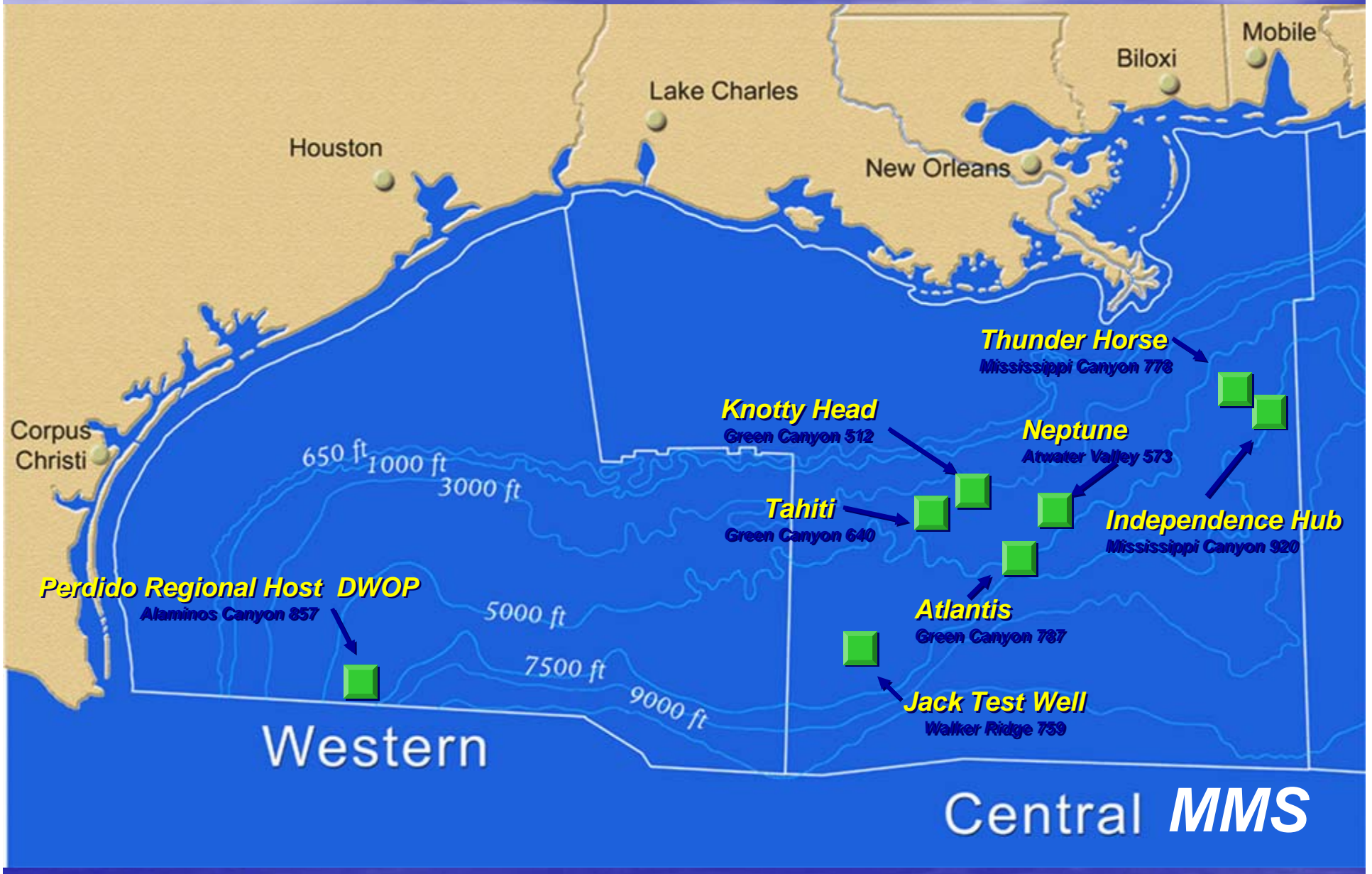
2007-2008 Major Production Starts



New Major Production in 2007-08

Project	Operator	Estimated Oil (BOPD)	Estimated Gas (BCFPD)
Independence Hub	Anadarko		1.00
Thunder Horse	BP	250,000	.20
Atlantis	BP	200,000	.18
Total		450,000	1.38

Major New Projects



2006 Deepwater Gulf Discoveries

Prospect	Operator	Location	Water Depth – Ft.
Gotcha	TOTAL	AC 856	7600
Mission Deep	Anadarko	GC 955	7300
Kaskida	BP	KC 292	5860
Thunder Bird	Murphy	MC 819	5673
Caesar	Kerr-McGee	GC 683	4457
Friesian	Shell	GC 599	3800
Claymore	Kerr-McGee	AT 140	3700
Pony	Hess Corp.	GC 468	3497
Raton	Noble Energy	MC 248	3400
Redrock	Noble Energy	MC 204	3334
Ringo	Nexen	MC 546	2500
Longhorn North	Eni	MC 502	2330

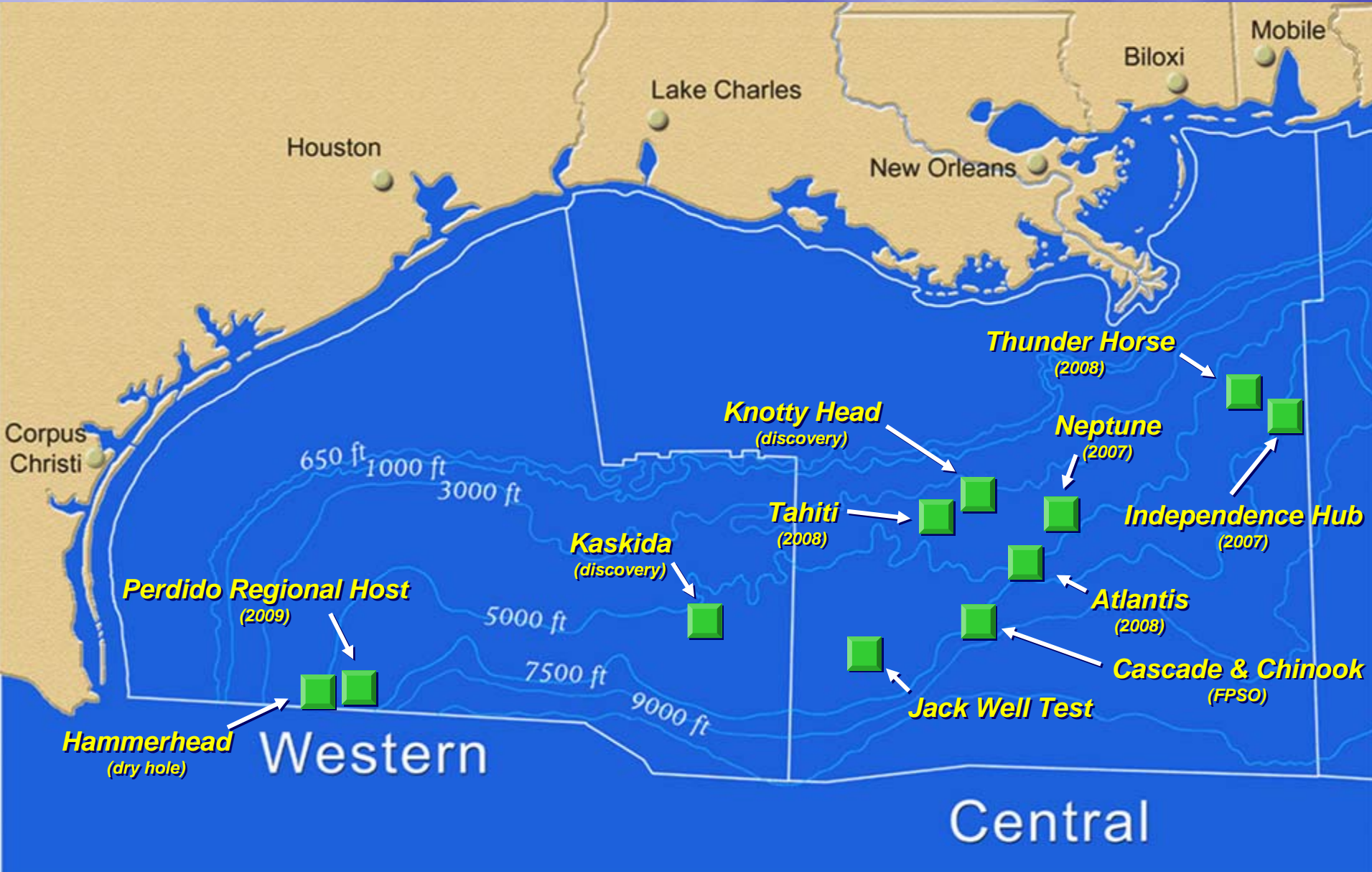
2007 Deepwater Gulf Discoveries

Prospect	Operator	Location	Water Depth – Ft.
Isabela	British Petroleum (operator)	MC 562	6500
Magellan	Mariner Energy	EB 424	2767
Droshky (previously Troika Deep)	Marathon Oil	GC 244	2900
Noonan/Danny	Helix Energy Solutions	GB 506	2700

