

*Presentation to the Professional Landmen's Association
of New Orleans*

Safe and Environmentally-Sustainable Energy Production Offshore USA

– Advancing Energy, Economic, and National Security

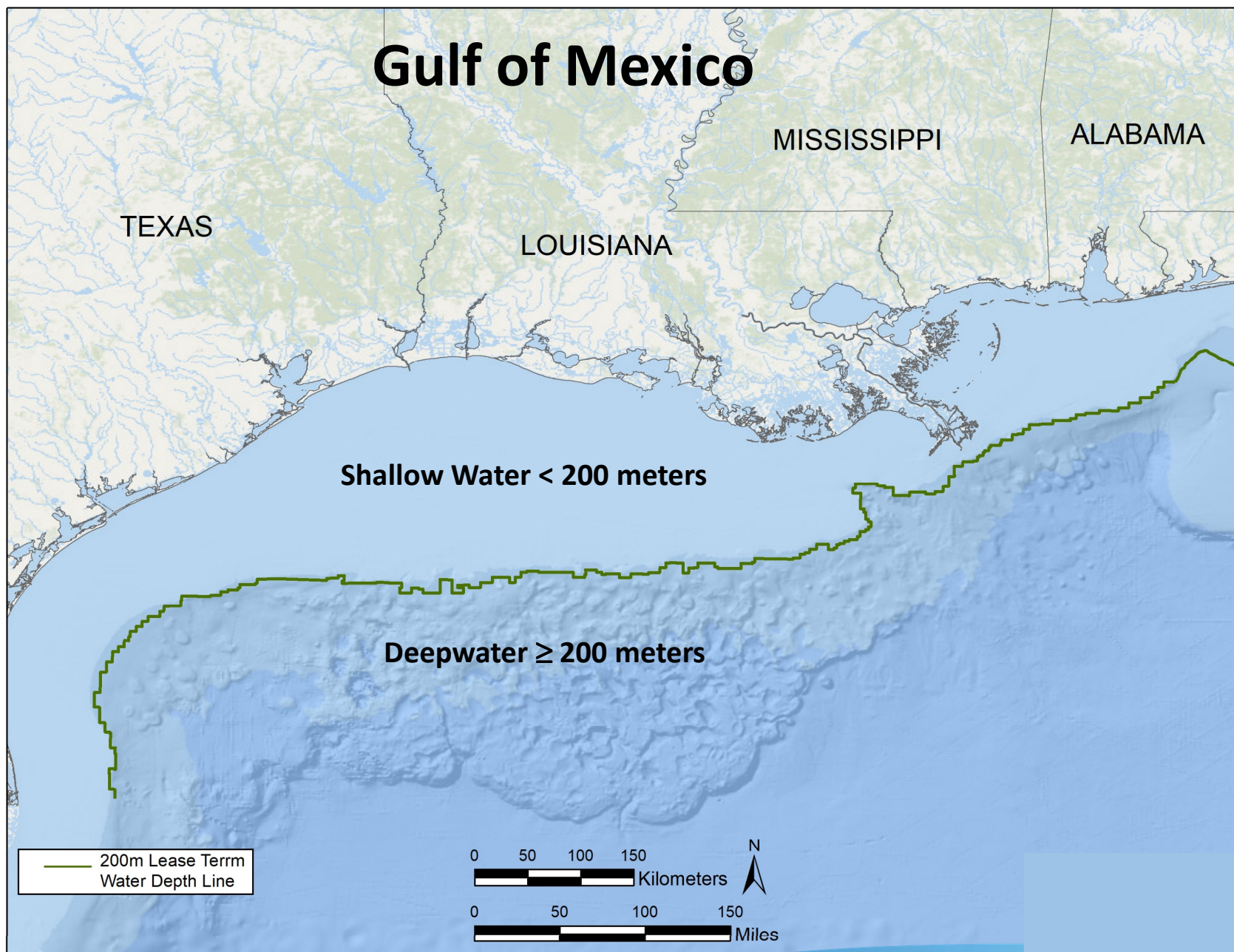
through a Course Correction

Director Scott Angelle



February 19, 2020

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Office of Leasing and Plans - Mapping and Automation Section | MAS202000073 | 07 November 2019

WHEN YOU WORK IN THE OILFIELD...



...AND IT STARTS TO SLOW DOWN.

Course correction begins...

Executive Order 13795

Signed April 28, 2017

Implementing an America First Offshore Energy Strategy

“It shall be the policy of the United States to encourage energy exploration and production, including on the Outer Continental Shelf, in order to maintain the Nation’s position as a global energy leader and foster energy security and resilience for the benefit of the American people, while ensuring that any such activity is safe and environmentally responsible.”

Course correction continues...

1. Safety and Environment **On GOING**
2. Access to the Resources **In The Courts**
3. Regulatory and Process Reform **On GOING**
4. Competitive Royalty Rates **On GOING**
5. Engagement **On GOING**
6. Tax Reform **DONE**



Safety & Environment

- *BSEE!Safe*
- Launched in May 2019
- First-of-its-kind direct communication between a safety regulator and front-line workers
- 5,300+ subscribers
- Issued 30 safety alerts, via more than 63,479 text messages
- 58 cents per text



The graphic shows a hand holding a smartphone. The screen displays the text: "You have a **NEW** BSEE!Safe TEXT NOTIFICATIONS". Above the phone, there is a white envelope icon with a red exclamation mark and a yellow envelope icon. The background is blue with white radiating lines around the phone.

Sign up
for BSEE's
NEW direct text
messaging service at
www.bsee.gov/bseesafe

BSEE!SAFE
TEXT NOTIFICATIONS

BSEE!Safe is BSEE's new service that delivers Safety Alerts and Bulletins directly to your cell phone.

