

OFFICE OF THE CHIEF OF BUREAU

Washington, DC 20510

June 16, 2010

The Honorable Mary L. Kendall
Acting Inspector General
Department of the Interior
1849 C St., NW
Washington, DC 20240

VIA ELECTRONIC MAIL AND FACSIMILE
IMMEDIATE ATTENTION REQUESTED

Dear Inspector General Kendall:

It has come to our attention that inappropriate activity may have occurred as it relates to a 30-day review the Department of the Interior utilized in justifying the current moratorium in the Gulf of Mexico. Recent press releases have stated that "the team of engineers reviewed, approved and signed off on a version of the 30-day review that was presented to them by the Administration. However, after they signed their names to this document, a significant change was made - a change that led to the 6-month suspension of deepwater exploratory drilling."

In justifying its broad moratorium on deepwater drilling, senior officials emphasized that the measure was recommended by a DOI report prepared in consultation with scientists and industry experts. Unfortunately, it appears that the team of scientists assembled by the National Academy of Engineering strongly refutes this claim.

Section 515 of the Information Quality Act (IQA) directs federal agencies to maximize "the quality, objectivity, utility, and integrity" of information they prepare and disseminate and it requires agencies to adopt and follow implementing guidelines. The OMB guidelines note the IQA applies to the "creation, collection, maintenance, and disseminating of information." The basic standard of care is that information must be "accurate, clear, complete, and unbiased." Stricter and even more rigorous quality standards apply when the information is "influential," meaning it will "have a clear and substantial impact on important public policies..."

In light of the allegations of inappropriate tampering with a scientific review with significant public policy implications, we ask you to identify when and how the modifications to the report occurred, and if there was any violation of law as it relates to the Information Quality Act or otherwise.



David Vitter
U.S. Senate

Sincerely,



Steve Scalise
U.S. House of Representatives

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U.S. House of Representatives
Committee on Natural Resources
Washington, DC 20515

July 20, 2010

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Ms. Mary Kendall
Acting Inspector General
U.S. Department of the Interior
Office of Inspector General
1849 C Street NW - Mail Stop 4428
Washington, D.C. 20240

Dear Inspector General Kendall,

In testimony before the House Committee on Natural Resources, Secretary Salazar agreed to cooperate with any Inspector General investigation into the changes made to the Interior Department's 30-Day Safety Report¹ after it had been peer-reviewed. As you know, this report, which included a recommendation for a six-month deepwater drilling moratorium on the Outer Continental Shelf, was presented to the President and the American people as having been peer-reviewed by a group of prominent engineers. Specifically, the language of the report states that "the recommendations contained in this report have been peer-reviewed by seven experts identified by the National Academy of Engineering."² Following the release of the report it was discovered that this statement was patently false. The engineers have come forward to declare that the report was edited by political appointees after their review but prior to presentation to the President.

There are important questions about this incident that must be answered. Who in the Administration ignored the recommendation of scientists and made these changes? Were any laws broken? Who made the decision to misrepresent the views of the scientists? Were the changes influenced by the White House? Were the changes recommended by outside groups? Recent media reports suggest the Administration is acting on advice and recommendations made by the *Center for American Progress* including the recommendation for a moratorium on the OCS.

When testifying before the Committee, you initially asserted that the Inspector General office may not be able to investigate because the issue of the moratorium is subject to an ongoing court case. However, you later indicated that it would be possible to open an investigation. To be clear, we are not asking you to investigate the moratorium. We are asking you to investigate the changes made to the 30-Day Safety Report by political appointees that were presented to the public as a peer-reviewed scientific paper.

¹ Also known as the "Increased Safety Measures for Energy Development on the Outer Continental Shelf, May 27, 2010

² 30-Day Safety Report, Page 4

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July 20, 2010
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The decision to alter the report after the peer-review process severely undermines trust in the Department of the Interior and the federal government. In one of his early speeches, Secretary Salazar said, "I pledge to you that we will ensure the Interior Department's decisions are based on sound science and the public interest, and not on the special interests."³ Clearly, the decision to establish a six-month moratorium was not based on sound science. The outside experts who cosigned the report have raised serious concerns that the imposition of the moratorium would exacerbate any safety issues associated with deepwater drilling.

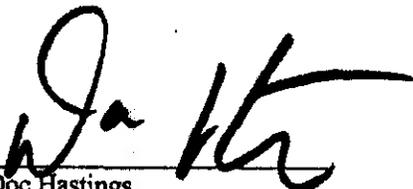
Finally, during the previous Administration, the Inspector General's office had a record of aggressively investigating exactly these types of actions. In fact, you personally testified on July 31, 2007 before the Natural Resources Committee at a hearing on "The Political Influence of the Bush Administration on Agency Science and Decision-Making." During that testimony you discussed a report that when issued stated "In the end, the cloud of MacDonald's overreaching, and the actions of those who enabled and assisted her, have caused the unnecessary expenditure of hundreds of thousands of dollars to re-issue decisions and litigation costs to defend decisions that, in at least two instances, the courts found to be arbitrary and capricious."⁴

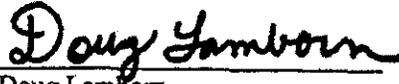
We expect you to hold the Obama Administration to this same standard. We strongly believe the altering of this 30-Day Safety Report is an egregious example of disregarding science and merits equal examination. This overreaching by political appointees in either the Department or the White House have caused the unnecessary expenditure of significant Department funds to re-issue decisions, has adversely impacted tens of thousands of citizens through lost wages and jobs, cost business hundreds of thousands of dollars, and incurred litigation costs to defend the moratorium that the court has found to be arbitrary and capricious.

We strongly encourage you to open an investigation into the allegations and the decisions made associated with this 30-Day Safety Report. Since the Secretary has publicly pledged his full cooperation, there is little doubt that the Inspector General's office could quickly investigate the influences and actions that resulted in the changes to the engineering safety report that was presented to the President.

We look forward to hearing from you promptly regarding your decision on this matter.

Sincerely,

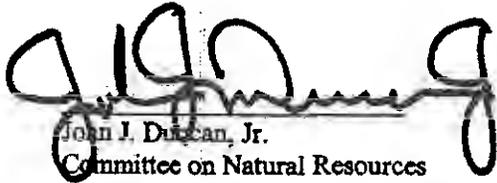

Doc Hastings
Ranking Member
Committee on Natural Resources


Doug Lamborn
Ranking Member
Subcommittee on Energy and Minerals

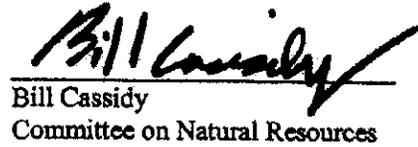
³ Secretary of the Interior Salazar Pledges Accountability & Change in Employee Listening Session, January 22, 2009

⁴ Report of Investigation: The Endangered Species Act and the Conflict between Science and Policy, December 15, 2008

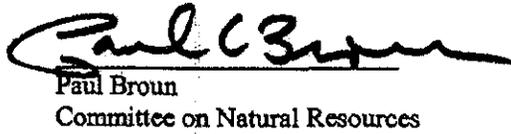
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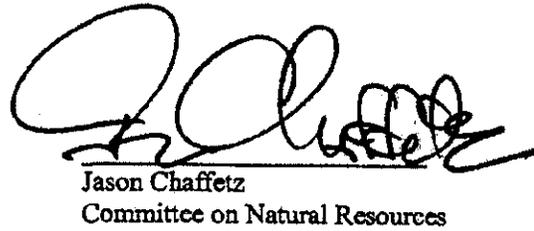
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Committee on Natural Resources



Bill Cassidy
Committee on Natural Resources



Paul Broun
Committee on Natural Resources



Jason Chaffetz
Committee on Natural Resources



John Fleming
Committee on Natural Resources



THE SECRETARY OF THE INTERIOR
WASHINGTON

MAY 27 2010

The President
The White House
Washington, D.C. 20500

Dear Mr. President:

On April 30, 2010, you asked me to prepare a report evaluating additional offshore oil and gas safety measures that the Department of the Interior might impose, even as on-going investigations work to identify the root causes of the BP Oil Spill disaster. You asked that I provide this report on an expedited basis so the American people can be assured that offshore oil and gas development activities can be conducted safely and that another event like the BP Oil Spill never occurs again.

In developing the recommendations included in this report, my Department consulted with a wide range of experts from industry, government, and academia. In addition, draft recommendations were reviewed by seven experts identified by the National Academies of Engineering. Although I am certain that on-going investigations of the disaster including, in particular the work of the Presidential Commission that you announced last week, will help inform, refine, and supplement these recommendations, I believe that the report provides a sound basis for making initial decisions regarding offshore oil and gas activities.

The report recommends a number of specific measures that can be taken on both a short and longer term basis to enhance the safety of offshore oil and gas activities. It notes that drilling activities conducted in the deepwater environment create increased risks and challenges. In that regard, the report focuses on two key aspects of drilling safety: (1) well design and construction and well control procedures, and (2) the blowout preventer equipment and backup control systems.

In addition to approving the important recommendations in this report, I also recommend that you impose a moratorium on all oil and gas drilling activity from floating rigs for 6 months. A moratorium would enable the Department to develop additional details regarding several of the recommendations, while also providing the Presidential Commission with an opportunity to comment upon, and potentially adjust, the recommendations as part of its comprehensive review.

I look forward to receiving your instructions in this important matter.