2007 Deep Gas Gulf Discoveries

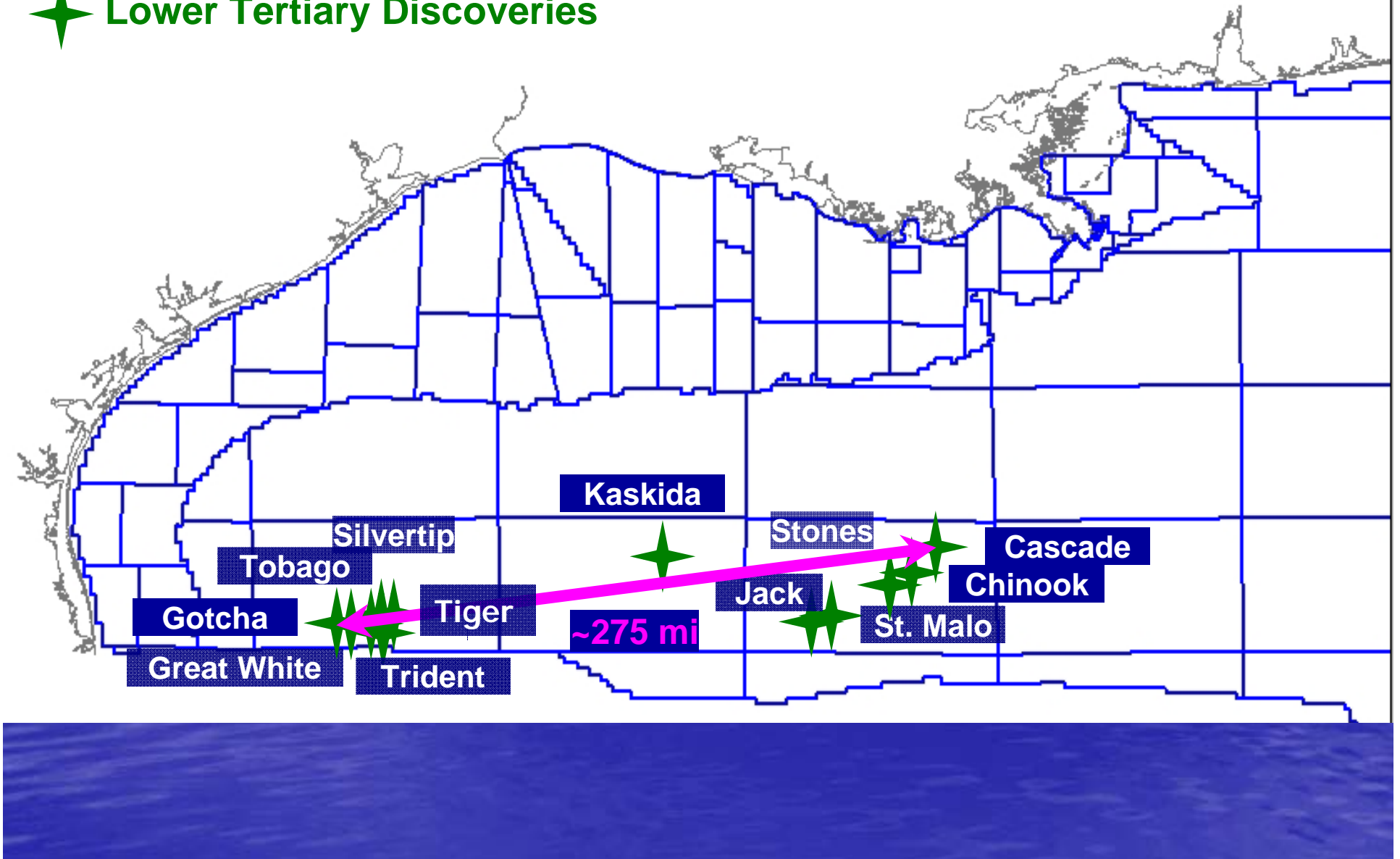
Prospect	Operator	Location	Water Depth – Ft.
Flatrock	McMoran Exploration	SM 212	10
Hurricane Deep	McMoran Exploration	SM 217	12

Recent Highlights



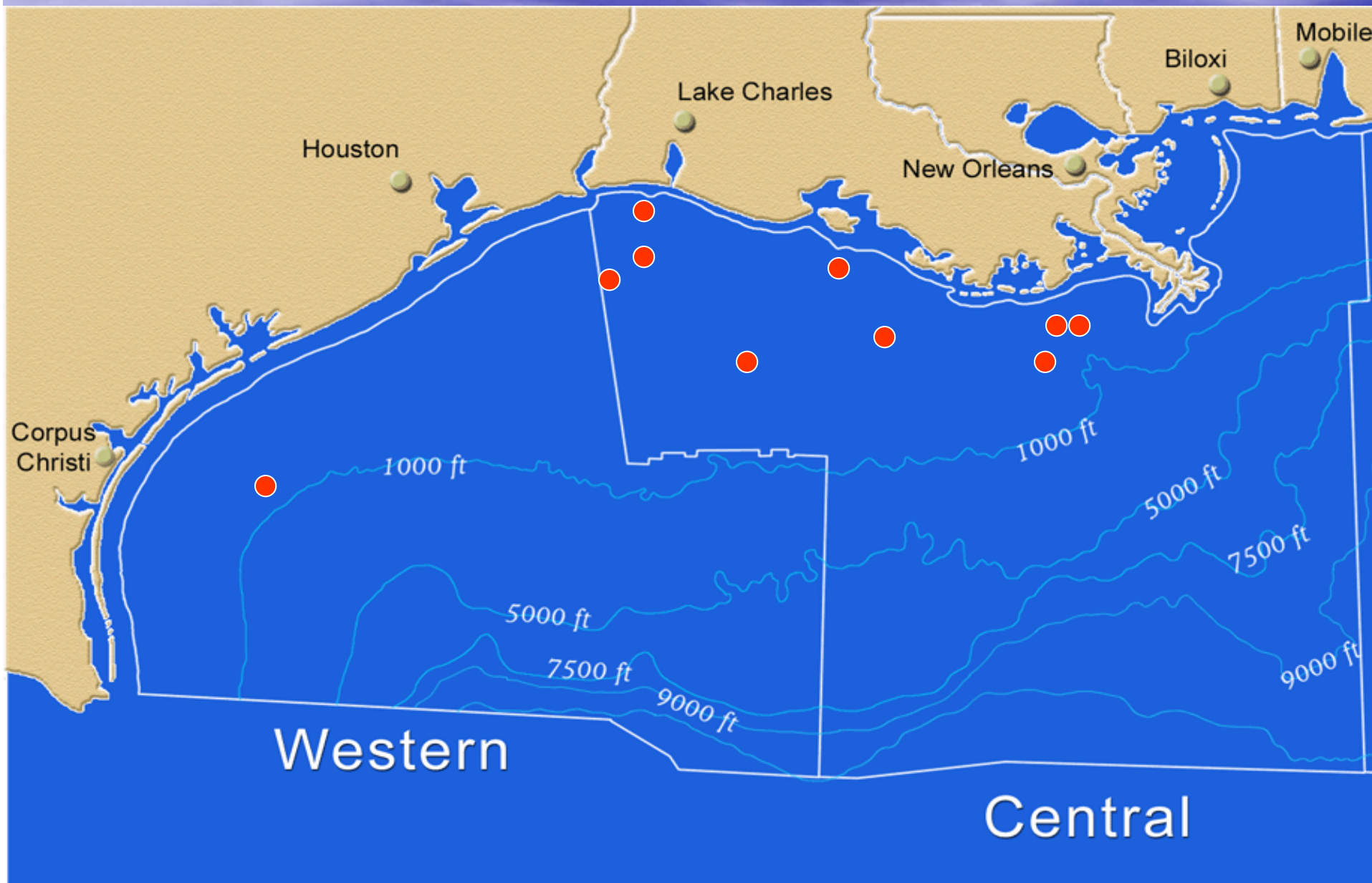
Gulf of Mexico – Lower Tertiary Play

✦ Lower Tertiary Discoveries



Deep Shelf Discoveries

2005-2006



Energy Policy Act - 2005

- Three key components for MMS:
 - Alternative Energy and Alternative Use
 - Establish Coastal Impact Assistance Program
 - Create an Automated Royalty Credit System

Alternative Energy



- In the process of establishing program regulations
- Completing a Programmatic Environmental Impact Assessment
- Currently reviewing two wind projects