Don't text?
You can still view BSEE safety alerts and bulletins by visiting www.bsee.gov. If you want to receive the alerts and bulletins by email, provide your contact information to bseepublicaffairs@bsee.gov



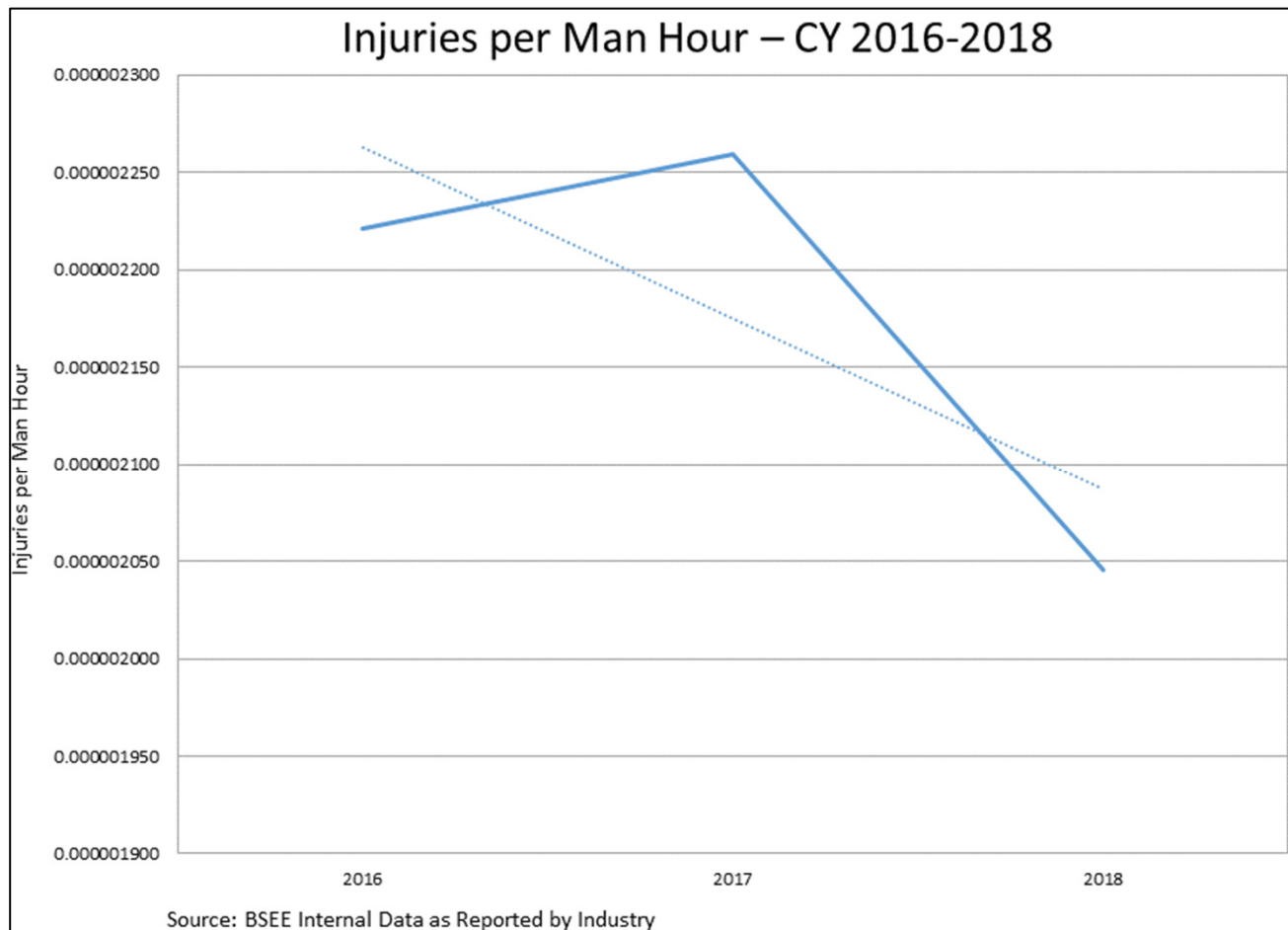
The BSEE logo is a circular emblem. It features a stylized offshore oil rig in the center. To the right of the rig, the word "BSEE" is written in a bold, sans-serif font. Below "BSEE", the words "Bureau of Safety and Environmental Enforcement" are written in a smaller, sans-serif font.

Safety & Environment

Increased Physical Inspection Time Offshore

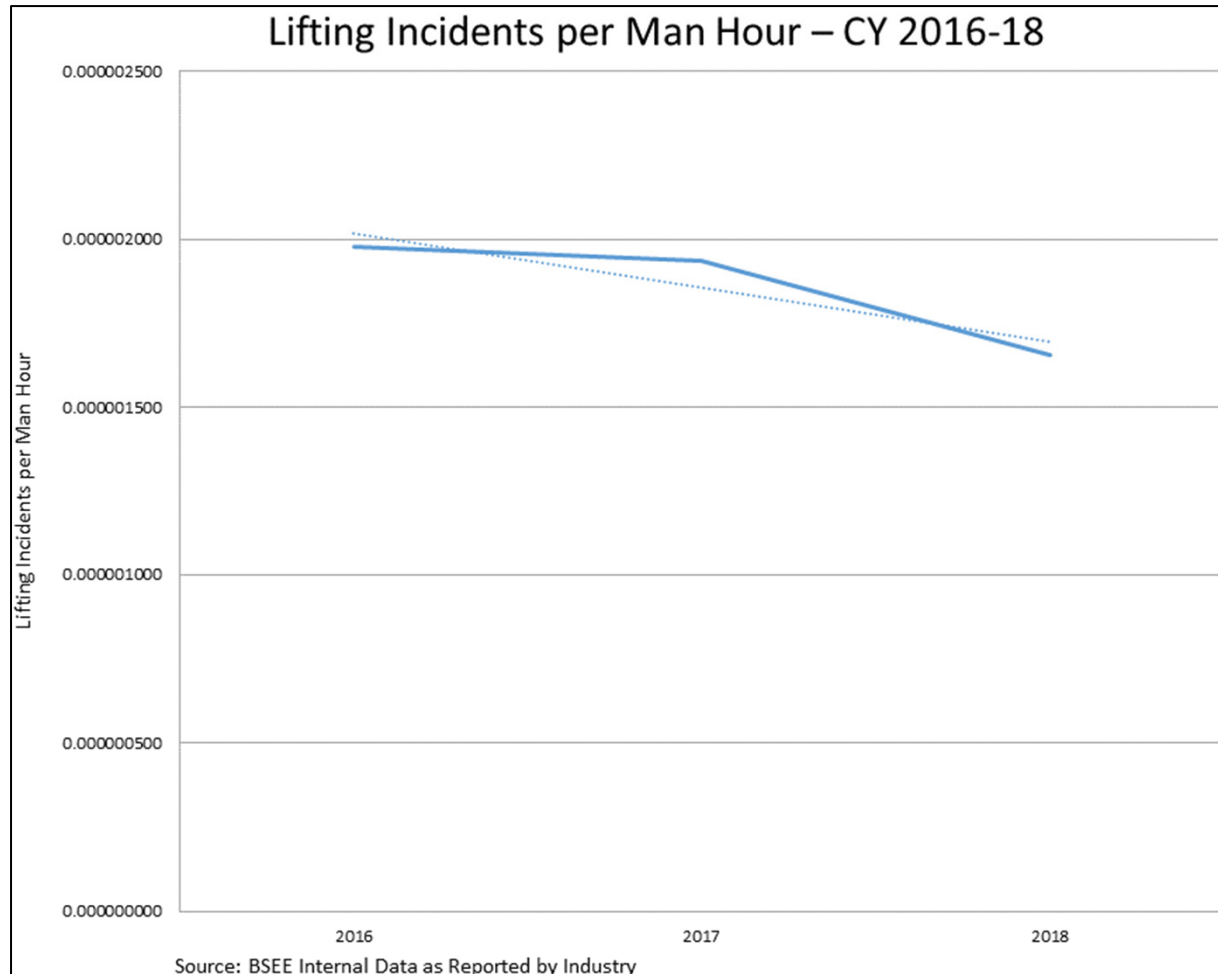
- **eRecords Initiative**
 - Significant impact on inspection time and safety
- **Key Improvement:** April – August FY2017 vs FY2018
 - Offshore Physical Inspection Time increased by 7.8%