Respectfully,

A handwritten signature in black ink that reads "Ken Salazar".

Ken Salazar

DEPARTMENT OF THE INTERIOR

**INCREASED SAFETY MEASURES FOR ENERGY DEVELOPMENT
ON THE OUTER CONTINENTAL SHELF**

MAY 27, 2010

INCREASED SAFETY MEASURES FOR ENERGY DEVELOPMENT ON THE OUTER CONTINENTAL SHELF

EXECUTIVE SUMMARY

Overview

On April 20, 2010, an explosion and fire erupted on an offshore drilling rig in the Gulf of Mexico called the *Deepwater Horizon*, which had just completed an exploratory well 52 miles from shore in 4,992 feet of water. Eleven members of the crew are missing and presumed dead. The remainder of the crew abandoned the rig and was rescued by a nearby supply vessel, the *Damon Bankston*. The fire destroyed the rig, which sank on April 22, 2010. The resulting oil spill has been declared "a spill of national significance" and could become one of the oil industry's gravest disasters. Crude oil continues to flow from a broken pipe on the seafloor, has spread across thousands of square miles, and is damaging local economies, sensitive coastlines and wildlife throughout the Gulf region. On April 30, 2010, the President directed the Secretary of the Interior to conduct a thorough review of this event and to report, within 30 days, on "what, if any, additional precautions and technologies should be required to improve the safety of oil and gas exploration and production operations on the outer continental shelf." This report responds to the President's directive.

Recommendations

The Secretary recommends a series of steps immediately to improve the safety of offshore oil and gas drilling operations in Federal waters and a moratorium on certain permitting and drilling activities until the safety measures can be implemented and further analyses completed.

The report recommends a number of specific measures designed to ensure sufficient redundancy in the blowout preventers (BOPs), to promote the integrity of the well and enhance well control, and to facilitate a culture of safety through operational and personnel management (see Table ES-1). Recommended actions include prescriptive near-term requirements, longer-term performance-based safety measures, and one or more Department-led working groups to evaluate longer-term safety issues. The recommendations take into account that drilling activities conducted in the deepwater environment create increased risks and challenges.

Key recommendations on BOPs and related safety equipment used on floating drilling operations include:

- *Mandatory inspection of each BOP to be used on floating drilling operations to ensure that the BOP: meets manufacturer design specifications, taking into account any modifications that have been made; is compatible with the specific drilling equipment on the rig it is to be used on, including that the shear ram is compatible with the drill pipe to be used; has not been compromised or damaged from previous service; is designed to operate at the planned operating depth. Certification of these requirements will be made publicly available.*

- *Requirement of new safety features on BOPs and related backup and safety equipment including: a requirement that BOPs have two sets of blind shear rams spaced at least four feet apart to prevent BOP failure if a drill pipe or drill tool is across on set of rams during an emergency; requirements for emergency back-up control systems; and requirements for remote operating vehicle capabilities. The Department will develop new surface and subsea testing requirements to verify reliability of these capabilities.*
- *Overhaul of the testing, inspection and reporting requirements for BOP and related backup and safety equipment to ensure proper functioning, including new means of improving transparency and providing public access to the results of inspections and routine reporting.*

Key recommendations on well control systems include:

- *Development of enhanced deepwater well-control procedures.*
- *Verification of a set of new safeguards that must be in place prior to displacement of kill-weight drilling fluid from the wellbore.*
- *New design, installation, testing, operations, and training requirements relating to casing, cement or other elements that comprise an exploratory well.*
- *A comprehensive study of methods for more rapid and effective response to deepwater blowouts.*

Key recommendations on a systems-based approach to safety:

- *Immediate, enhanced enforcement of current regulations through verification within 30 days of compliance with the April 30, 2010, National Safety Alert.*
- *Enhanced requirements to improve organizational and safety management for companies operating offshore drilling rigs.*
- *New rules requiring that offshore operators have in place a comprehensive, systems-based approach to safety and environmental management.*

The Secretary also recommends temporarily halting certain permitting and drilling activities. First, the Secretary recommends a six-month moratorium on permits for new wells being drilled using floating rigs. The moratorium would allow for implementation of the measures proposed in this report and for consideration of the findings from ongoing investigations, including the bipartisan National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling.

The Secretary further recommends an immediate halt to drilling operations on the 33 permitted wells, not including the relief wells currently being drilled by BP, that are currently being drilled using floating rigs in the Gulf of Mexico. Drilling operations should cease as soon as safely

practicable for a 6-month period.

The recommendations contained in this report have been peer-reviewed by seven experts identified by the National Academy of Engineering. Those experts, who volunteered their time and expertise, are identified in Appendix 1. The Department also consulted with a wide range of experts from government, academia and industry.

Relationship to Ongoing Investigations

This 30-day review has been conducted without the benefit of the findings from the ongoing investigations into the root causes of the explosions and fire on the Deepwater Horizon and the resulting oil spill (collectively "BP Oil Spill") including if there were any violations of existing safety or construction law, gross negligence, or willful misconduct. In the coming months, those investigations will likely suggest refinements to some of this report's recommendations, as well as additional safety measures. Nevertheless, the information currently available points to a number of specific interim recommendations regarding equipment, systems, procedures, and practices needed for safe operation of offshore drilling activities.

Furthermore, because the purpose of this review is to recommend immediate measures to improve the safety of offshore drilling activities, nothing in this report should be used to influence or prejudice any ongoing investigations, or impact any current or future litigation.

Table ES-1. Recommendations for Increased Safety Measures

| Recommendations | Key Components (with implementation plan) |
|--|---|
| Blowout Preventer (BOP) Equipment and Emergency Systems | <ul style="list-style-type: none"> • Order re-certification of subsea BOP stacks (immediately) • Order BOP equipment compatibility verification (immediately) • Establish formal equipment certification requirements (rulemaking) |
| New Safety Equipment Requirements and Operating Procedures | <ul style="list-style-type: none"> • Develop new BOP and remote operated vehicle (ROV) testing requirements (immediately) • Develop new inspection procedures and reporting requirements (immediately) • Develop secondary control system requirements (emergency rulemaking) • Establish new blind shear ram redundancy requirements (emergency rulemaking) • Develop new ROV operating capabilities (rulemaking) |
| Well-Control Guidelines and Fluid Displacement Procedures | <ul style="list-style-type: none"> • Establish new fluid displacement procedures (immediately) • Establish new deepwater well-control procedure requirements (emergency rulemaking) |
| Well Design and Construction – Casing and Cementing | <ul style="list-style-type: none"> • Establish new casing and cementing design requirements – two independent tested barriers (immediately) • Establish new casing installation procedures (immediately) • Develop formal personnel training requirements for casing and cementing operations (rulemaking) • Develop additional requirements for casing installation (rulemaking) • Enforce tighter primary cementing practices (rulemaking) • Develop additional requirements for evaluation of cement integrity (immediately) • Study Wild-Well intervention techniques and capabilities (immediately) |
| Increased Enforcement of Existing Safety Regulations and Procedures | <ul style="list-style-type: none"> • Order compliance verification for existing regulations and April 30, 2010, National Safety Alert (immediately) • Adopt safety case requirements for floating drilling operations on the Outer Continental Shelf (emergency rulemaking) • Adopt final rule to require operators to adopt a robust safety and environmental management system for offshore drilling operations (rulemaking) • Study additional safety training and certification requirements (rulemaking) |

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I. INTRODUCTION

On April 20, 2010, the crew of the Transocean drilling rig *Deepwater Horizon* was preparing to temporarily abandon BP's discovery well at the Macondo prospect 52 miles from shore in 4,992 feet of water in the Gulf of Mexico. An explosion and subsequent fire on the rig caused 11 fatalities and several injuries. The rig sank two days later, resulting in an uncontrolled release of oil that has been declared a spill of national significance. The Nation faces a potentially massive and unprecedented environmental disaster, which has already resulted in the tragic loss of life and personal injuries as well as significant harm to wildlife, coastal ecosystems, and other natural resources. The disaster is commanding the Department of the Interior's resources as we work to ensure that the spill is stopped and the well permanently plugged; that our natural resources along the Gulf Coast are protected and restored; and that we get to the bottom of what happened and hold those responsible accountable.

On April 30, 2010, the President ordered the Secretary of the Interior to evaluate what, if any, additional precautions and technologies should be required to improve the safety of oil and gas exploration and production operations on the Outer Continental Shelf (OCS). In addition to this review of the OCS regulatory structure, the President recently created the bipartisan National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling. The President established the National Commission to examine the relevant facts and circumstances concerning the root causes of the BP Oil Spill, to develop options for guarding against, and mitigating the impact of, oil spills associated with offshore drilling, and to submit a final public report to him with its findings and options for consideration within six months of the date of the Commission's first meeting.

In addition, the Departments of the Interior and Homeland Security are undertaking a joint investigation into the causes of the BP Oil Spill, including holding public hearings, calling witnesses, and taking any other steps necessary to determine the cause of the spill. Several committees in Congress have held and will continue to hold hearings on the events associated with the BP Oil Spill. Respecting the ongoing investigations, this report does not speculate as to the possible causes of the BP Oil Spill. This report is intended to identify an initial set of safety measures that can and will be implemented as soon as practicable to improve the safety of offshore oil and gas development.