Potential Projects

Region	Technology	Number of Projects
North Atlantic	Wind	10
Mid Atlantic	Wind	2
South Atlantic	Wind	2
Straits of Florida	Wave	1
Straits of Florida	Ocean Current	12
Gulf of Mexico	Wind	1
Pacific Northwest	Wave	2
Southern California	Wind	1

Coastal Impact Assistance Program

- Requires disbursement of \$250 Million for each year from 2007 through 2010
- Allocations for 2007 were announced on April 16, 2007 as follows:

	% Allocation	Total	State	CPS
Alabama	10.54%	\$ 25,551,607.04	\$16,608,544.58	\$ 8,943,062.46
Alaska	1.00%	\$ 2,425,000.00	\$ 1,576,250.00	\$ 848,750.00
California	3.07%	\$ 7,444,441.75	\$ 4,838,887.13	\$ 2,605,554.61
Louisiana	52.60%	\$127,547,898.57	\$82,906,134.07	\$44,641,764.50
Mississippi	12.76%	\$ 30,939,850.55	\$20,110,902.86	\$10,828,947.69
Texas	20.04%	\$ 48,591,202.09	\$31,584,281.36	\$17,006,920.73

"Gulf of Mexico Energy Security Act"

- Enacted in December 2006
- Added 8.5 million acres for leasing consideration

Gulf of Mexico Energy Security Act Implementation

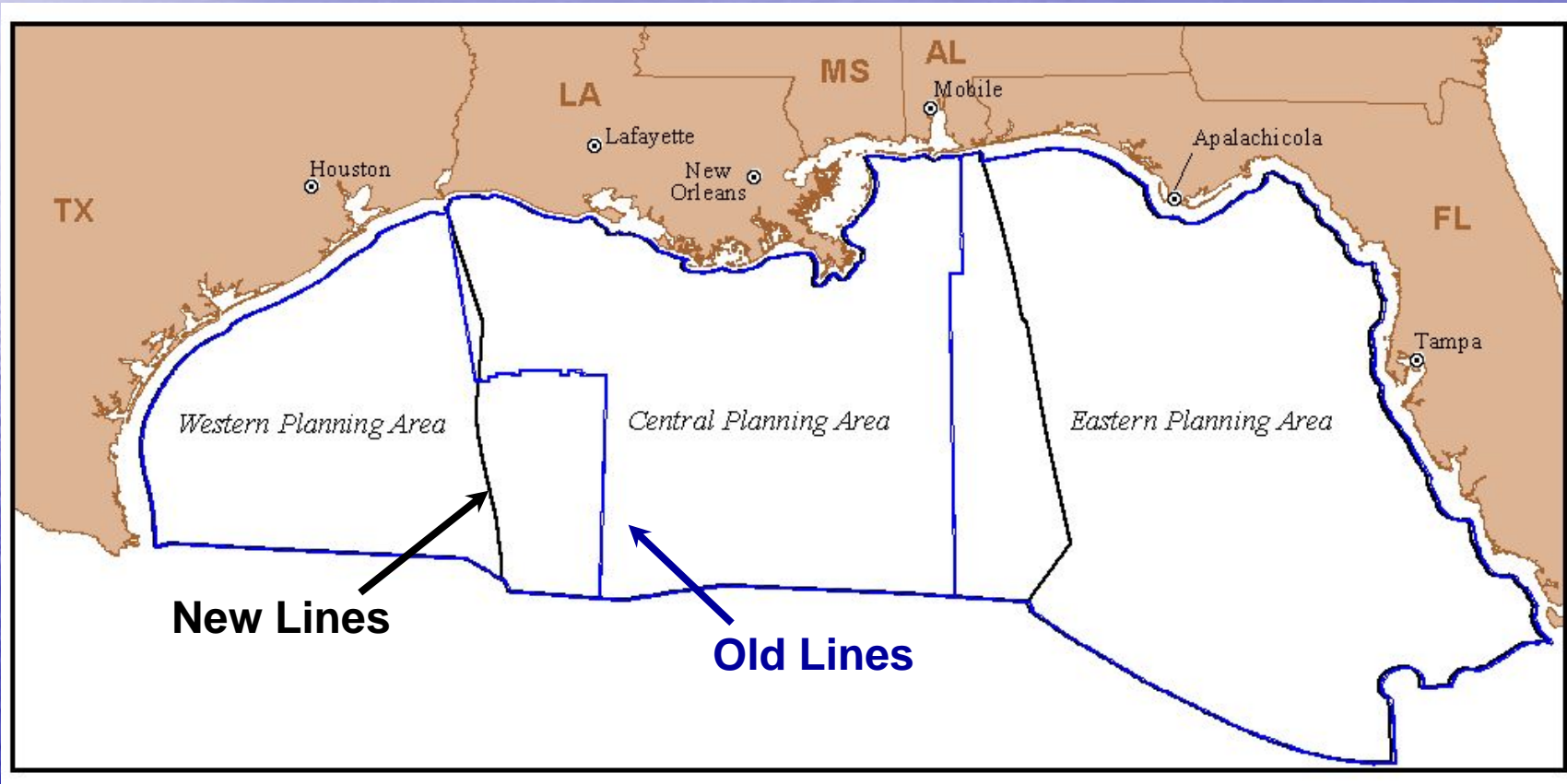
1. Add acreage to Central Sale 205
2. Conduct Eastern sale in 2008
3. Implement removal of Presidential withdrawal from area south of 181
4. Implement revenue sharing to coastal states
5. Adopt regulations for bonus credits from existing Eastern leases



5 Year Lease Plan

2007 - 2012

New Planning Areas



Gulf of Mexico Sales in 2007

August 2007	Sale 204	Western Gulf
October 2007	Sale 205	Central Gulf

Sale 204 Results

Total Tracts Receiving Bid	282
Total Number of Bids Received	358
Total Companies Participating in Bids	47
Sum of High Bids	\$289,953,066
Sum of All Bids	\$369,496,840

Adjusted Comparison to Sale 200 (Last Western Sale):

<u>Item of Interest</u>	<u>Adjusted Result for 2007 WGOM Sale 204</u>	<u>Adjusted Result for 2006 WGOM Sale 200</u>
Total Number of Bids Received	348	279
Total Tracts Receiving Bid	272	236
Total Number of Bid Submitters	39	43
Sum of High Bids	\$286,310,084	\$139,308,889
Sum of All Bids	\$365,853,858	\$163,562,549