Safety Performance Charts



Frequency leads to severity. While the goal of an incident-free OCS is aspirational, we are nonetheless constantly in search of this goal.

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Regulatory & Process Reform

- Production Safety Systems Rule
 - 484 provisions, revised 81 provisions (16.74%)
 - Removed 3 and added 7 new provisions
 - ***Went into effect 27 December 2018*** - \$131.1 million savings over 10 years
- Well Control Rule
 - 342 provisions, revised 68 provisions (19.8%)
 - Added 33 provisions
 - ***Went into effect 15 July 2019*** - \$1.5 billion savings over 10 years

For both rules, every change compared to the 424 recommendations from 26 separate reports from 14 different organizations that issued findings after the Deepwater Horizon incident.

Subject matter experts concluded revised rules do not contradict or ignore any of the 424 recommendations.

Engagement, Engagement, Engagement



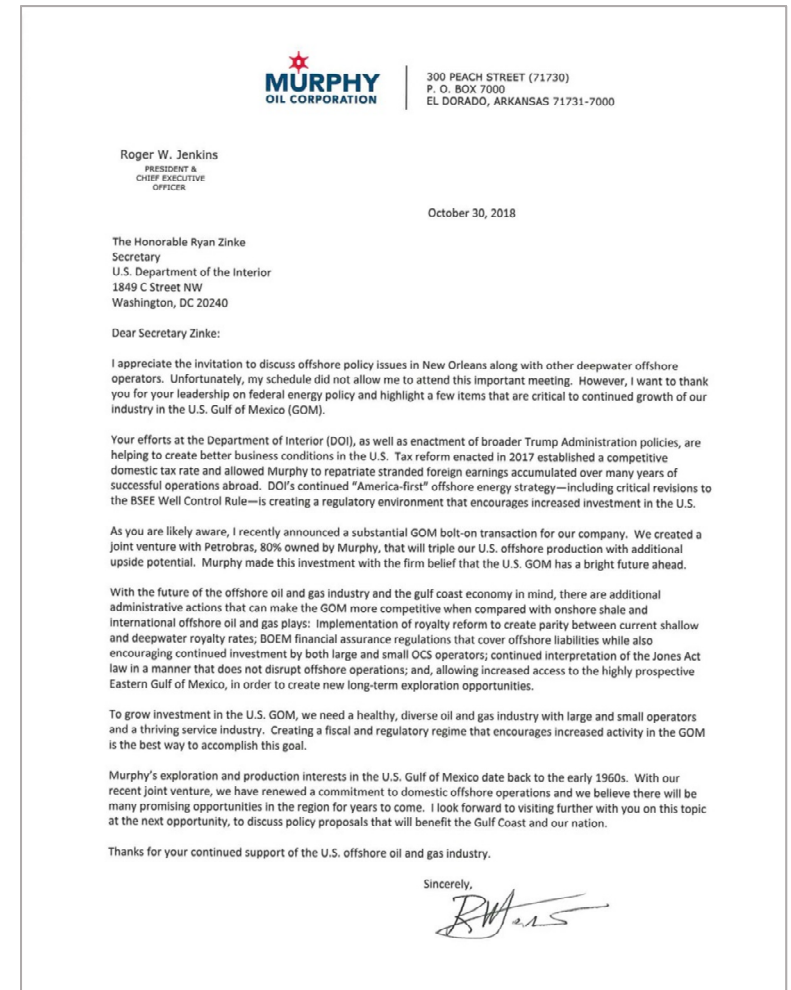
Tax Reform

“Tax reform enacted in 2017 established a competitive domestic tax rate and allowed Murphy to repatriate stranded foreign earnings accumulated over many years of successful operations abroad.”

“DOI’s continued “America-first” offshore energy strategy-including critical revisions to the BSEE Well Control Rule-is creating a regulatory environment that encourages increased investment in the U.S.”