To provide context for the safety recommendations, this report presents a history of OCS production, spills, and blowouts, a review of the existing U.S. regulatory and enforcement structure, a survey of other countries' regulatory approaches, and a summary of existing Minerals Management Service (MMS)-sponsored studies on technologies that could reduce the risk of blowouts.

In compiling the recommendations presented in this report, the Department has drawn from expertise within the Federal Government, academia, professional engineers, industry, and other governments' regulatory programs. In particular, seven members of the National Academy of Engineering peer reviewed the recommendations in this report. The Department received ideas from the Department of Energy National Laboratories on ways to improve offshore safety. Appendix 1 lists expert consultations for this report.

This report examines all aspects of drilling operations, including equipment, procedures, personnel management, and inspections and verification in an effort to identify safety and environmental protection measures that would reduce the risk of a catastrophic event. (A brief primer on offshore drilling technology and systems is included in Appendix 2). In particular, this report examines several issues highlighted by the BP Oil Spill regarding operational and personnel safety while conducting drilling operations in deepwater environments.

While technological progress has enabled the pursuit of deeper oil and gas deposits in deeper water, the risks associated with operating in water depths in excess of 1,000 feet are significantly more complex than in shallow water. This report describes safety and environmental issues involved in offshore drilling, including the unique challenges associated with drilling operations in deepwater.

The recommendations address well-control and well abandonment operations; specific requirements for devices, such as blowout preventers (BOPs) and their testing; industry practices; worker training; inspection protocol and operator oversight; and the responsibility of the Department for safety and enforcement.

In developing the recommendations contained in this report, the Department has been guided by the principle that feasible measures that materially and undeniably reduce the risk of a loss-of-well-control event should be pursued. Therefore, some recommended measures—particularly those the Department intends to implement immediately—are necessarily prescriptive. At the same time, the Department is examining innovative ways to promote a culture of safety for offshore operations by addressing the human element of operations. The Department is committed to moving to finalize a rulemaking that would require operators to adopt a systems-based approach to safety and environmental management. This rule would require operators to incorporate global best practices regarding environmental and safety management on offshore platforms into their operating plans and procedures. In finalizing this rulemaking, the Department will analyze carefully the current circumstances in the Gulf of Mexico and lessons learned from the ongoing investigation into the causes of the BP Oil Spill.

To realize an improved margin of safety associated with the recommended equipment standards and operating procedures, the report proposes new inspection and verification measures, which the Department will implement. Several of these efforts will also allow the public to access information about the inspection and verification structures, to promote confidence that: (1) the Federal Government undertakes appropriate actions to review, audit, and confirm industry performance; and (2) industry follows the best possible practices and the new set of regulatory requirements.

A comprehensive set of reforms encompassing all aspects of oil and gas development on the OCS simply could not be fully developed in the 30-day timeframe of this report. With respect to some safety measures, the Department will undertake further study—with appropriate input from independent experts, academia, industry, and other stakeholders—to develop new regulations and other appropriate steps to promote drilling safety. These Department-led strike teams will also help to inform the work of the President's new bipartisan National Commission. Finally, this report does not address several important issues associated with the safety of offshore

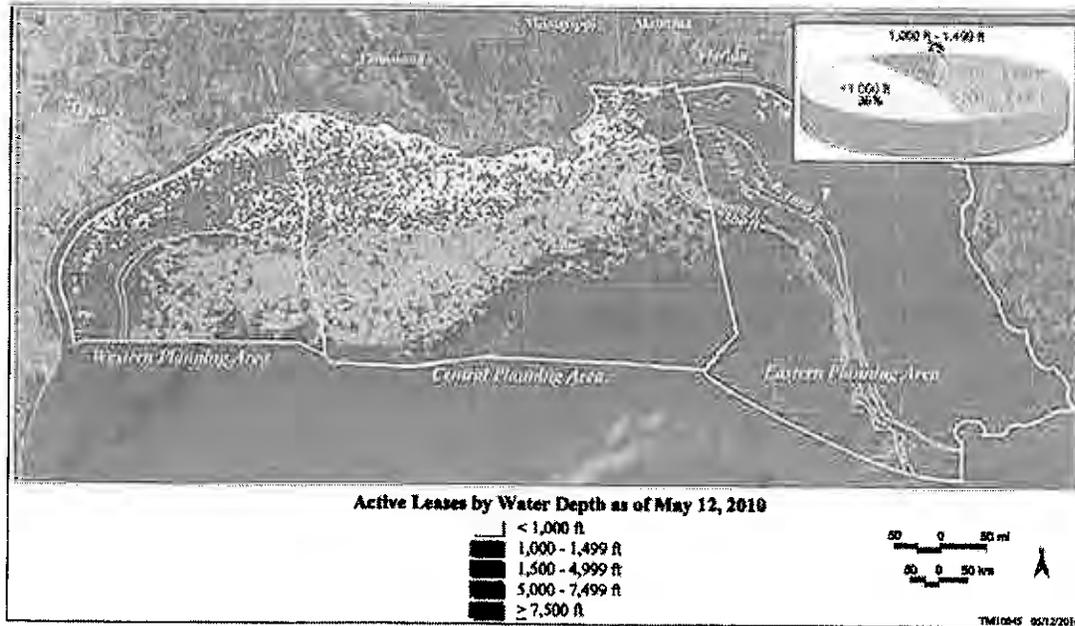
drilling that implicate shared responsibilities with other departments and agencies. For example, the Department will work in close cooperation with the Department of Homeland Security, including the United States Coast Guard, the Environmental Protection Agency, and other agencies to evaluate and improve oil spill response capabilities and industry responsibilities.

II. OFFSHORE OIL AND GAS PRODUCTION

A. Federal OCS Oil and Gas Activities

The Gulf of Mexico provides 97 percent of Federal OCS production. The Gulf of Mexico has nearly 7,000 active leases (see Figure 1), 64 percent of which are in deepwater. The Pacific OCS has 49 active leases off the coast of Southern California, 43 of which are producing. There have been no Pacific OCS lease sales since 1984. Alaska has 675 active leases and production from a single joint State-Federal field. The Atlantic does not have any active leases or production.

Figure 1
Gulf of Mexico OCS Active Leases



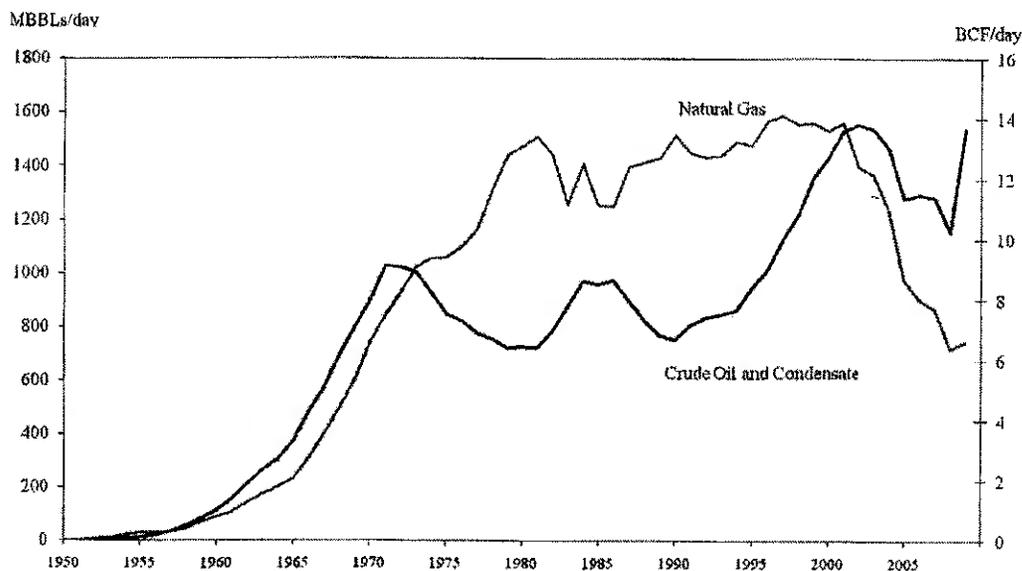
Source: Minerals Management Service Database, 2010.

Since 1947, more than 50,000 wells have been drilled in the Federal Gulf of Mexico, and there are now approximately 3,600 structures in the Gulf. In 2009, production from these structures accounted for 31 percent of total domestic oil production and 11 percent of total domestic, marketed natural gas production. Oil production in 2009 represented the second highest annual production for the Gulf of Mexico OCS (see Figure 2). Minerals Management Service Database, 2010.

Since the first major deepwater leasing boom in 1995 and 1996, a sustained and robust expansion of deepwater drilling activity has occurred, largely enabled by major advances in drilling

technology. In 2001, U.S. deepwater offshore oil production surpassed shallow water offshore oil production for the first time. By 2009, 80 percent of offshore oil production and 45 percent of natural gas production occurred in water depths in excess of 1,000 feet, and industry had drilled nearly 4,000 wells to those depths. In 2007, a record 15 rigs were drilling for oil and gas in water depths of 5,000 feet or more in the Gulf of Mexico. Operators have drilled about 700 wells in water depths of 5,000 feet or greater in the OCS. While fewer wells are drilled in the OCS today, they tend to be more sophisticated with higher per-well production levels than those in the past.

Figure 2
Gulf of Mexico OCS Oil and Gas Production



Source: Minerals Management Service Database, 2010.