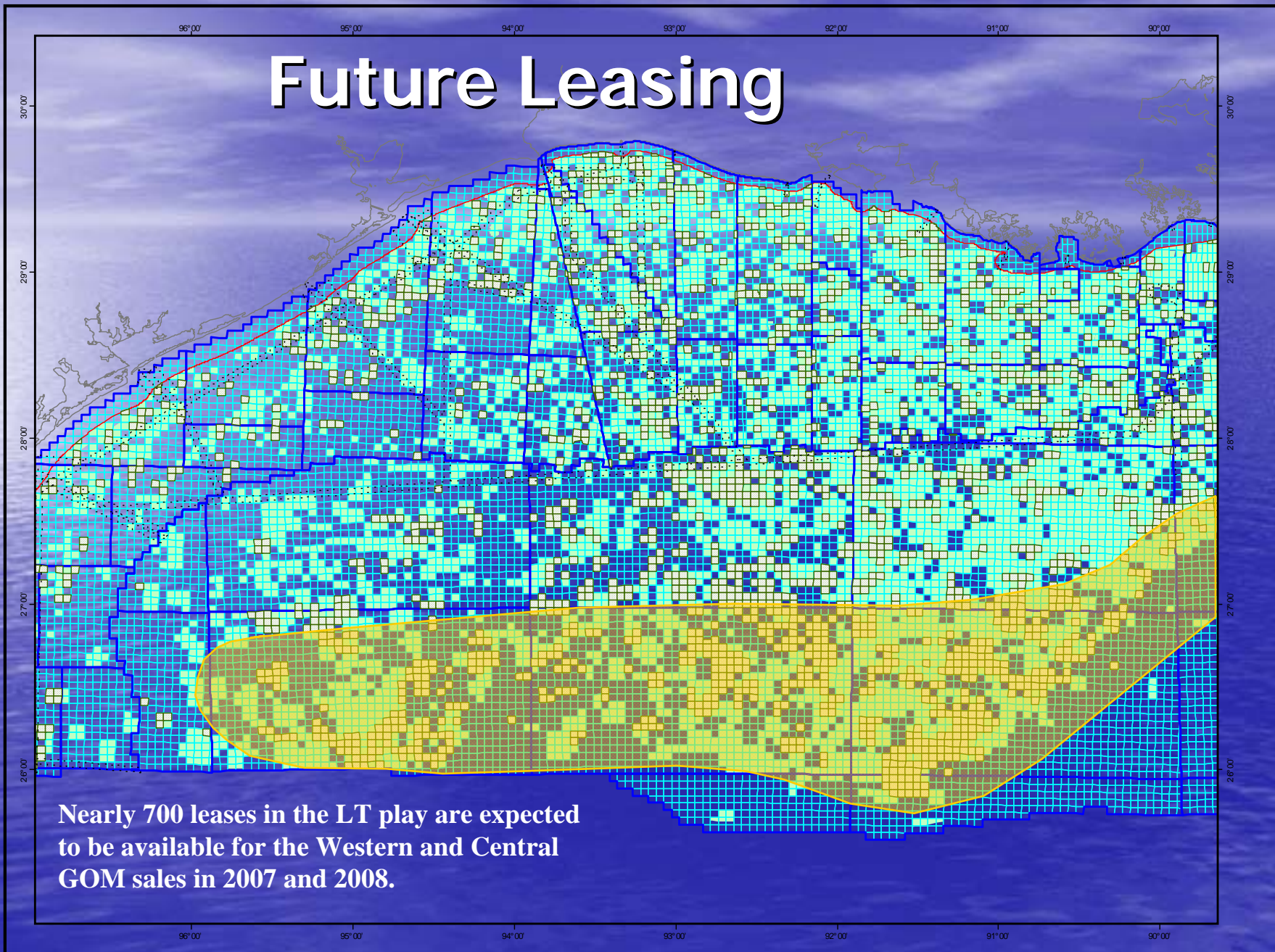
Gulf of Mexico Sales in 2008

March 2008	Sale 206	Central Gulf
March 2008	Sale 224	Eastern Gulf
August 2008	Sale 207	Western Gulf



U. S. Department of the Interior
Minerals Management Service
Gulf of Mexico OCS Region

Future Leasing



Anticipated Lease Expirations

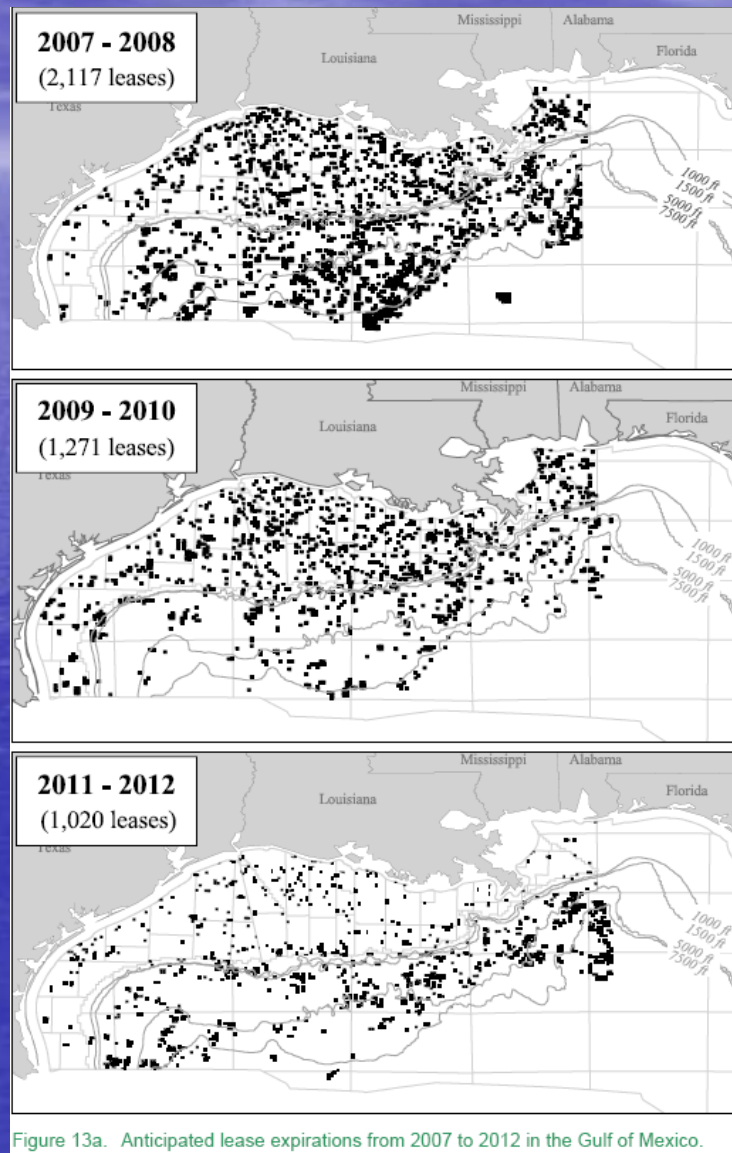


Figure 13a. Anticipated lease expirations from 2007 to 2012 in the Gulf of Mexico.

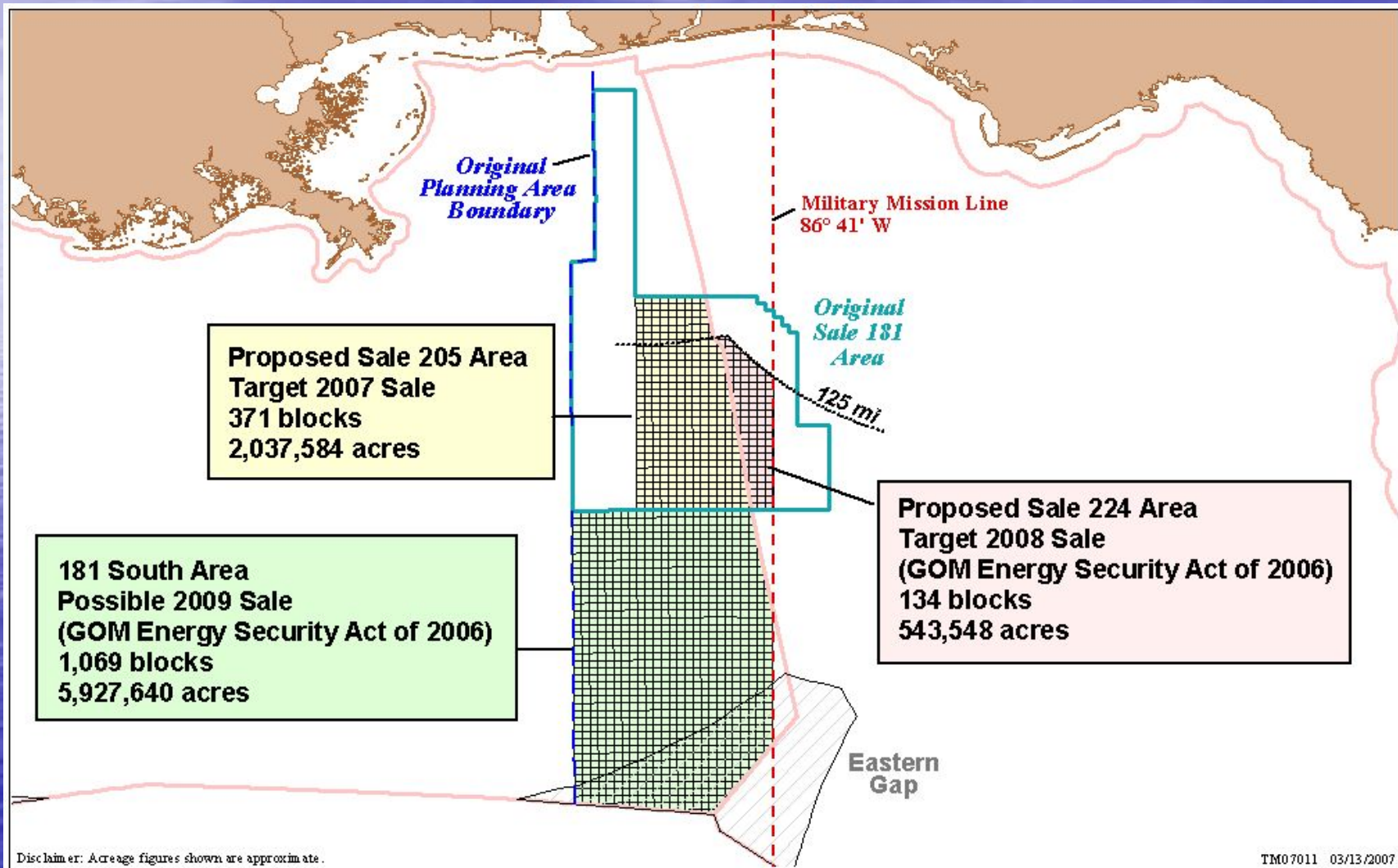
CGOM Sale 205

- At the individual presale stage we are deleting the following individual areas from leasing consideration:
 - - deletion of south of 181 (due to need for Supplemental EIS)
 - - deletion of area south of the Florida coast within 100 miles (due to GOMESA)
 - - deletion of the Western and Eastern Gap areas (due to treaty issues with Mexico and Cuba)
 - - deletion of a small area east of the military mission line (due to DOI agreement with DOD)

Eastern Planning Area- Sale 224

- Such a sale is mandated by the Gulf of Mexico Energy Security Act of 2006 (GOMESA). The sale is scheduled as EGOM Sale 224, tentatively planned for March, 2008.