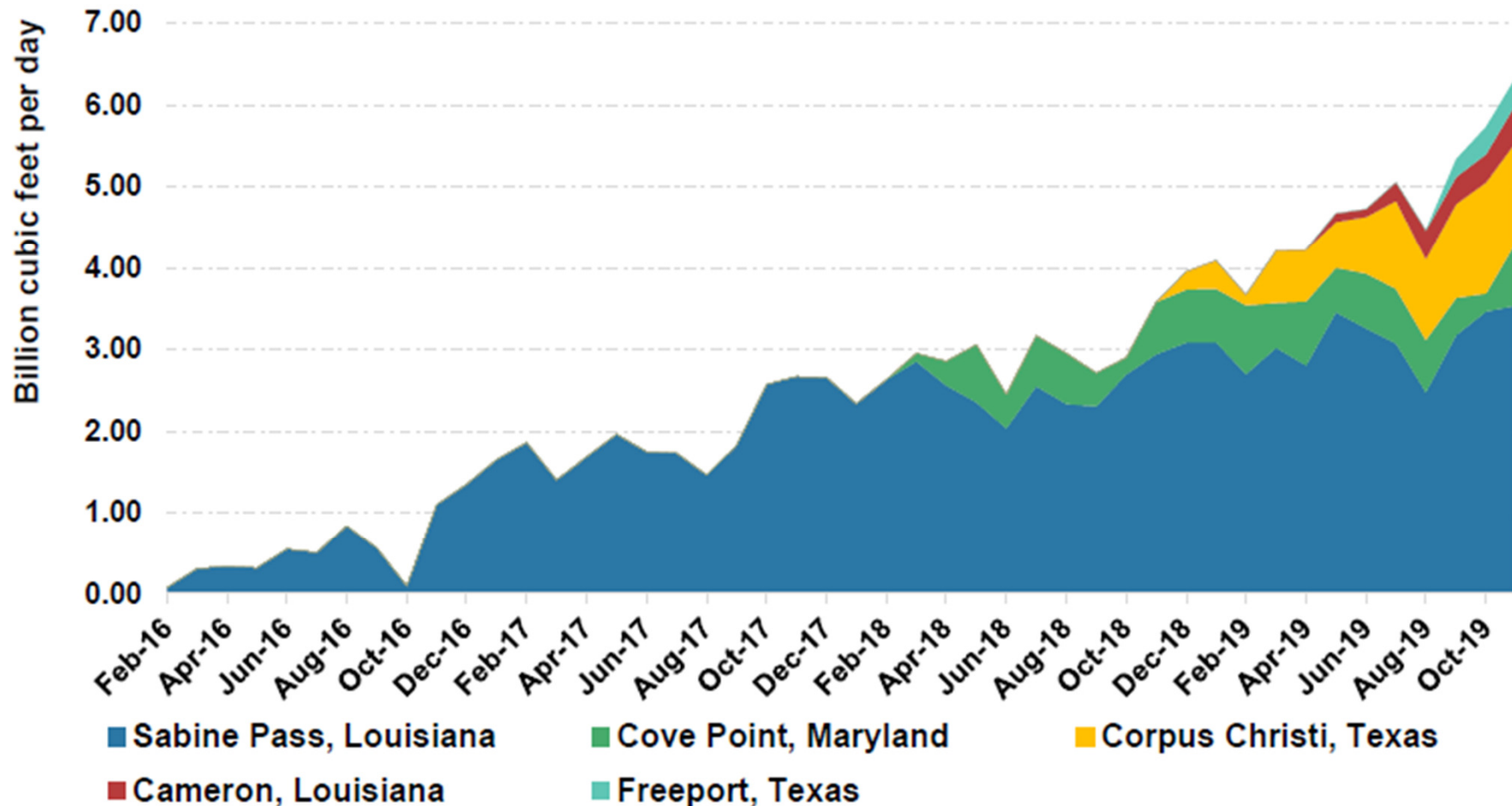
“Creating a fiscal and regulatory regime that encourages increased activity in the GOM is the best way to accomplish this goal.”

Source: Letter to Secretary Ryan Zinke from Roger W. Jenkins, Murphy Oil Corporation
October 30, 2018



What has natural gas done for us lately?

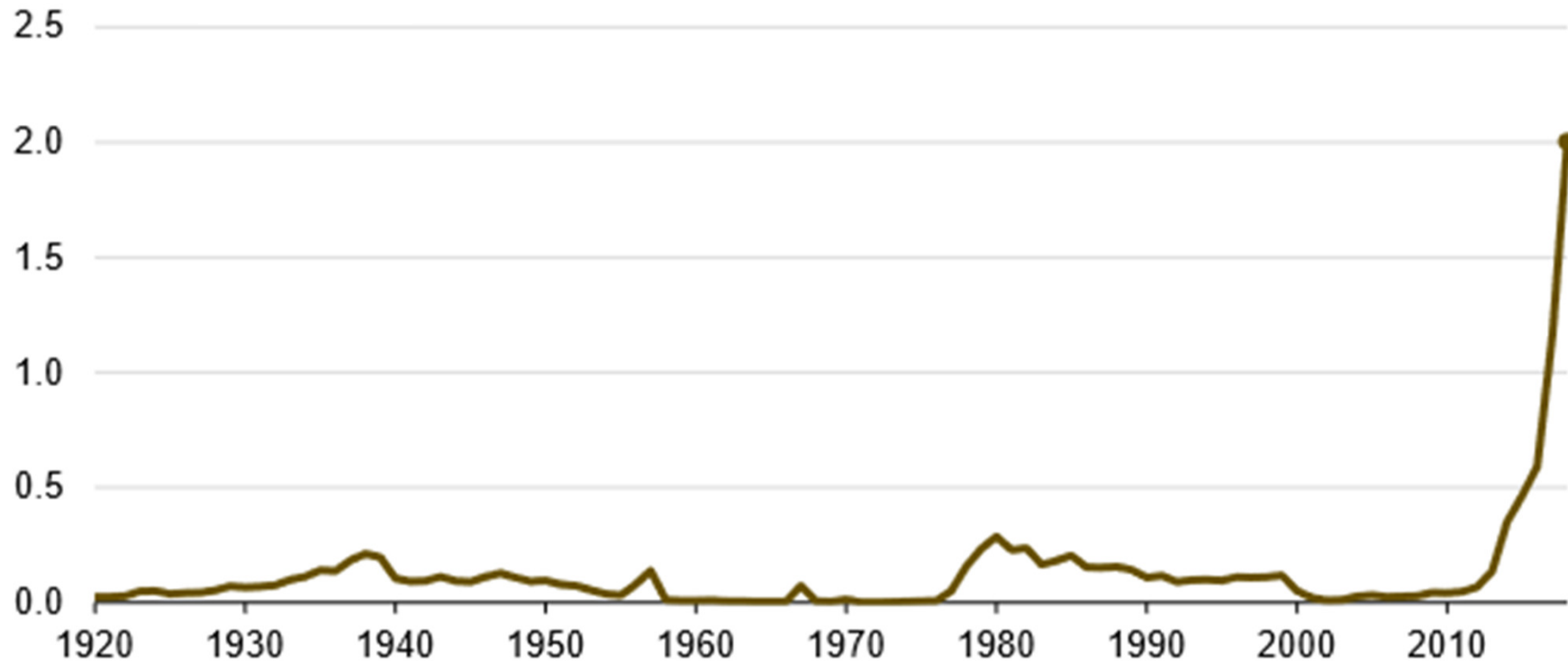
Domestically Produced LNG Exported by Terminal (February 2016 through November 2019)