Since 1953, the Federal Government has received approximately \$200 billion in lease bonuses, fees, and royalty payments from OCS oil and gas operators. Last year, the Federal OCS leasing revenue was \$6 billion. The OCS oil and gas industry provides relatively high-paying jobs in drilling and production activities, as well as employment in supporting industries. Offshore operations provide direct employment estimated at 150,000 jobs. Minerals Management Service Database, 2010.

B. OCS Petroleum Spills

Since the 1969 Santa Barbara, California, oil spill, there have been relatively few major oil spills from offshore oil and gas operations in the U.S. and around the world. Yet several notable blowouts have occurred, including one in June 1979, when the Ixtoc I exploratory well located about 50 miles off the Yucatan Peninsula blew out and was not brought under control until March 1980, releasing over three million barrels of oil off the coast of the Mexican state of Campeche. In 2009, the Australian Montara well in the Timor Sea blew out and was not brought under control for more than 10 weeks, releasing oil into the open ocean and forming a thin sheen covering up to 10,000 square miles. Nevertheless, the relatively infrequent occurrence of a major oil spill from an offshore drilling operation has led many to view these operations as safe.

From 1964 to 2009, operators in the Federal OCS produced about 17.5 billion barrels of oil (crude oil and condensate). Over this same time, the total estimated petroleum volume spilled from OCS activities was approximately 532,000 barrels, or 30.3 barrels spilled per million barrels produced. The spill rates from OCS platform and rig activities improved each decade from the 1960s through the 1990s, although the past decade reversed this trend (see Table 1). The oil spilled from OCS rigs and platforms over the past 30 years totaled about 27,000 barrels, illustrating how a catastrophic spill like the current BP Oil Spill can vastly exceed the impacts of typical spills on the OCS.

Table 1
Crude Oil Spills from Platform and Rigs from Federal OCS Activities, 1960-2009

| Time Period | OCS Oil Production (Thousand Barrels) | Number of Spills | Barrels Spilled (Thousand Barrels) | Thousand Barrels Produced per Barrel Spilled |
|-------------|---------------------------------------|------------------|------------------------------------|--|
| 1960-1969 | 1,460,000 | 13 | 99 | 15 |
| 1970-1979 | 3,455,000 | 32 | 106 | 33 |
| 1980-1989 | 3,387,000 | 38 | 7 | 473 |
| 1990-1999 | 4,051,000 | 15 | 2 | 1,592 |
| 2000-2009 | 5,450,000 | 72 | 18 | 296 |

Note: Only covers spills of 50 barrels or more.

Source: Minerals Management Service Database, 2010.

Blowouts represent a type of loss of well control event that can result in large discharges of oil into the natural environment. Since 1970, the number of blowouts per number of wells drilled has varied significantly from year to year. From 1964 through 1970, a total of approximately 178,000 barrels of oil was spilled on the Federal OCS as a result of blowout events (see Table 2). Of this total, about 13,000 barrels resulted from blowouts related to external forces, such as hurricanes and ship collisions. An additional 30,000 barrels were released when a production fire resulted in the loss of well control of 12 wells on a production platform. The remaining 135,000 barrels that were released during blowouts occurred during drilling, well completion, or workover operations.

Table 2

Blowout Events Exceeding 1,000 Barrels on the Federal Outer Continental Shelf, 1964-2009

| Year | Description of Event |
|------|---|
| 1964 | Two blowouts associated with a hurricane event that destroyed four platforms. Total of 10,280 barrels crude oil spilled. |
| 1965 | One blowout associated with drilling. 1,688 barrels condensate spilled. |
| 1969 | One blowout that occurred when a supply vessel collided with a drilling rig during a storm and sheared the wellhead. 2,500 barrels crude oil spilled. |
| 1969 | One blowout (Santa Barbara, California) was associated with drilling. 80,000 barrels spilled. |
| 1970 | One blowout was caused by a fire in the production area that resulted in the loss of control of 12 wells on the platform. 30,000 barrels crude oil spilled. |
| 1970 | One blowout associated with wireline work during workover operations. 53,000 barrels spilled. |

Source: Minerals Management Service Database, 2010.

After these blowouts, in the period from 1971 through 2009, a total of approximately 1,800 barrels was spilled on the Federal OCS as a result of blowout events. Of that amount, 425 barrels were blowouts resulting from hurricane damage. An additional 450 barrels occurred at an oil pump during production operations. Since 1956, 15 blowouts resulted in at least one fatality; three of these events occurred after 1986.

While the rate of blowouts per well drilled has not increased, even as more activity has moved into deeper water, the experience with the BP Oil Spill illustrates the significant challenges in containing a blowout in deepwater, as compared to containing a blowout in shallower water.

III. EXISTING WELL CONTROL STUDIES

The Department has conducted research related to offshore oil and gas exploration, development, and production for two purposes: (1) to augment the overall knowledge base in the field, and (2) to identify information supporting new or modified requirements in a regulation or recommended practices. The Department maintains interagency agreements and working arrangements for research with other Federal agencies who share responsibility for regulatory oversight of OCS operations, including the Departments of Commerce, Energy, and Transportation.

Through the Technical Assessment & Research (TA&R) Program, the Department studies the operational safety, technology, and the pollution prevention and spill response capabilities associated with offshore operations. The TA&R Program serves "to promote new technology and safety through the funding of collective research with industry, academia, and other

government agencies and disseminate findings through a variety of public forums.” *Minerals Management Service Engineering and Research Branch 2008-2012 Strategic Plan*. This program has funded or co-funded numerous studies investigating the use of well control techniques and equipment, including those associated with drilling fluid of a specified weight and circulation, cement with a specific bond and integrity, casing with a specific design, pressure control safety valves, and BOPs (see Table 3 for a list of well control studies funded by the Department since 1990). These studies have led to offshore drilling safety improvements around the world.

Table 3
TA&R Funded Well Control Research, 1990-2010

| Study No. | Title of Study | Completion Date |
|------------|---|-----------------|
| <u>8</u> | Blowout Prevention Procedures for Deepwater Drilling | 1978 to 2003 |
| <u>150</u> | Floating Vessel Blowout Control | December 1991 |
| <u>151</u> | Investigation of Simulated Oil Well Blowout Fires | 1989 to 1993 |
| <u>170</u> | Improved Means of Offshore Platform Fire Resistance | 1991 and 1994 |
| <u>220</u> | Study of Human Factors in Offshore Operations | 1995 to 1997 |
| <u>253</u> | Blowout Preventer Study | December 1996 |
| <u>264</u> | Development of Improved Drill String Safety Valve Design and Specifications | 1996 and 1998 |
| <u>319</u> | Reliability of Subsea Blowout Preventer Systems for Deepwater Applications—Phase II | November 1999 |
| <u>382</u> | Experimental Validation of Well Control Procedures in Deepwater | December 2005 |
| <u>383</u> | Performance of Deepwater BOP Equipment During Well Control Events | July 2001 |
| <u>403</u> | Repeatability and Effectiveness of Subsurface-Controlled Safety Valves | March 2003 |
| <u>408</u> | Development of a Blowout Intervention Method and Dynamic Kill Simulated for Blowouts in Ultra-Deepwater | December 2004 |
| <u>431</u> | Evaluation of Secondary Intervention Methods in Well Control | March 2003 |
| <u>440</u> | Development and Assessment of Well Control Procedures for Extended Reach and Multilateral Wells | December 2004 |
| <u>455</u> | Review of Shear Ram Capabilities | December 2004 |
| <u>463</u> | Evaluation of Sheer Ram Capabilities | September 2004 |

| | | |
|------------|--|--|
| <u>519</u> | Drilling and Completion Gaps for High Temperature and High Pressure In Deep Water | June 2006 |
| <u>540</u> | Risk Assessment of Surface vs. Subsurface BOP's on Mobile Offshore Drilling Units | August 2006 |
| <u>541</u> | Application of Dual Gradient Technology to Top Hole Drilling | November 2006 |
| <u>566</u> | Using Equipment, Particularly BOP and Wellhead Components in Excess of the Rated Working Pressure | October 2006 |
| <u>582</u> | A Probabilistic Approach to Risk Assessment of Managed Pressure Drilling in Offshore Drilling Applications | October 2008 |
| <u>631</u> | Risk Profile of Dual Gradient Drilling | Estimated completion in September 2010 |
| <u>640</u> | Risk Analysis of Using a Surface Blow Out Preventer | April 2010 |

Note: This report includes hyperlinks to the reports via the study numbers.

Source: Minerals Management Service Database, 2010.

These studies have examined, among other things, blind shear ram capabilities, back-up BOP systems, and drilling and cementing design and operations, which have informed the setting of Department regulations. For example, the 1999 *Reliability of Subsea BOP systems for Deepwater Applications* (study number 319) recommended modifying testing regulations to ensure that the testing of variable pipe rams appropriately account for the diameters of all the sizes of pipe in use in a given drilling project. The Department used this recommendation in revising its 2003 final drilling regulations.

The 2002 *Review of Shear Ram Capabilities* (study number 455) identified issues associated with the cutting power of shear rams, which are intended to cut through drill pipe when the well must be secured in an emergency situation. The Department adopted the report's recommendation that the BOP must be capable of shearing pipe planned for use in current drilling programs under 30 CFR 250.416(e). This regulation requires the submittal of information demonstrating that shear rams on the proposed BOP stack can cut drill pipe under maximum anticipated surface pressure.