GOMESA Areas

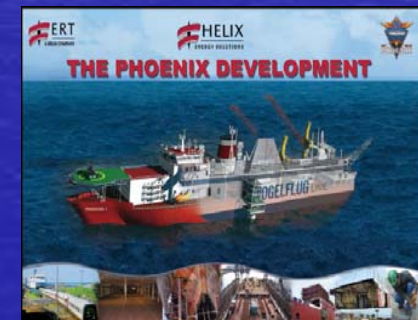
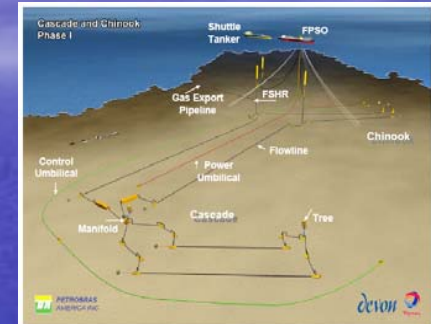


A blue-tinted photograph of a vast ocean under a cloudy sky. The word "Challenges" is centered in white text.

Challenges

New Floating Production Facilities Designs

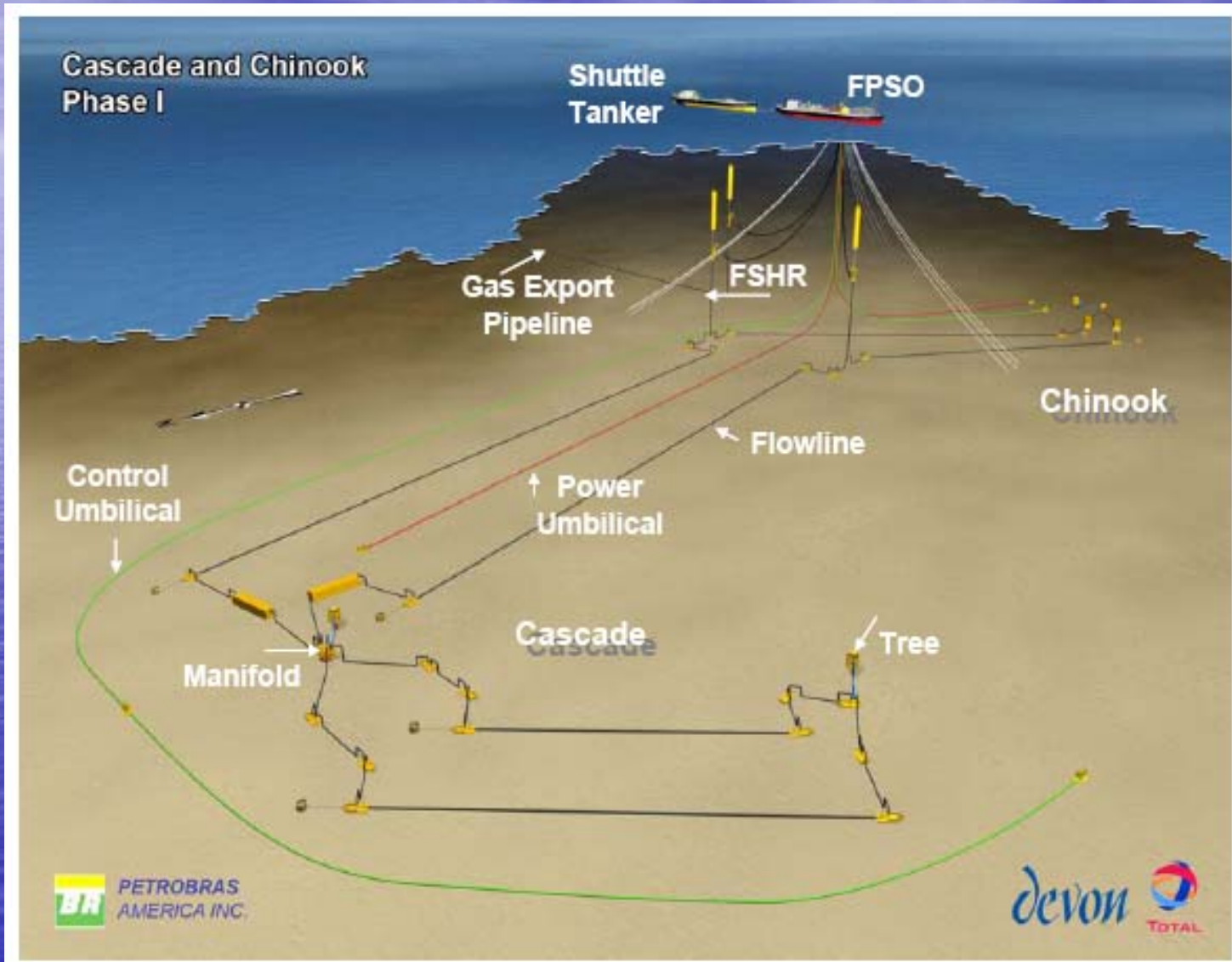
- Floating Production and Storage Operations (FPSO)
 - Petrobras' Conceptual Plan for the use of an FPSO was approved on 11/29/2006
 - Petrobras has submitted a DWOP on 5/16/2007. The DWOP is currently in the review stage.
 - Regulatory Challenges:
 - MMS CVA requirements pertaining to the FPSO hull.
 - Oil Spill requirements as mentioned in the EIS were 300,000 barrels of storage; FPSOs normally store greater than 500,000 barrels
 - This is a USCG issue, but must be addressed in an EA by MMS
- Floating Production Unit (FPU)
 - Helix (ERT) received conceptual approval for a FPU on 2/1/2007
 - FPU is a converted foreign flagged DP ferry boat
 - Subpart I does not require a CVA on this type of facility (30 CFR 250.910)
 - USCG will classify the vessel as a ship and therefore accept a SOLAS agreement