Source: LNG Monthly, January 2020, U.S. Department of Energy, Office of Oil & Natural Gas

What has oil done for us lately?

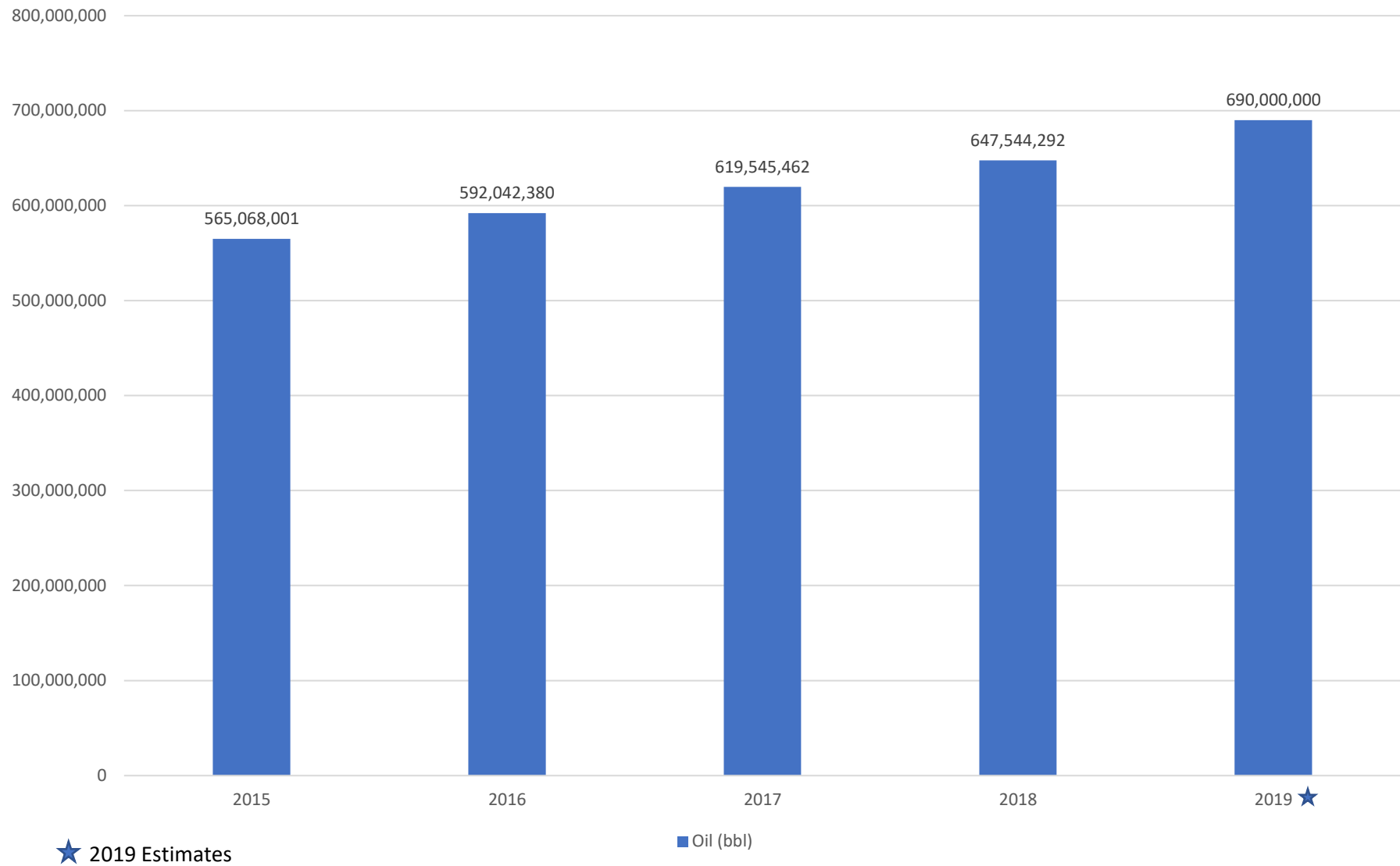
U.S. Crude Oil Exports (1920-2018)
Million Barrels Per Day



Source: U.S. Energy Information Administration, *Petroleum Supply Annual*, *Petroleum Supply Monthly*, April 15, 2019