The 2004 *Evaluation of Shear Ram Capabilities* (study number 463) expanded on the analysis in study number 455 through an evaluation of BOP shear rams under the most demanding conditions. In this study, 214 pipe samples were tested against various ram models, and 16 (7.5 percent) were unsuccessful in shearing the pipe below a certain pressure (3,000 pounds per square inch). All 16 of these cases involved a particular combination of shear ram and pipe, which was found unsuitable for actual drilling operations. The results of this study confirmed the regulatory decision to require operators to submit documentation that shows the shear rams are capable of shearing the pipe in the hole under maximum anticipated surface pressures.

The 2003 *Evaluation of Secondary Intervention Methods in Well Control* (study number 431) reviewed the design and capabilities of various secondary BOP intervention systems used in practice. Secondary intervention represents an alternate means to operate BOP functions in the event of total loss of the primary control system or a means to assist personnel during situations involving imminent equipment failure or well-control problems. This study discusses the possible use of acoustic systems in the Gulf of Mexico. According to the report, there remain significant doubts about the ability of an acoustic control system to provide a reliable emergency back-up to the primary control system during an actual well flow event.

IV. LEGAL FRAMEWORK, INSPECTIONS, AND ENFORCEMENT

A. Statutory Authority

In 1953, the Congress passed the Outer Continental Shelf Lands Act (OCSLA) that defines the OCS as any submerged land outside state jurisdiction and established Federal jurisdiction over these waters and all resources they contain. The OCSLA also set Federal responsibilities for managing and maintaining the OCS subject to environmental constraints and safety concerns. The legislation authorized the Department to lease areas of the OCS for development and to regulate offshore operations and development. Since then, the OCSLA has been amended to address changing issues, including the 1978 requirement for the Department to develop 5-year leasing program schedules after consideration of environmental, social, and economic effects of natural gas and oil activity on OCS resources, location-specific risks, energy needs, laws, and stakeholder interests. This amendment also requires the Department to seek a balance between potential damage to the environment and coastal areas and potential energy supply. The first 5-year leasing program started in 1980 and the current 5-year plan ends in 2012.

Congress has also enacted laws to promote production in frontier areas like the Gulf of Mexico deepwater. For example, the 1995 Deepwater Royalty Relief Act encouraged oil and gas development in the Gulf of Mexico in water depths greater than 200 meters (656 feet) through royalty relief. Royalty relief incentives were also offered to encourage production from wells drilled for deep natural gas (greater than 15,000 feet or 4,572 meters total depth) on new leases located in shallow waters (less than 200 meters). The Energy Policy Act of 2005 included additional incentives for oil and gas development in offshore areas to stimulate production in deepwater and expanded the OCSLA to include the areas offshore Alaska for royalty suspension.

Oil and gas leasing and operations are subject to environmental reviews under the National Environmental Policy Act (NEPA). On May 14, 2010, Secretary of the Interior Ken Salazar and the Council on Environmental Quality Chair Nancy Sutley announced a full review of NEPA compliance for oil and gas activities on the OCS, and accordingly, NEPA will not be covered in this report.

B. Regulations

Under the OCSLA, the Secretary of the Interior, through the MMS, manages and regulates leasing, exploration, development, and production of resources on the OCS. Current regulations are a combination of prescriptive and performance-based measures.

Prescriptive regulations specify rules or courses of action that must be explicitly followed in order to comply with regulation. A prescriptive approach sets clear rules for industry to follow. Performance-based regulations, in contrast, specify objectives for industry to achieve but allow flexibility in the technology and approaches used to meet these objectives. This approach allows improved technologies and methodologies to be incorporated into industry practices without major revisions to regulations and puts the onus on industry to develop systems for continuous improvement of safety and environmental protection practices. Internationally, many countries (e.g., United Kingdom, Norway, and Australia) are moving toward more performance-based regulations. The Department also incorporates by reference recommended practices and standards from industry associations and technical standard setting groups such as the American National Standards Institute, API standards and recommended practice documents, and National Association of Corrosion Engineers documents. The Department also issues Notice to Lessees (NTLs) to clarify and provide direction on regulatory requirements.

The regulations in 30 CFR 250 govern important drilling operations on the OCS. Subpart D covers all aspects of the drilling operation including permitting, casing requirements, cementing requirements, diverter systems, BOP systems, drilling fluids requirements, equipment testing, and reporting. The minimum requirements for BOPs are stated in detail, including system components, surface and subsea BOP stacks, associated systems and equipment, choke manifolds, kelly valves, drill-string safety valves, maintenance and inspections, pressure tests and additional testing, and recordkeeping. Subpart Q covers decommissioning, which includes temporary abandonment of wells. These regulations are mainly prescriptive in nature, and convey the minimum requirements for safe operations.

While regulations governing OCS exploration, development, and production activities have been largely prescriptive, the Department has been considering more performance-based approaches. For example, the 2002 Subpart O (30 CFR 250.1500) training rule is a performance-based regulation. In addition, the Department has incorporated by reference nearly 100 consensus standards into current offshore operating regulations. In this way, the Department imposes a responsibility on operators to ensure safe operations through compliance with prescribed standards as well as compliance with performance-based, overarching measures. As such, it is the responsibility of operators to meet the requirements of 30 CFR 250.401:

What must I do to keep wells under control? You must take necessary precautions to keep wells under control at all times. You must: (a) Use the best available and safest drilling technology to monitor and evaluate well conditions and to minimize the potential for the well to flow or kick and...(e) Use and maintain equipment and materials necessary to ensure the safety and protection of personnel, equipment, natural resources, and the environment.

Review of Applications for Permit to Drill (APDs)

Upon receipt of an APD, the Department reviews the approval documents for the Exploration or Development Plans for conditions that apply to the APD or the well's proposed location. The Department also assesses whether the applicant has oil spill financial responsibility coverage.

The Department conducts an engineering review of the APD, to check the proposed drilling rig's maximum operating limits for drilling depth and water depth to ensure appropriateness for the proposed well program. The review consists of, but is not limited to, the proposed procedure, well location and directional program, geological and geophysical hazards, subsurface environment for pore pressure and fracture gradient, wellbore design and schematic, design calculations for pressure containment during drilling and completion, cement volumes, and testing pressures for the well control equipment, casing and casing shoe. This review is performed for shallow and deepwater drilling operations, and a hurricane risk assessment is performed during hurricane season. The Department reviews APDs to determine how the proposed operation satisfies the regulations in meeting its objective of safely reaching a targeted depth. This review includes an assessment of:

- well casing setting depths determined by formation strength, predicted formation fluid pressure, drilling mud weight limits, any anticipated subsurface hazards;
- effectiveness of well casing strength for pressure containment at its specified depth;
- effectiveness of cementing the well casing after successfully securing and isolating the hydrocarbon zones or any encountered subsurface hazards; and
- maintaining well control by adjusting drilling mud properties and the use of well control equipment such as diverters and BOPs.

The Department reviews the operator's plans and APDs to verify the use of best available and safest technology (BAST), and inspections verify the use of approved equipment and maintenance thereof.

Upon completing the engineering review, the Department may approve the APD with conditions if warranted, return it to the operator for modifications, or deny it. If the applicant makes changes to the drilling application, the Department must grant approval before the applicant performs its work.

C. Inspections

The Department maintains a comprehensive inspection program to promote the safety of offshore oil and gas operations on the OCS. This program places inspectors offshore on drilling rigs and production platforms to enforce operator compliance with Federal safety and environmental protection requirements. When a drilling rig enters Federal waters to drill a well, Federal inspectors will meet the rig where it is moored to provide training to the rig operators about the Federal regulatory structure. At this time, inspectors will conduct a drilling inspection of the equipment. It is Departmental policy for inspectors to inspect the rig once on location every 30 days.

For production platforms, it is practice for initial inspections to take place during the fabrication of the platform at a shipyard. Federal inspectors and engineers review the flow diagrams and

charts to determine if the specific facility meets regulatory requirements. A complete production inspection of the facility occurs typically about 30 to 45 days after a production platform is installed.

After operations begin, the Department conducts additional announced and unannounced inspections. Inspectors typically give the operator a few days notice for announced inspections. Inspectors also fly to platforms or rigs unannounced, and in such cases, inspectors contact the operator as they approach the facility. These unannounced inspections foster a climate of safe operations, maintain an inspector presence, and allow regulators to focus on operators with a poor performance record. They are also conducted after a critical safety feature has previously been found defective during previous inspections or by operator reporting.

During a drilling inspection an inspector typically conducts the following:

- a general safety walk through of the facility looking for general housekeeping hazards related to slips/trips/falls/railings/open gratings;
- verification of the location of gas detectors/hydrogen sulfide detectors/mud volume detectors;
- verification that the mud trip tank is operational and properly marked (graduated), that appropriate quantities of a mud weighting material are onboard (barite), and that the drilling mud currently in use has been periodically tested and is of the proper density as indicated in the APD (viewing mud logger's report);
- verification that proper well control data relative to the well depth and type of tubulars (drill pipe, casing) in the well is clearly marked and posted on the rig floor and that there are remote BOP and Diverter control panels on the facility;
- verification that equipment is properly grounded and that drill string safety valves with proper wrenches for the diameter of drill pipe or casing currently in the well are located on the drill floor in an open position and within easy access to rig personnel;
- verification that the crown block safety device is installed and operational and that fresh air intakes are properly located on the rig;
- verification that diesel engines have required shut down devices, that breathing air is properly labeled, that engine exhaust is insulated;
- verification that crane load charts on platform rigs have been recorded, that all equipment has proper catch basins/drains/curbs/gutters/drip pans, that the facility is properly marked as to location, that the facility is properly lighted;
- if drilling is being conducted on a production facility, verification that there is an operational Emergency Shut Down device on the rig floor;

- verification of the status/switch position of the BOP pumps that the stand-by pump operates in an automatic fashion, that the accumulator bottles are in service;
- review the BOP tests records;
- checks the Subpart O well control status of contractor and lessee employees;
- checks for certain Potential Incidents of Noncompliance, which allow the inspector to check for general competency related to drilling operations; and
- inspectors may test, randomly or as a result of a safety concern, an offshore employee's competency with various safety devices.