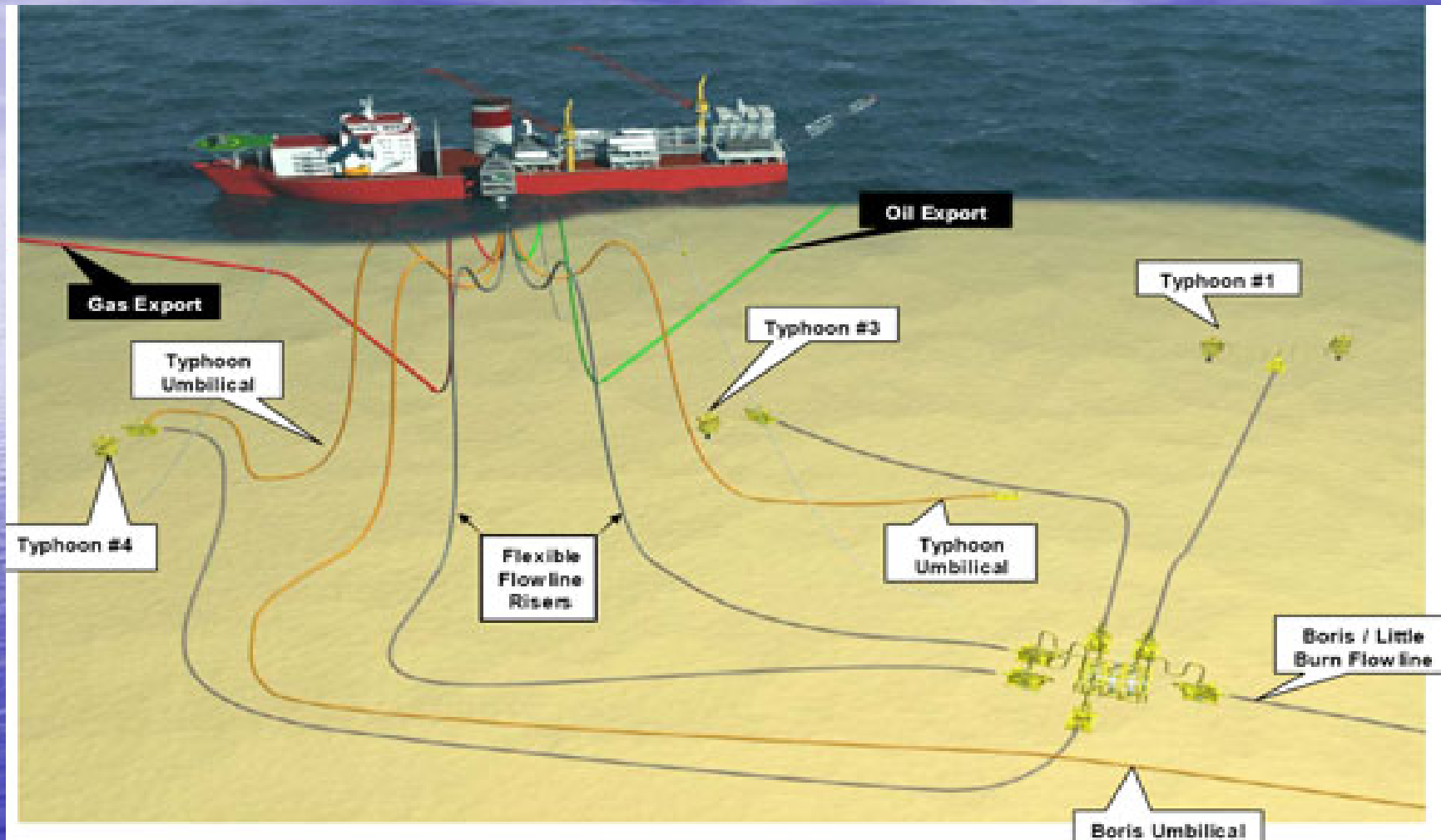
First FPSO Project



FPSO



FPU



Layout of the Phoenix field, showing the FPU (*Helix Producer 1*) in position. The field is scheduled for a 3Q 2008 start-up. Courtesy Helix Energy Solutions Group

High Pressure / High Temperature (HPHT) Systems

- High Shut-in Tubing Pressure
 - Subsea wells with SITP over 15,000 psig
 - Dry tree wells with SITP over 20,000 psig
- Ultra High Pressure (XHP) equipment rated for H₂S
 - Material qualification \ selection is critical – there is a lack of experience in this area.
 - Consideration of axial loads, pressures, temperatures and environmental loads must be addressed
- HPHT design qualification testing
 - There are currently a lack of facilities to provide this testing

Subsea Processing and Artificial Lift Technology

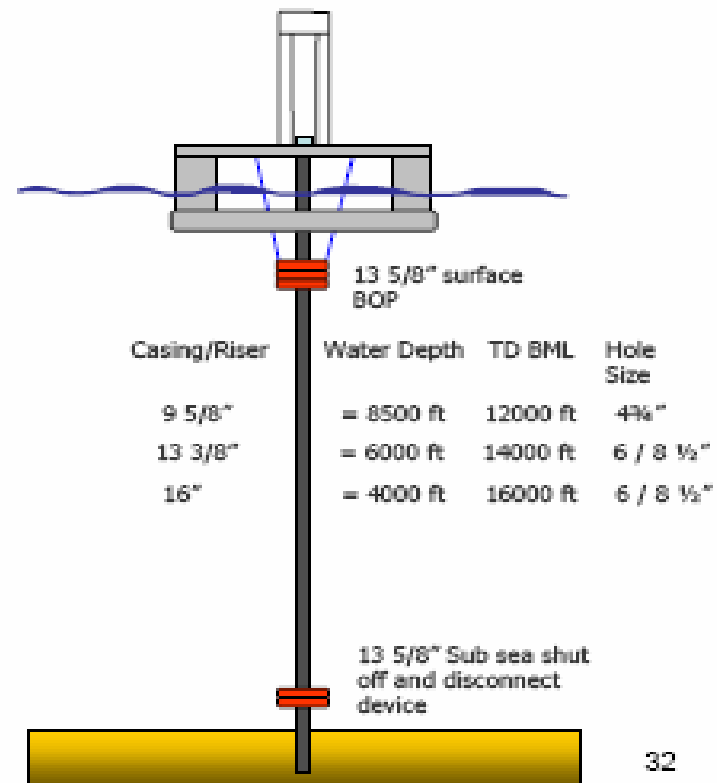
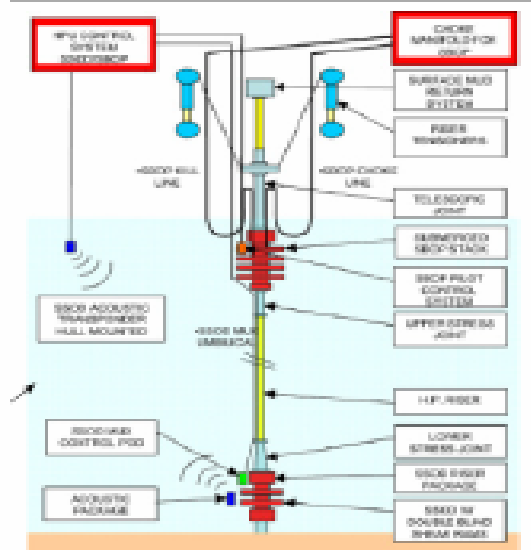
- Conventional sub-sea booster pumps
 - Three (3) projects have approved DWOPs with the use of subsea booster pump systems.
 - BP King
 - Shell Perdido
 - Petrobras Chinook/Cascade
- Conventional and Non-conventional sub-sea processing
 - One (1) DWOP has been approved for the use of non-conventional subsea separation in conjunction with subsea boosting.
 - MMS is not ready to approve any discharge to the environment or flaring.

Surface BOP from MODU



Services – Drilling and Completion

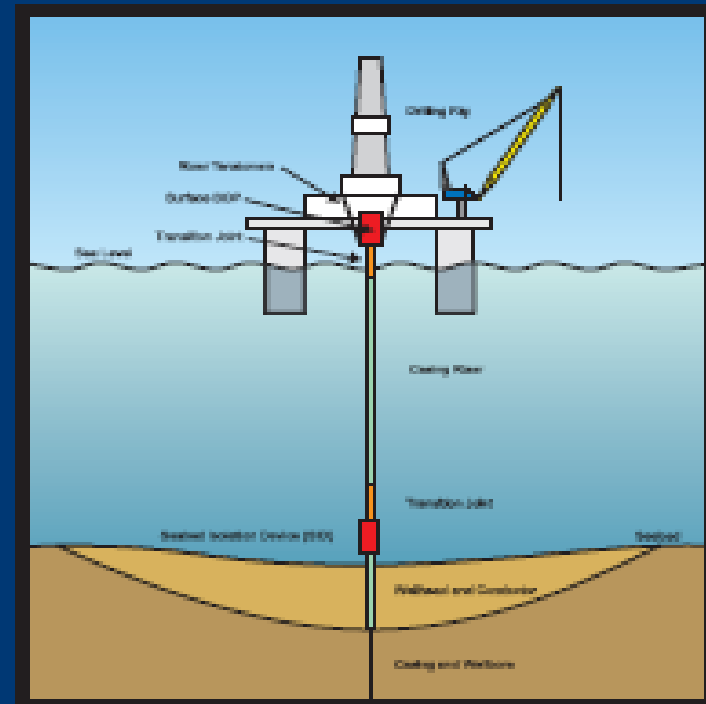
- Combination of proven surface BOP and slimhole D&C technology
- Modular packages
 - Preserve multi-service capability
- Limit subsea equipment
 - Subsea shutoff device only
- Niche deepwater application
 - 2000 – 6000 ft +
 - Normally pressured



SURFACE BOP FOR A MODU

Helix Q4000 is seeking approval to use Surface BOP from a MODU. MMS is reviewing application for subsea cased hole workovers.