Total OCS Oil Production 2015-2019



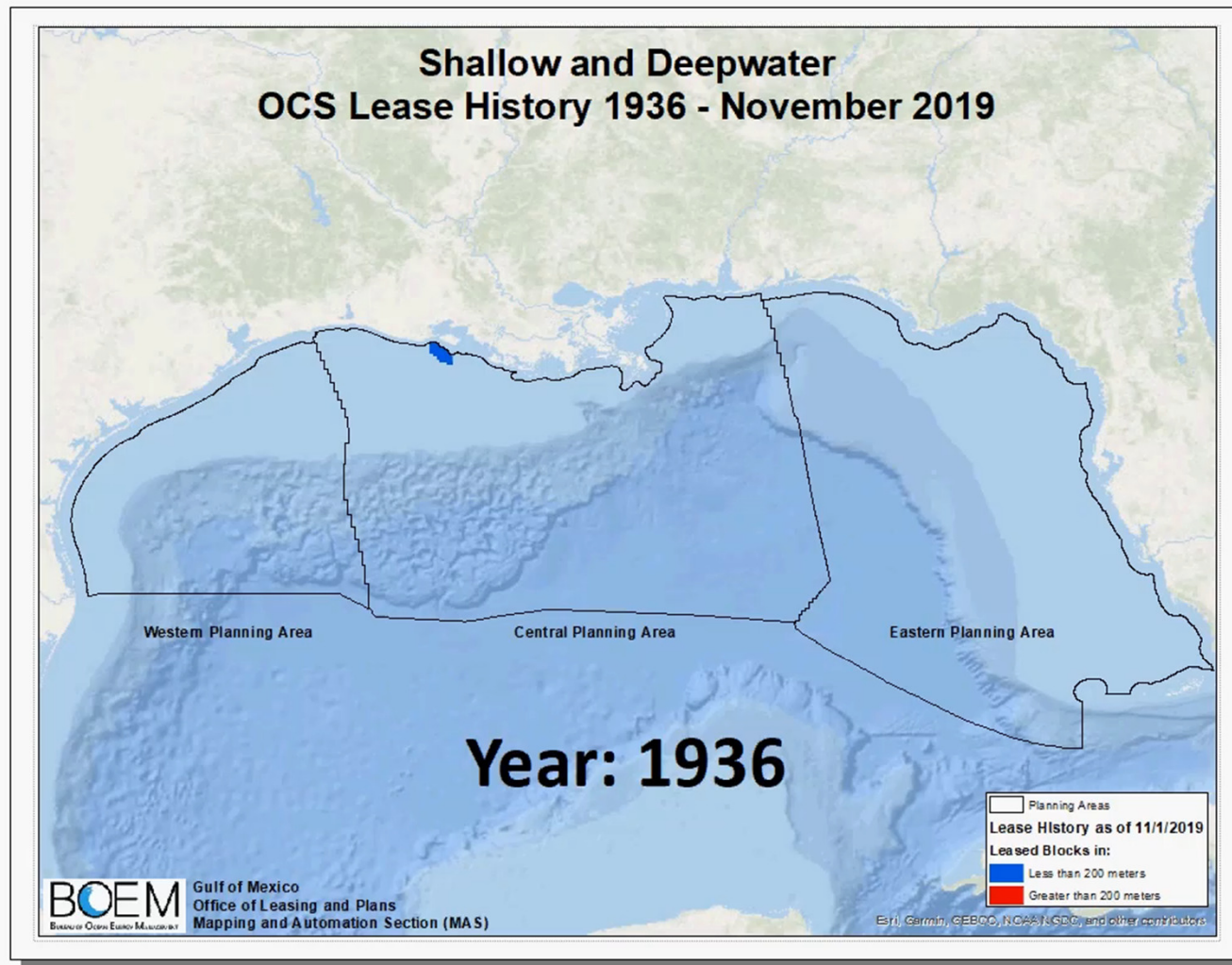
Shallow Water vs. Deepwater

Gulf of Mexico

Two Distinct Provinces

Shallow water	Deepwater
Production began 70 years ago	First Gulf well about 45 years ago
Mostly Gas	Mostly Oil
~50,000 wells drilled	~5,000 wells drilled
61% decrease in producing wells in 20 years	73% increase in producing wells in 20 years
Oil production down 77% in 20 years	Oil production up 198% in 20 years
Gas production down 92% in 20 years	Gas production flat
“Rabbit-size” prize	“Elephant-size” prize

Shallow and Deepwater OCS Lease History 1936 – November 2019



A New Frontier?

High Pressure, High Temperature (HPHT)

Challenge: Define the processes, safety remains priority

Solution: BSEE subject matter experts collaborate with industry

The Code of Federal Regulations defines high pressure as greater than 15,000 psi and high temperature is defined as greater than 350 degrees Fahrenheit.

- **May 2019 -- BSEE issued three Notices to Lessees related to HPHT :**
- Well design, completion, and intervention operations.
- Well completion/control/intervention equipment, trees, and production equipment.
- External hydrostatic pressure in design/calculation of internal pressure containment capability of subsea equipment.
- **Results:** Clear HPHT guidance

***Let's take a look at what happened
as a result of our efforts...***

Transocean Ltd. awarded \$830 million drilling contract for ultra-deepwater drillship

12/31/2018



STEINHAUSEN, Switzerland -- Transocean Ltd. has announced that it has signed a rig design and construction management contract, as well as a five-year drilling contract, with Chevron USA, Inc. for one of its two dynamically positioned ultra-deepwater drillships currently under construction at the Jurong shipyard in Singapore. The drilling contract has an estimated backlog of \$830 million, excluding mobilization and reimbursables. The drilling contract is subject to design, construction, and delivery requirements set forth in the construction contract.

The rig will be the first ultra-deepwater floater rated for 20,000 psi operations and is expected to commence operations in the Gulf of Mexico in the second half of 2021.

In the event of termination for convenience by the customer, Transocean will be compensated for its incremental 20,000 psi subsea investment in the rig. Additionally, a termination for convenience occurring after April 2020, would result in a substantial termination fee.

The drillship will feature the most advanced capabilities and state-of-the-art technology available including dual 20,000 psi blowout preventers, net hook-load capacity of three million pounds, 165-ton active heave compensating crane, and an enhanced dynamic positioning system. The rig's high reliability power plant will also be configured to comply with Tier III International Maritime Organization emissions standards.

"We are extremely pleased to announce that we have entered into an agreement with Chevron to construct and operate the industry's most capable ultra-deepwater drillship," said Jeremy Thigpen, President and CEO. "Transocean has a long and storied history of introducing new technologies that enable our customers to safely and efficiently access the world's most challenging reservoirs. Adding to that history, we are proud to be delivering the industry's first rig capable of drilling and completing wells requiring subsea equipment rated to 20,000 psi."

Thigpen concluded: "On behalf of Transocean, I thank Chevron for their long-standing partnership, and trust in our capabilities. I also thank the members of the Chevron and Transocean teams who have spent countless hours on the development of this game-changing solution."



Two Transocean drillships in the Gulf of Mexico.

Photo: Transocean.

Source: World Oil

BP outlines growth plan for deepwater US Gulf

Published date: 08 January 2019

Share:



BP has made a final investment decision (FID) on a \$1.3bn expansion project at the Atlantis oil and gas field in the US Gulf of Mexico, further evidence that the deepwater sector has retained its allure for the majors.