The records check and documentation components of a drilling inspection apply to equipment, procedures, and operations that were conducted prior to the inspector boarding the facility, including but not limited to casing, cement, diverter, and BOP pressure testing results, casing setting depths, cement volumes, proper wait on cement time, formation pressure integrity tests, formation evaluation tests, required well control drills, hydrogen sulfide training certifications, and gas detector and hydrogen sulfide detector calibration records. Furthermore, the inspector confirms that proper paperwork is available in regard to any granted departures approved during the drilling of the well which were not previously approved in the APD.

During 2009, industry drilled a total of 331 wells in the Gulf of Mexico, and the MMS Gulf of Mexico Region conducted the following types and numbers of inspections:

- 561 drilling inspections;
- 3,678 production inspections;
- 268 well workover and well completion inspections;
- 6,804 meter inspections;
- 82 abandonment inspections;
- 4,837 pipelines inspections; and
- 3,342 personal safety inspections, on behalf of the U.S. Coast Guard.

E. Enforcement

The Secretary of the Interior, the Secretary of the Army, and the U.S. Coast Guard have the authority to pursue civil and criminal enforcement actions against persons who violate the OCSLA, the regulations created to implement the OCSLA, and the terms of any lease, license, or permit issued under OCSLA. The Department maintains a National Potential Incident of Noncompliance (PINIC) List to help inspectors carry out enforcement actions: it contains a checklist of requirements for specific installations or procedures and prescribed enforcement

actions consisting of written warnings, shut-in of a component, including wells, equipment, or pipelines, or shut-in of an entire platform if noncompliance with the National PINC is detected. If the violation does not impose an immediate danger to personnel or equipment, a warning Incident of Noncompliance (INC) is issued. An INC must be corrected within 14 days from the time specified on the INC, and the operator may not continue the activity in question until it has corrected the INC.

The OCSLA (43 U.S.C. § 1334(a)(2)) and regulations at 30 CFR 250.181-188 authorize the Secretary to cancel a lease or permit if, after opportunity and notice for a hearing, it is determined that: (1) continued activity would probably cause serious harm or damage to life, property, the environment, minerals, or national security or defense; (2) the threat of harm or damage will not disappear or decrease to an acceptable extent within a reasonable time; (3) the advantages of cancellation outweigh the advantages of continued activity; and (4) a suspension has been in effect for at least five years or the termination of suspension and lease cancellation are at the request of the lessee.

Regulations appearing in 30 CFR 250.135-136 provide for a disqualification process for operators exhibiting chronic poor compliance. This procedure allows operators to be placed on probation and requires that they submit Performance Improvement Plans. This gives the operator an opportunity to improve their performance. Should it not improve during a specified time, the operator may be disqualified from operating a given facility, including up to any and all facilities. Ultimately, an operator can go through Departmental debarment procedures that would prevent it from transacting any business with the Federal Government.

Under 43 U.S.C. § 1350(b) of the OCSLA, as amended, and regulations appearing at 30 CFR 250.200-206, civil penalties can be assessed for failure to comply with responsibilities under the law, a lease, a license, a permit, or any regulation or order issued pursuant to the Act. In addition to the enforcement actions specified above, civil penalty of up to \$35,000 per violation per day may be assessed if: (1) the operator fails to correct the violation in the amount of time specified on the INC; or (2) the violation resulted in a threat of serious, irreparable, or immediate harm or damage to life, property, minerals, or the environment. On a drilling rig, for example, 160 items are checked for potential violations. If significant enough, the violation may call for the particular well component or the entire complex to be shut in. In 2009, drilling operations of 20 facilities were shut-in.

V. REGULATORY AUTHORITY AND REQUIREMENTS IN OTHER NATIONS

There have been and continue to be a number of approaches for regulating offshore drilling activity. Some countries have adopted a prescriptive approach directing offshore oil and gas activities through detailed regulations and requirements, while other regulatory bodies have adopted a performance-based approach. Some regulators have adopted a hybrid approach by being prescriptive in areas deemed critical, while also establishing broad performance parameters where they deem industry needs the latitude to meet particular objectives.

There is a major difference among offshore oil and gas regulators in the number of technical standards referenced within their regulations, and the effect of referenced standards. For

example, in the United Kingdom, the standards are not compulsory, while in the United States, referenced standards have the same status as regulations. A standard is a formal document that establishes or defines a method or practice; these may also be called recommended practices. Some of the standards developing organizations, referenced in the regulations, include API, American Society of Mechanical Engineers, and American National Standards Institute. The following summarizes the regulatory structures in Norway, the United Kingdom, Australia, and Canada.

Norway

Over the past 40 years, Norway has moved from a prescriptive to a performance-based approach for regulating offshore oil and gas. Like the United States today with joint regulatory oversight of mobile drilling rigs by the Department and the U.S. Coast Guard, Norway originally regulated mobile units through its maritime authority and fixed installations by the Norwegian Petroleum Directorate (NPD).

Over time, the NPD has developed new approaches, including “compliance responsibility” that required companies to verify that their business was run acceptably and in line with the rules. The NPD eliminated the concept of inspection and replaced it with the concept of “supervision.” They also replaced the term “approvals” with “consents.” Supervision spans audits, verification, investigations, and most significantly, interaction with industry in the form of studies, professional seminars, and the development of regulations. These changes transformed the earlier approvals system that had the effect of the NPD being a virtual guarantor that company activities were acceptable into one centered on the concept of consent.

Since this major change in 1985, the trend has been away from prescription towards a regulatory approach based more on performance and risk management. Also, a series of reforms has resulted in regulations that are aligned with the changes in regulatory approach. Norway’s regulatory requirements are general and primarily specify the conditions or functions that must be achieved to be compliant. Within this framework, companies have the freedom to choose practical solutions along with the responsibility to ensure compliance. To avoid misunderstandings about requirements for complying with the regulations, non-binding recommendations and guidelines have also been issued that reference reputable Norwegian and/or international industrial standards for structures, equipment, or procedures. These recommendations and guidelines rely primarily on Det Norske Veritas *Offshore Standards* that provide technical requirements and acceptance criteria and *Recommended Practices* for proven technology and sound engineering practice.

This approach also means that the regulator must keep abreast of and participate in developing and revising industry standards to ensure that they remain relevant and reflect best practice. Supervision by the regulator involves checking whether the administrative management systems at the companies ensure acceptable operation. This auditing must be conducted by personnel who have special technical and management expertise and experience.

The NPD acknowledges that the requirements for successfully delivering performance-based regulations demands extensive participation from industry, employees, and the regulator in terms

of expertise, management and flexibility. To achieve a safe and environmentally responsible offshore work environment, strategic, and operational plans must be drawn up, selected development measures implemented, progress monitored and corrective action taken when problems arise.

The Petroleum Safety Authority Norway (PSA) was established as an independent government regulator in 2004. It took over the safety department of the NPD and continued its role. Its authority was also extended to cover supervision of safety, emergency preparedness, and the working environment for petroleum-related plants and associated pipeline systems on land. Norway is working toward harmonizing their regulations for offshore and land-based petroleum operations under the PSA.

United Kingdom

The UK safety regulation is predominantly performance-based. Indeed, the safety case concept for offshore oil and gas operation began after the 1988 explosion and resulting fire of a North Sea oil production platform called Piper Alpha, which killed 167 men. The subsequent investigation led to the issuance of the Public Inquiry into the Piper Alpha Disaster (the Lord Cullen report) and the reorganization of the UK offshore safety laws from prescriptive to a safety case approach. UK standards describe objectives, and operators can select the methods and equipment used to achieve these objectives and meet their statutory obligations. Complementing the safety case regulations are approved codes of practice and guidance documents.

The UK regulates offshore oil and gas through the Health and Safety Executive (HSE). The core activities of HSE are safety case assessment, verification, inspection, investigation, and enforcement. The approval process for the HSE is case-specific, and each case must be accepted and approved before offshore installation operates. A government inspectorate is in place as an assurance mechanism. The HSE oversight includes over 300 installations including, production platforms, Floating Production Storage and Offloading units, and mobile offshore drilling units. Other legislation is applied offshore on an activity basis. In 1992, the Offshore Installation (Safety Case) Regulations were introduced into the UK sector. These require all fixed and mobile offshore installations operating in UK waters to have a safety case which must be reviewed and approved by the Health and Safety Executive.

Australia

The organization responsible for regulating Australia's oil and gas industry is The National Offshore Petroleum Safety Authority, an independent statutory agency designated under the Commonwealth *Offshore Petroleum and Greenhouse Gas Storage Act 2006*. This organization implements a performance-based regulatory approach. The regulator is responsible for providing assurance that the operators address risks identified by a safety case. The organization includes a joint government inspectorate, and requires third party validations for regulatory assurance. Each manned facility is inspected at least once every year. The inspections are planned and usually take several days. The subject of planned inspections includes both control and management of major equipment and occupational health and safety.