Surface BOP Guidelines for Floating MODUs



International Association of Drilling Contractors

Pipeline Issues

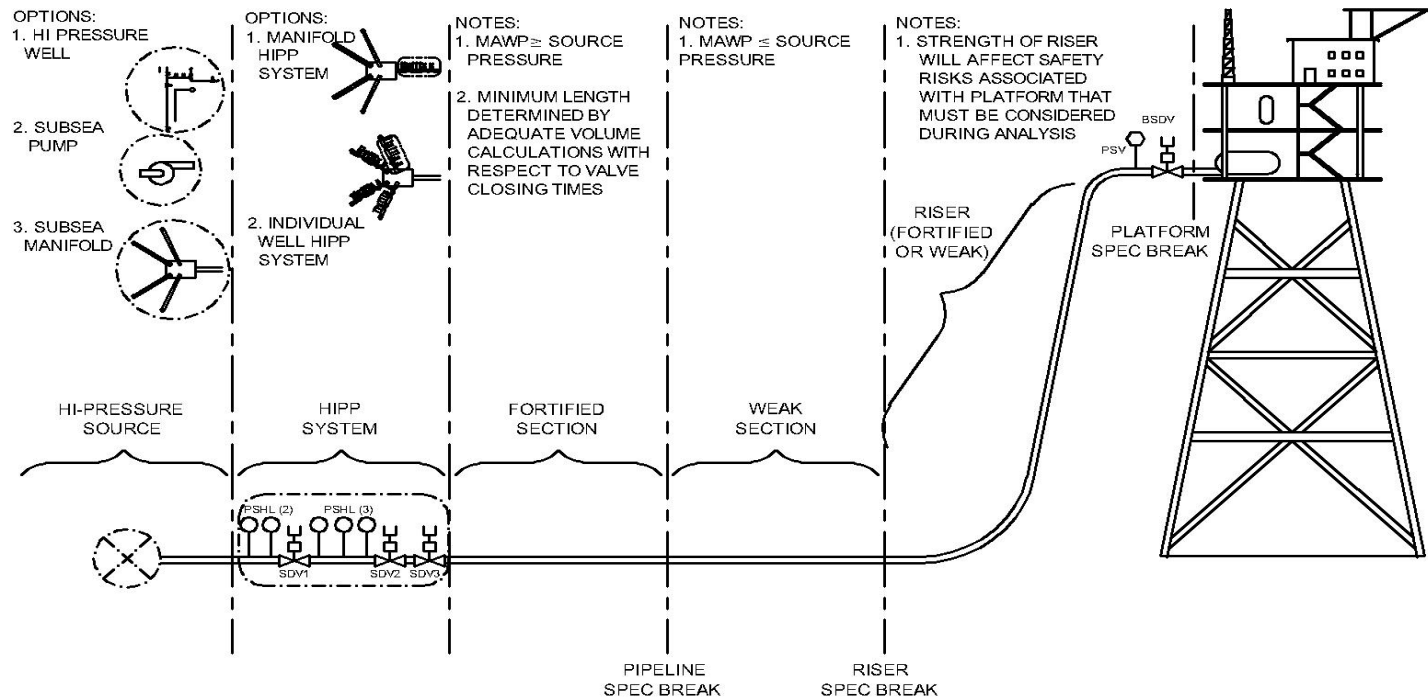
★ Riser performance monitoring / integrity management

- Riser / tendon fatigue due to VIV has become a significant issue for deepwater facilities.
- At least one (1) operator has notified MMS that several deepwater risers have exceeded 50% of the riser fatigue life (Loop Current and Hurricane effects)

• High Integrity Pressure Protection Systems (HIPPS) on long tiebacks

- Conceptual approval was given on July 14, 2006 for the HIPPS technology
- There are many concerns including valve leakage rate requirements, length of the fortified section, material selection, and valve testing / closure timing requirements

HIGH PRESSURE PROTECTION SYSTEM (HIPPS)




Polyester Mooring Systems in the GOM – Permanent Facilities

- The first two Permanent Facilities to use polyester mooring were Kerr McGee on their Red Hawk Facility and BP on their Mad Dog facility.
- Currently, there are 4 approved Inspection, Maintenance, Repair, and Replacement Plans (IMRR), and two which are pending approval.

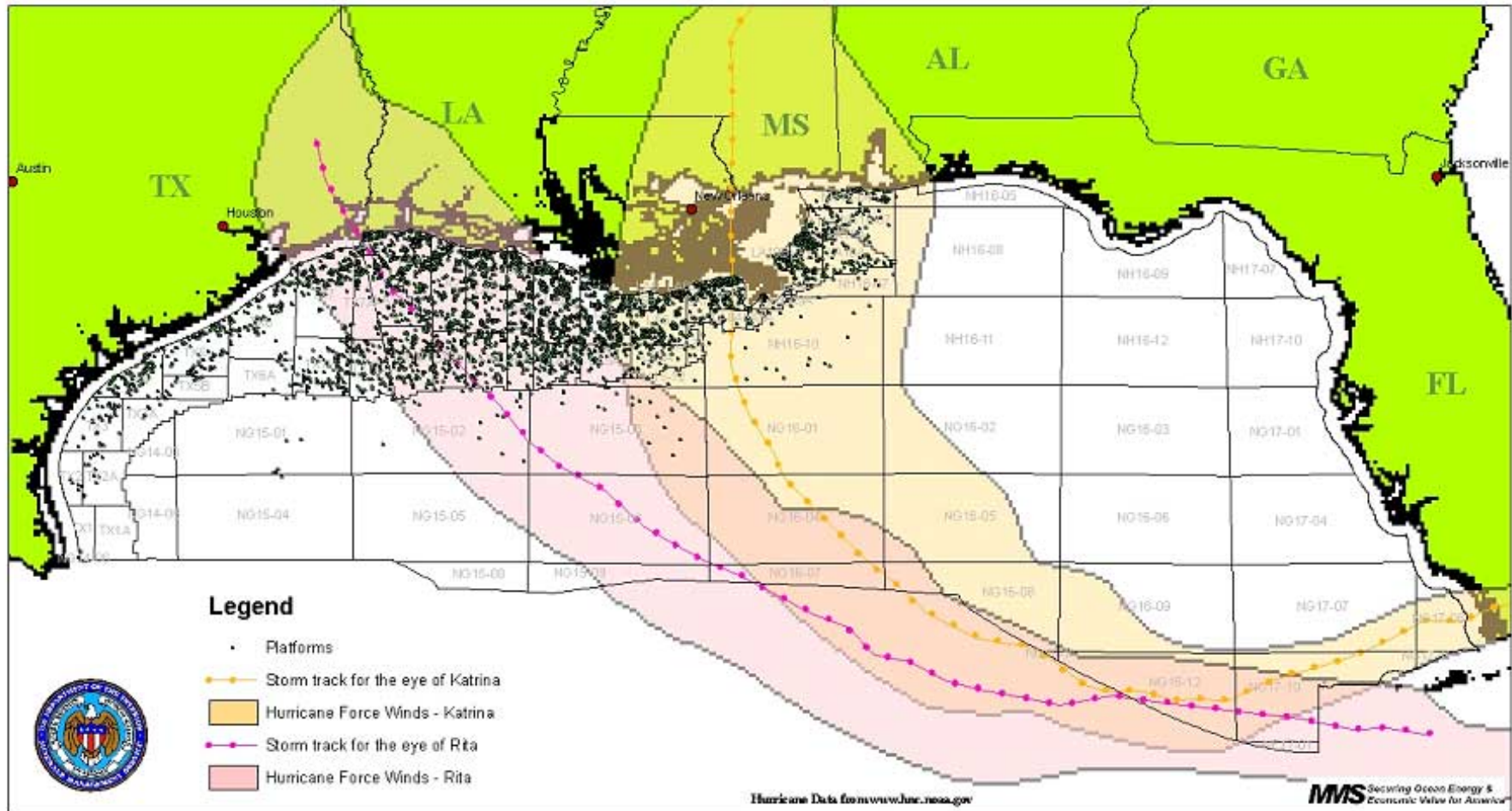
Polyester Mooring Systems in the GOM – Permanent Facilities

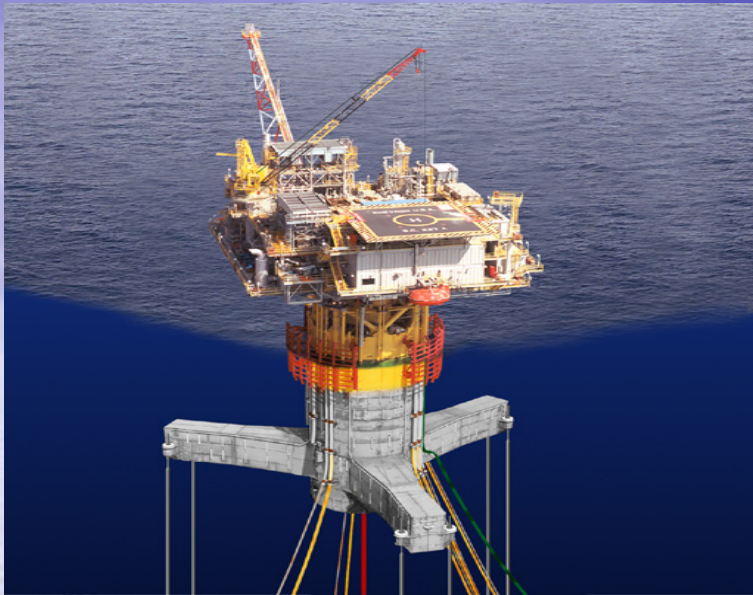
- MMS requires all permanent facilities to submit an IMRR when synthetics will be used within the mooring system.
 - Test inserts are required to be installed and tested after the first year of service and every 2.5 years thereafter.
 - Mooring lines for permanent facilities are NOT allowed to come in contact with the sea floor.