The Atlantis phase 3 development will involve tying eight new wells back to the existing Atlantis platform, which has a production capacity of 200,000 b/d of oil and 180mn ft³/d of gas. BP expects phase 3 to start up in 2020 and to boost output from Atlantis by 38,000 b/d of oil equivalent (boe/d) at its peak.

The decision to go ahead with the expansion comes after breakthroughs in seismic technology and analysis uncovered an extra 400mn bl of oil-in-place at Atlantis. The same technology has found an additional 1bn bl at BP's Thunder Horse field in the US Gulf, paving the way for further developments there.

Atlantis and Thunder Horse are two of four large deepwater platforms BP operates in the US Gulf — Mad Dog and Na Kika are the others. The company is in the process of installing a second platform at Mad Dog, which will add 140,000 b/d of crude production capacity when it comes on stream in late 2021.

The \$9bn Mad Dog 2 project, combined with recent expansions at Thunder Horse and Atlantis phase 3, should be an important source of output growth for BP over the next few years. The firm has added to its queue of potential future developments in the region after making oil discoveries at the Manuel and Nearly Headless Nick prospects. The former is within tie-back distance to the Na Kika platform, and the latter is likely to be developed as a tie-back to the Delta House platform operated by US independent LLOG.

"Only 12pc of the hydrocarbons-in-place across our Gulf portfolio have been produced so far. We can see many opportunities for further development, offering the potential to continue to create significant value through the middle of the next decade and beyond," BP's upstream chief executive Bernard Looney said.

BP expects to produce around 400,000 boe/d in the deepwater US Gulf of Mexico by the middle of the 2020s, up from over 300,000 boe/d now. Exceeding 400,000 boe/d would be a significant milestone in BP's quest to rebuild following the 2010 Macondo disaster in the US Gulf. The firm's US Gulf output last exceeded 400,000 boe/d in 2009, before the spill forced it to downsize operations in the region.

BP's ambitious growth plan for its US deepwater business coincides with a major expansion into US shale. The firm completed a \$10.5bn deal to buy most of UK-Australian firm BHP's US shale portfolio in October, heralding a return to the Permian basin.

Source: Argus Media

Shell Appomattox, Gulf of Mexico's first HPHT program, receives BSEE approval

7/30/2019



WASHINGTON - Shell's Appomattox project, located in the Gulf of Mexico about 80 miles south of New Orleans, is the first high temperature project to gain Bureau of Safety and Environmental Enforcement (BSEE) approval and begin production. The permitting work for the Appomattox project, which saw first oil in May 2019, helped define and clarify the safety requirements in BSEE's recently published HPHT related guidance documents.

"BSEE's job is to drive safety performance and environmental sustainability in all offshore energy activities," said BSEE director Scott Angelle. "The collaboration between the offshore energy industry and BSEE spurred the innovation necessary to safely pursue resources in HPHT operating conditions."

In the Code of Federal Regulations, high pressure is defined as greater than 15,000 psi and high temperature is defined as greater than 350 degrees Fahrenheit. Projects can fall within both or either high pressure or high temperature categories, meaning the encountered conditions can be high pressure and high temperature or high pressure or high temperature.

Although the first HPHT project in the Gulf of Mexico was proposed in late 2009, the Appomattox is the first to begin production, and in early June National Oilwell Varco announced the sale of two 20,000 psi blowout preventer stacks expected to be deployed in the Gulf of Mexico in 2021.

"Having clear guidance available to all offshore operators drives safety and makes sense to ensure safe and environmentally-sustainable operations," explained Angelle. "In the past we had companies individually submitting data on HPHT operations, without the benefit of a comprehensive or systematic framework for organizing and sharing that information. What we are implementing is a new approach that puts together industry experts to define the processes, procedures and standards that make up best practices, and makes that knowledge available to everyone."

BSEE approved about 140 permits and plans covering different aspects of the Appomattox project. Because the semi-submersible platform is a major deepwater production facility, BSEE's approval process for the structure alone occurred in three phases. It required a review by a certified verification agent, who followed the design, fabrication, and installation of the structure, then recommended to BSEE's Office of Structural and Technical Support to accept the work.

The approximate 140 approvals included the Conceptual Deepwater Operational Plan and subsequently the implemented Deepwater Operations Plan, which together consisted of hundreds of documents. BSEE's approvals also included 14 applications for permit to drill and 61 applications for permit to modify over three lease areas. Shell submitted pipeline segments for approval, as well. BSEE approved 46 lease term pipeline segments, 14 right-of-way pipeline segments, a pipeline modification and five different pipeline risers. Pipeline risers are the portion of pipe that connects the production platform's oil and gas separation facility from the pipelines on the sea floor. For each riser, BSEE again reviewed an agent nomination, the design, interim fabrication, final fabrication, interim installation and final installation reports before approval.

Beginning in 2017, BSEE conducted several production safety system reviews and two pre-production inspections prior to approving Shell's production on the Appomattox platform.

"In each permit review and inspection, high temperature conditions were factored into the approvals," said BSEE Gulf of Mexico Region Director Lars Herbst. "The lessons we learned were incorporated into the newly published HPHT-related guidance documents."

Additional development activities related to the Appomattox project are subject to BSEE's recently released guidance documents regarding HPHT operations on the Outer Continental Shelf. The NTLs will enable other operators to also develop oil and gas resources using new high pressure and high temperature technologies in a safe and environmentally sustainable manner.

Source: World Oil

Chevron greenlights Anchor in the deepwater Gulf of Mexico

Chevron Corp. has sanctioned the \$5.7-billion Anchor project in the deepwater US Gulf of Mexico.

Dec 12th, 2019



Anchor is in the Green Canyon area of the Gulf of Mexico.

Source: Chevron

Deepwater Gulf enters next phase of growth



Jordan Blum | Dec. 19, 2019 | Updated: Dec. 19, 2019 9:21 a.m.

Just this month, Chevron authorized the \$5.7 billion first phase of the Anchor project, which is considered the first ultra-high-pressure development in the Gulf. Anchor, located in the ultra-deepwater Lower Tertiary region about 140 miles off the coast of Louisiana, would be the first project to use subsea equipment and technology capable of withstanding pressures of 20,000 pounds per square inch – enough to crush concrete compared to the previous highs of roughly 15,000 pounds per square inch.