The primary features of the Australian regulatory system are:

- **Duties of care:** Specific categories of persons (operators, employers, etc.) who are involved in offshore petroleum activities at facilities are required to "take all reasonably practicable steps" to protect the health and safety of the facility workforce and of any other persons who may be affected.
- **Consultation provisions:** Mechanisms are set out that will enable effective consultation between each facility operator, relevant employers, and the workforce regarding occupational health and safety.
- **Powers of inspectors:** Inspectors are granted powers to enter offshore facilities or other relevant premises, conduct inspections, interview people, seize evidence and otherwise take action to ensure compliance by parties with legal obligations.
- **Standards and best practices** are based on a safety case approach, similar to that specified in the UK regulatory system.

Canada

The Canada-Nova Scotia Offshore Petroleum Board (C-NSOPB) and the Canada Newfoundland & Labrador Offshore Petroleum Board (C-NLOPB) are responsible for the regulation of petroleum activities in the Nova Scotia, Newfoundland, and Labrador offshore areas. Their principle responsibilities include ensuring health and safety for offshore workers, protection of the environment, conservation of offshore petroleum resources, compliance with legislative provisions regarding employment and industrial benefits, issuance of licenses for offshore exploration and development, and resource evaluation. Both boards are independent joint agencies of the Government of Canada and their respective provinces. Each work activity proposed in the offshore area related to exploration, drilling, production, conservation, processing, or transportation of petroleum requires the authorization of the responsible board. Assurance mechanisms include board inspections, audits and investigations programs, and industry self inspections. Operators are required to submit reports detailing the status of their work programs on an ongoing basis, along with other documentation to demonstrate compliance with regulatory requirements. The C-NSOPB oversees one operational natural gas project comprised of five production platforms and one 26-inch pipeline. The C-NLOPB oversees three oil projects comprised of Floating Production Storage and Offloading units and one integrated drilling/production accommodation installation.

VI. RECOMMENDATIONS FOR IMMEDIATE ACTION TO IMPROVE OFFSHORE DRILLING SAFETY

The BP Oil Spill demonstrates the possibility of a catastrophic event (or multiple catastrophic failures) and, therefore, the need to ensure that oil and gas development on the Outer Continental Shelf can be conducted safely and that another event like the BP Oil Spill never occurs again.

This 30-day review has of necessity been conducted without the results of the ongoing investigations into the precise causes of the event. A series of other investigations will determine

those causes in the coming months. Nevertheless, this report makes a set of interim recommendations based upon what is known about the equipment, systems, and practices necessary for safe operation. For example, the BP Oil Spill has underscored that as drilling activity moves increasingly into very deep water environments, it is important to reevaluate whether the best practices for safe drilling operations developed over the years need to be bolstered to account for the unique challenges of drilling in deepwater. In addition, the presumed failure of the BOP points to a need to examine standards specifically related to BOP safety.

With that context in mind, the recommendations are designed to address specific policies, practices, and procedures, which the Department has identified as important for workplace and environmental safety, even before completion of the investigation into the event. Many of the near-term recommendations are prescriptive in nature, reflecting the importance of addressing immediate needs while the Department conducts a more comprehensive examination of the entire regulatory program and determines whether additional performance-based standards are necessary.

Implementation of these recommendations is expected to improve safety of offshore drilling operations. In the coming months, these measures will be refined and supplemented based on recommendations from other reviews and investigations, including from continuing work at the Department as described below, from the Joint Investigation and from the independent bipartisan commission established by the President.

Each recommendation below is accompanied by a brief discussion of the context of the recommendations and an explanation of how it will enhance the safety of future OCS drilling activities. Each is also identified with regard to priority of expected implementation. Certain measures are intended for immediate implementation (within the next 30 days), through issuance of either a NTL, internal Departmental guidance, or in the case of a safety and environmental rule, through publication of the final rulemaking.

Other recommendations will be addressed through emergency rulemaking, where appropriate. It is the intent of the Department to issue expeditiously interim final rules to implement these recommendations. Such rules will become effective immediately upon issuance, but will also be opened for public review and comment and may be adjusted after comments are received through the appropriate process.

Finally, several recommendations require further study and, therefore, will be addressed through notice and comment rulemaking. The Department will immediately establish strike teams within the Department to further develop these measures. These strike teams will address the highly technical and complex issues raised and will seek input as appropriate from academia, industry, and other technical experts and stakeholders. The teams will present their recommendations for additional environmental protection and safety measures within six months. Recommendations will be implemented as expeditiously as possible through formal rulemaking. The recommendations from these strike teams may also inform the efforts of the President's new bipartisan National Commission.

A primer on offshore drilling technology and systems describes many of the terms used in the below recommendations (see Appendix 2).

The specific recommendations of the Department follow:

I. Blowout Preventer Equipment and Emergency Systems

BOPs and Emergency Systems: BOPs are used to control the release of oil and gas in the event of loss of well control. Current drilling regulations impose specific requirements addressing BOP systems, including requirements for annular preventers and the primary systems that control those preventers, as well as pipe and blind-shear rams.

Although the regulations do not require specific secondary control systems (back-up systems) including subsea BOP safety systems, which are designed to shut-in the wellbore automatically during emergency events the Department only approves permits for which they are secondary control systems. These safety systems include autoshear and deadman systems. Emergency events could include the loss of communication and power between the surface and the BOP stack or an unplanned disconnect of the marine riser from the BOP stack. In addition, all Gulf of Mexico drilling rigs are currently equipped to use a remote operated vehicle (ROV) to provide secondary control of the subsea BOP stack, and most provide other tertiary control systems as well. The ROV intervention capability is limited on some subsea BOP stacks while others have the ability to control multiple functions.

A. Certification of Subsea BOP Stack

Recommendation 1 – Order Immediate Re-certification of All BOP Equipment Used in New Floating Drilling Operations

Prior to spudding any new well from a floating vessel, the operator will be required to obtain a written and signed certification from an independent third party attesting that, on or after the date of this report, a detailed physical inspection and design review of the BOP has been conducted in accordance with the Original Equipment Manufacturer specifications and that: (i) the BOP will operate as originally designed, and (ii) any modifications or upgrades to the BOP stack conducted after delivery have not compromised the design or operation of the BOP. This certification must be submitted to the Department and made publicly available. Prior to deploying the BOP, the operator must also verify that any modifications or upgrades to the BOP are approved by the Department and that documentation showing that the BOP has been maintained and inspected according to the requirements in 30 CFR 250.446(a) and other applicable standards and is on file with the Department and available for inspection.

Recommendation 2 – Order BOP Equipment Compatibility Verification for Each Floating Vessel and for Each New Well

For each new well, the Department will require, as part of a structured risk management process, the operator to obtain an independent third party verification that:

- The BOP stack is designed for the specific drilling equipment on the rig and for the specific well design including certification that the shear ram is appropriate for the drilling project.
- The BOP stack has not been compromised or damaged from previous service.
- The BOP stack will operate in the water depth in which it will be deployed.

Recommendation 3 – Develop Formal Equipment Certification Requirements

The Department will investigate new certification requirements for BOP equipment and other components of the BOP stack such as control panels, communication pods, accumulator systems, and choke and kill lines. In addition, the Department will develop a system to make BOP certifications publicly available in order to increase transparency and accountability.

B. New Safety Equipment Requirements and Operating Procedures

Recommendation 4 – New Blind Shear Ram Redundancy Requirement

The BOPs used in all floating drilling operations will be required to have two sets of blind shear rams spaced at least four feet apart (to prevent system failure if drill pipe joint or drill tool is across one set of rams during an emergency).

Recommendation 5 –Secondary Control System Requirements and Guidelines

The Department will establish clear requirements for secondary BOP control systems on all subsea BOPs and for systems that address well-control emergencies. These requirements will include:

- ROV intervention capabilities for secondary control of all subsea BOP stacks, including the ability to close all shear and pipe rams, close the choke and kill valves and unlatch the lower marine riser package (LMRP).
- Requirements for an emergency back-up BOP control system, e.g., autoshear, deadman, emergency disconnect system, and/or an acoustic activation system that is powered by a separate and independent accumulator bank with sufficient capacity to open and close one annular-type preventer and all ram-type preventers, including the blind shear ram.
- Guidelines for arming and disarming the secondary BOP control system.
- Requirements for documentation of BOP maintenance and repair (including any modifications to the BOP stack and control systems).

Recommendation 6 –New ROV Operating Capabilities

The Department will develop requirements for ROV operating capabilities including the following:

- Standardized intervention ports for all subsea BOP stacks to ensure compatibility with any available ROV.
- Visible mechanical indicator or redundant telemetry channel for BOP rams to give positive indication of proper functioning (e.g., a position indicator).
- ROV testing requirements, including subsea function testing with external hydraulic supply.
- An ROV interface with dual valves below the lowest ram on the BOP stack to allow well-killing operations.