2005 Hurricane Season
and
Beyond

Hurricanes Rita and Katrina, August - September 2005





Before

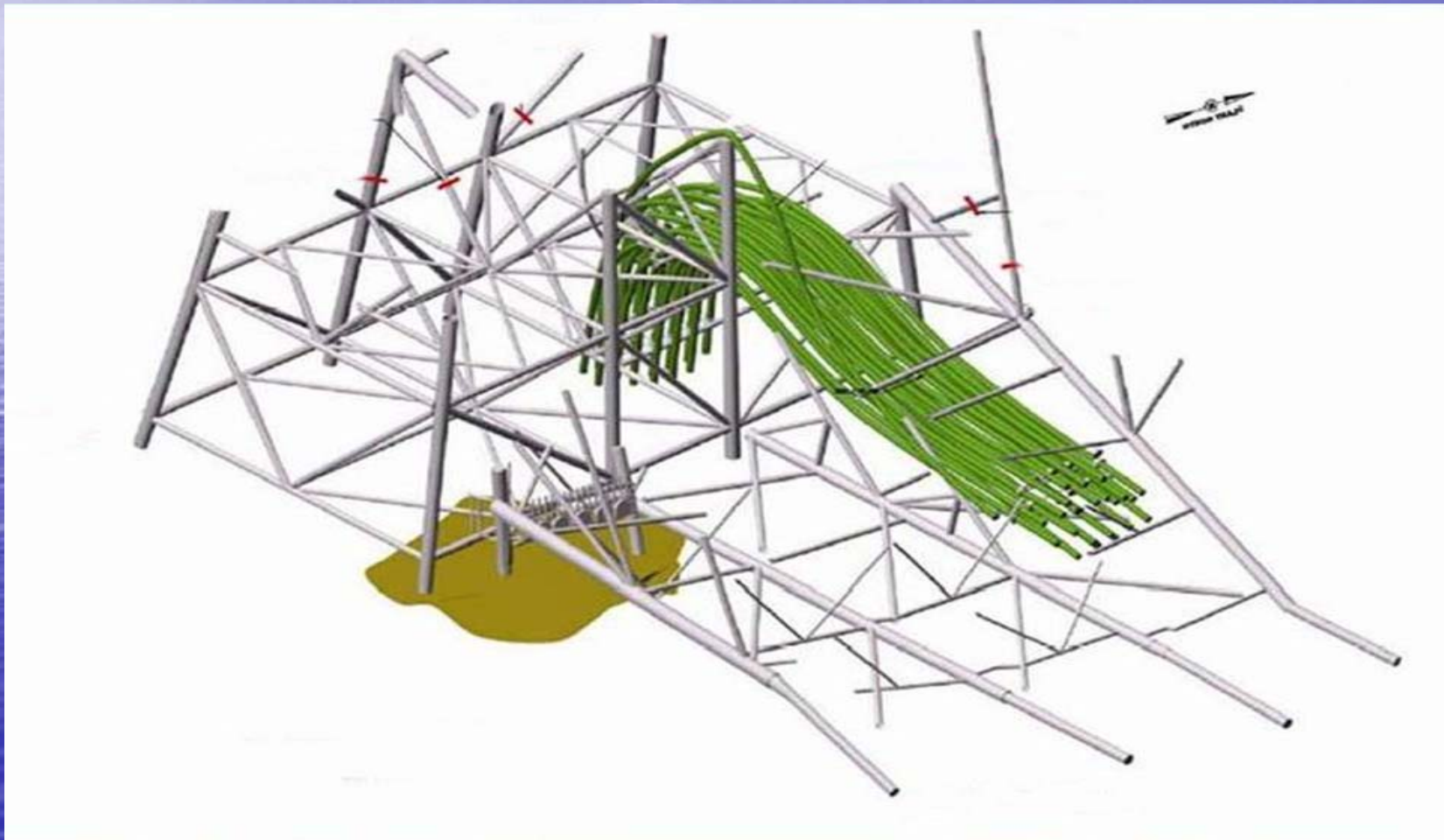


After

hurricane



Increased Cost of Decommissioning Increased Demand on Resources



MMS plans the incorporation of new API Interim Bulletins

MMS proposes to:

- Issue an Interim Rule to incorporate the following API Bulletins into the regulations:
 - 2INT-MET
 - 2INT-DG
 - 2INT-EX
- And concurrently,

New API Bulletins for Design of OCS Platforms

- Issued a Notice To Lessees (NTL) 2007-G26 on December 15, 2007, stating that MMS personnel will reference the following API Bulletins for the review of platform design applications:
 - 2 INT-MET
 - 2 INT-DG

API Bulletin 2INT-EX for the Assessment of Existing Platforms

- MMS will also propose an interim rule to adopt API Bulletin 2INT-EX as published
- MMS issued NTL 2007-G27 on October 1, 2007, to clarify the interim bulletin

Highlights of NTL 2007-G27

- Identify structures for an assessment
 - Operators had to identify by November 1, 2007, their Critical Facilities (A1/L1 platforms located in the Central and Transition Regions, Floating Facilities, and CVA Facilities).
- Approximately 65 facilities have been identified as critical and will need an assessment performed by June 1, 2008. This assessment should include:
 - A review of analysis procedures
 - Identification of mitigation alternatives
 - Propose a timeline for analysis and mitigation

CHALLENGE – Idle Iron Removal

- We learned from the destruction from recent hurricanes that many facilities and wells that were lost actually had little or no future utility
- Costs for removal of toppled structures and wells is in the range of 10-15 times more than normal abandonment and removal

Idle Iron (Well Abandonment)

Sec. 250.1711 When will MMS order me to permanently plug a well? MMS will order you to permanently plug a well if that well:

(a) Poses a hazard to safety or the environment;

or

(b) Is not useful for lease operations and is not capable of oil, gas, or sulphur production in paying quantities.

Idle Iron (Platform Removal)

Sec. 250.1703 What are the general requirements for decommissioning? When your facilities are no longer useful for operations, you must:

- (a) Get approval from the appropriate District Supervisor before decommissioning wells and from the Regional Supervisor before decommissioning platforms and pipelines or other facilities;
- (b) Permanently plug all wells;
- (c) Remove all platforms and other facilities;
- (d) Decommission all pipelines;
- (e) Clear the seafloor of all obstructions created by your lease and pipeline right-of-way operations;
- (f) Conduct all decommissioning activities in a manner that is safe, does not unreasonably interfere with other uses of the OCS, and does not cause undue or serious harm or damage to the human, marine, or coastal environment.

Safety Alert- Abandonment of wells and Decommissioning Platforms

Safety
Alert

MMS

U.S. Department of the Interior
Minerals Management Service
Gulf of Mexico OCS Region

Safety Alert No. 233
August 1, 2007

Contact: Jane Powers
(504) 736-2558

Plug and Abandonment of Non-producing Wells and Facilities

Following Hurricanes Ivan, Katrina, and Rita, a total of 123 platforms were destroyed on the Outer Continental Shelf (OCS) of the Gulf of Mexico (GOM). More than 800 wells were associated with these platforms. Despite these losses, there are still a significant number of non-producing¹ structures and wells that are currently idle.

A potential problem identified by the MMS is that a large portion of these idle structures may not be able to survive the environment where they are located. This belief is supported by the API Bulletin 2INT-MET's new hurricane metocean conditions, which take into consideration several major storms since 1993. If a facility and its wells are displaced or toppled, it can pose an immediate risk to the environment and the recovery of future production.

The regulations at 30 CFR 250.1700 (Subpart Q – Decommissioning Activities) state in part that when facilities are no longer useful for operations, an operator must permanently plug all wells and remove all platforms and other facilities within 1 year after the lease terminates in accordance with the lease stipulations. Also, MMS may order operators to permanently plug a well if that well poses a hazard to safety or the environment or is not useful for lease operations and is not capable of oil, gas, or sulphur production in paying quantities. Historically, MMS has granted approval to operators to maintain these structures in order to conduct other future activities; however, MMS has not seen a substantial increase in the reuse of these non-producing facilities.

Therefore, MMS recommends that operators should review and evaluate their inventory of non-producing wells and facilities to determine the future utility of these structures and the level of threat posed to the environment and human safety should a facility experience a catastrophic loss. MMS further recommends that operators reference the guidance of API Bulletin 2INT-EX - Interim Guidance for Assessment of Existing Offshore Structures for Hurricane Conditions (May 2007), when conducting these evaluations. Plans should be implemented for removal of these structures beginning with those that pose the greatest threat.

--MMS--GOMR--

www.gomr.mms.gov

¹ For purposes of this alert, the term "non-producing" is defined as any platform or well that had reported production volumes at one time, but it has not produced from August 2005 and beyond. Non-producing platforms could include facilities that have production cross them, but do not have any wells associated with the structure that report production.

- Encourages operators to evaluate their current wells and facilities and decommission those that no longer have a future utility

The background of the slide is a photograph of a vast, deep blue ocean stretching to a clear horizon. The sky above is a lighter blue with wispy white clouds. The overall color palette is monochromatic, dominated by various shades of blue.

Questions ?