“I don’t think there’s very many Mad Dogs left, but there’s still a long way to go in the Gulf,” said Starlee Sykes, BP regions president over the Gulf. “There’s still a lot of play for as we improved our seismic capabilities and reduce our costs.”

While much of the focus is often on water depths, pressure levels have served as arguably the biggest barrier to opening up new fields in the Gulf of Mexico. As recently as a year ago, producers worried that growth in the Gulf was impeded by the lack of new technologies to withstand pressures of 20,000 pounds per square inch - a threshold considered essential to unlocking more reserves. Now, there’s new equipment designed to maintain well integrity under ultra-high pressures and temperatures approaching 350 degrees.

Improved seismic technologies and artificial intelligence have helped BP and other companies discover, additional oil deposits within well-known oil fields. Such a discovery, for instance, led BP to decide earlier this year to spend \$1.3 billion to expand its Atlantis development in the deepwater Gulf tiebacks. BP also is expanding south of its Thunder Horse platform.

“It’s at the forefront of my mind every day,” Sykes said. “I do believe we’ve come a long way, and we are safe. But I don’t think we can ever become complacent. We need to continue to improve and keep the focus on making our industry as safe as it can possibly be, and also as clean as it can possibly be.”

Source: Houston Chronicle

All Capex (well and facility) for all of the US, separated into Onshore and Offshore

Calendar Year	Total Sum of Capex	Onshore Sum (Billion US Dollars)	Onshore %	Offshore Sum (Billion US Dollars)	Offshore %	Ratio (Onshore to Offshore)
2009	\$ 91.84	\$ 67.17	73%	\$ 24.67	27%	\$2.68 to \$1
2010	\$ 123.62	\$ 101.82	82%	\$ 21.80	18%	\$4.64 to \$1
2011	\$ 155.54	\$ 136.88	88%	\$ 18.66	12%	\$7.21 to \$1
2012	\$ 198.37	\$ 169.19	85%	\$ 29.18	15%	\$5.83 to \$1
2013	\$ 209.22	\$ 178.28	85%	\$ 30.94	15%	\$5.74 to \$1
2014	\$ 240.05	\$ 204.97	85%	\$ 35.08	15%	\$5.88 to \$1
2015	\$ 164.36	\$ 129.46	79%	\$ 34.91	21%	\$3.69 to \$1
2016	\$ 102.99	\$ 80.32	78%	\$ 22.67	22%	\$3.48 to \$1
2017	\$ 139.90	\$ 121.17	87%	\$ 18.14	13%	\$6.78 to \$1
2018	\$ 175.15	\$ 157.27	90%	\$ 17.88	10%	\$8.72 to \$1
2019	\$ 160.93	\$ 146.43	91%	\$ 14.51	9%	\$9.73 to \$1
2020	\$ 146.98	\$ 129.34	88%	\$ 17.64	12%	\$7.17 to \$1
2021	\$ 156.51	\$ 137.49	88%	\$ 19.01	12%	\$7.21 to \$1
2022	\$ 172.92	\$ 153.82	89%	\$ 19.10	11%	\$8.11 to \$1
2023	\$ 169.21	\$ 150.58	89%	\$ 18.63	11%	\$7.95 to \$1
2024	\$ 179.91	\$ 160.05	89%	\$ 19.86	11%	\$8.00 to \$1
2025	\$ 194.33	\$ 174.29	90%	\$ 20.03	10%	\$8.70 to \$1



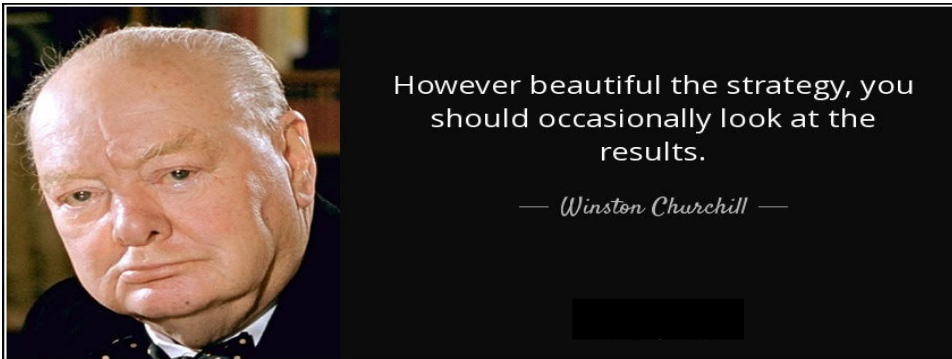
OFFSHORE USA

This Administration has
made a course correction...

... but there is more to do!

C'est pas fini

*Thanks for helping
turn the ship!
-Scott Angelle*



The following demonstrates results comparing from the last full calendar year (2016) of the previous administration and the first full calendar year (2018) of the current administration, unless otherwise noted.

- 54.5% **increase** in number of BSEE safety initiatives
- 433% **increase** in number of BSEE environmental initiatives
- 44% **increase** in number of well permits issued
- 38.8 % **increase** in number of wells spud
- 21.5% **increase** in number of inspections
- 8 million BOE **increase** in energy production
- Highest ever offshore USA oil production (2018)
- Regulatory Reform: Undiscounted 10 year **savings** of **\$1.631 billion** (est.) from revised Production Safety Systems Rule (2018) and revised Well Control Rule (2019)
- 96% **increase** in US OCS royalty revenue
- 2,766% **increase** in SafeOCS participation
- 193% **increase** of reviews of Renewable Energy Industry Submissions
- 7.4% **decrease** in BSEE budget expenditures: doing more with less
- 11.6% **decrease** in BSEE staff onboard: doing more with less

Previous Administration: Safe Operations or Environmentally Sustainable or Robust Energy Production

Current Administration: Safe Operations ~~or~~ ^{and} Environmentally Sustainable ~~or~~ ^{and} Robust Energy Production

We have never been an “either/or” nation: We are no longer an “either/or” offshore USA

Thank you for all

you

do for America!

~~~~~

***Together We Can***

***Drive Safety Performance***

***beyond Regulation Through***

***Innovation and Collaboration***