C. New Testing Guidelines and Inspection Procedures

Recommendation 7 – Develop New Testing Requirements

The Department will develop surface and subsea testing of ROV and BOP stack capabilities. These will include:

- Surface and subsea function and pressure testing requirements to ensure full operability of all functions (emergency disconnect of the LMRP and loss of communication with the surface control pods (e.g., electric and hydraulic power)).
- Third party verification that blind-shear rams will function and are capable of shearing the drill pipe that is in use on the rig.
- ROV performance standards, including surface and subsea function testing of ROV intervention ports and ROV pumps, to ensure that the ROV can close all shear and pipe rams, close the choke and kill valves, and unlatch the LMRP.
- Protocols for function testing autoshear, deadman, emergency disconnect systems, and acoustic activation systems.
- Mandatory inspection and testing of BOP stack if any components are used in an emergency (e.g., use of pipe or casing shear rams or circulating out a well kick). This testing must involve a full pressure test of the BOP after the situation is fully controlled, with the BOP on the wellhead.

Recommendation 8 – Develop New Inspection Procedures and Reporting Requirements

- The Department will evaluate and revise the manner in which it conducts its drilling inspections. Revised drilling inspections will include the witnessing of actual tests of BOP equipment, including the new requirements and guidance that address the surface and subsea testing of ROV and BOP stack capabilities. The Department will also develop methods to increase transparency and public availability of the results of inspections as well as routine reporting. The Department will work with Congress to obtain the necessary resources to implement these recommendations.
- Within 15 days of the date of this report, all operators of floating drilling equipment will report to the Department the following: (i) BOP and well control system configuration; (ii) BOP and well control system test results, including any anomalies in testing or operation of critical BOP components; (iii) BOP and loss of well control events; and (iv) BOP and well control system downtime for the last three years of drilling operations.
- The electronic log from the BOP control system must be transmitted online to a secure location onshore and made available for inspection by the Department.

II. Procedures to Ensure Adequate Physical Barriers and Well Control Systems are in Place to Prevent Oil and Gas from Escaping into the Environment

Minimizing Risk of Uncontrolled Flow: A well creates a conduit for subsurface formations to potentially flow uncontrolled to the surface. There are multiple methods that can be utilized to minimize the risk of the occurrence of uncontrolled flow. Those methods include the installation of rigid physical barriers such as cement plugs or mechanical plugs, well casing design and securing of the casing, and well control equipment. An appropriate well safety program must account for many factors unique to the drill location and dictates the installation of plugs and casing at strategic points to maintain well control and to enable drilling to the desired depth. Current Department regulations require that well-control equipment be in place at all times during the drilling operation to mitigate against failure of a plug or casing. Other, more specific standards may be appropriate to improve physical barriers and well-control systems. Well-control procedures must be revisited for deepwater operations because of the complexity of the equipment design in deepwater and the location of the BOP stack on the seafloor. Enhanced training for rig personnel will complement new well-control requirements.

A. Well-Control Guidelines and Fluid Displacement Procedures

Recommendation 1 – Establish Deepwater Well-Control Procedure Guidelines

As expeditiously as possible, the Department will establish new requirements for deepwater well-control procedures no later than 120 days of the date of this report.

Recommendation 2 – New Fluid Displacement Procedures

Prior to displacement of kill-weight drilling fluid from the wellbore, the operator must independently verify that:

- The BOPs are closed during displacement to underbalanced fluid columns to prevent gas entry into the riser should a seal failure occur during displacement.
- Two independent barriers, including one mechanical barrier, are in place for each flow path (i.e., casing and annulus), except that a single barrier is allowable between the top of the wellhead housing and the top of the BOP.
- If the shoe track (the cement plug and check valves that remain inside the bottom of casing after cementing) is to be used as one of these barriers, it is negatively pressure tested prior to the setting of the subsequent casing barrier. A negative pressure test must also be performed prior to setting the surface plug.
- Negative pressure tests are made to a differential pressure equal to or greater than the anticipated pressure after displacement. Each casing barrier is positively tested to a pressure that exceeds the highest estimated integrity of the casing shoes below the barrier.
- Displacement of the riser and casing to fluid columns that are underbalanced to the formation pressure in the wellbore is conducted in separate operations. In both cases, BOPs must be closed on the drill string and circulation established through the choke line to isolate the riser, which is not a rated barrier. During displacement, volumes in and out must be accurately monitored.
- Drill pipe components positioned in the shear rams during displacement must be capable of being sheared by the blind-shear rams in the BOP stack.

B. Well Design and Construction

1. Requirements for Both Casing and Cementing

Recommendation 3 – New Casing and Cement Design Requirements: Two Independent Tested Barriers

Before spudding any new floating drilling operation, all well casing and cement designs must be certified by a Professional Engineer, who verifies that there will be at least two independent tested barriers, including one mechanical barrier, across each flow path during well completion and abandonment activities and that the casing design is appropriate for the purpose for which it is intended under reasonably expected wellbore conditions.

Recommendation 4 – Study Formal Personnel Training Requirements for Casing and Cementing Operations

The Department will immediately establish a technical workgroup to evaluate new training and certification requirements for rig personnel specifically related to casing and cementing operations.

2. Casing Requirements

Recommendation 5 – New Casing Installation Procedures

The Department will ensure the requirement of the following BAST practices:

- Casing hanger latching mechanisms or lock down mechanisms must be engaged at the time the casing is installed in the subsea wellhead.
- For the final casing string, the operator must verify the installation of dual mechanical barriers (e.g., dual floats or one float and a mechanical plug) in addition to cement, to prevent flow in the event of a failure in the cement.

Recommendation 6 – Develop Additional Requirements or Guidelines for Casing Installation

The Department will establish specific requirements for the following procedures and practices:

- Positive and negative test procedures and use of test results for evaluation of casing integrity.
- Use of float valves and other mechanical plugs in the final casing string or liner.

3. Cementing Requirements

Recommendation 7 – Enforce Tighter Primary Cementing Practices

- The Department will institute a rulemaking address previously identified gaps in primary cementing practices).
- The Department, with input from independent experts will determine specific cementing requirements.

Recommendation 8 – Develop Additional Requirements or Guidelines for Evaluation of Cement Integrity

The Department will immediately evaluate whether and under what circumstances the use of cement bond logs is feasible and practical and will increase safety.

Discussion of Recommendations 3-8

Recommendations 3-8 are intended to result in better well control. Requiring a Professional Engineer to review and certify the well design will add another level of review to the current well design requirements. The Department's review new training requirements for casing and cementing operations helps focus industry and rig personnel on the importance of proper casing and cementing operations. Additional operational requirements for casing installation and cementing operations will add new assurances that adequate barriers are in place before continuing on to new drilling activities. Incorporation of the new cementing standard will bring all of industry up to state-of-art cementing practices—this means less chance of a well blowout due to a poor cement job.

C. Wild-Well Intervention

Recommendation 9 – Increase Federal Government Wild-Well Intervention Capabilities

Blown out, or “wild” wells, involve the uncontrolled release of crude oil or natural gas from an oil well where pressure control systems have failed. The Federal Government must develop a plan to increase its capabilities for direct wild-well intervention to be better prepared for future emergencies, particularly in deepwater. Development of the plan should consider existing methods to stop a blowout and handle escaping wellbore fluids, including but not limited to coffer dams, highly-capable ROVs, portable hydraulic line hook-ups, and pressure-reading tools, as well as appropriate sources of funding for such capabilities.

Recommendation 10 – Study Innovative Wild-Well Intervention, Response Techniques, and Response Planning

The Department will investigate new methods to stop a blowout and handle escaping wellbore fluids. A technical workgroup will take a fresh look at how to deal with a deepwater blowout. In particular, the workgroup will evaluate new, faster ways of stopping blowouts in deepwater. The technical workgroup will also address operators' responsibility, on a regional or industry-wide basis, to develop and procure a response package for deepwater events, to include diagnostic and measurement equipment, pre-fabricated systems for deepwater oil capture, logistical and communications support, and plans and concepts of operations that can be deployed in the event of an unanticipated blowout, as well as assess and certify potential options (e.g., deepwater dispersant injection).

III. Organizational and Safety Management

A. Increased Enforcement of Existing Safety Regulations and Procedures

Enforcing Existing Regulations: Immediately following the BP Oil Spill, the MMS and the U.S. Coast Guard issued a joint Safety Alert to compel operators and drilling contractors to inspect their drilling equipment (both surface and subsea), review their procedures to ensure the safety of personnel and protection of the environment, and review all emergency shutdown and dynamic positioning procedures. Inspections began immediately to verify that all active

deepwater drilling activities complied with these recommendations and all other regulations. Following the completion of the drilling inspections, inspections of all deepwater production facilities began immediately to ensure compliance by those facilities with the regulations. Reconfirmation of adherence to this Safety Alert and all existing regulations will heighten safety awareness.

Recommendation 1 – Compliance Verification for Existing Regulations and April 30, 2010, National Safety Alert

Within 30 days of the date of this report, the Department, in conjunction with the Department of Homeland Security, verify compliance by operators with existing regulations and National Safety Alert (issued April 30, 2010), which issued the following safety recommendations to operators and drilling contractors:

- Examine all well-control equipment (both surface and subsea) currently being used to ensure that it has been properly maintained and is capable of shutting in the well during emergency operations. Ensure that the ROV hot-stabs are function-tested and are capable of actuating the BOP.
- Review all rig drilling/casing/completion practices to ensure that well-control contingencies are not compromised at any point while the BOP is installed on the wellhead.
- Review all emergency shutdown and dynamic positioning procedures that interface with emergency well control operations.
- Inspect lifesaving and firefighting equipment for compliance with Federal requirements.
- Ensure that all crew members are familiar with emergency/firefighting equipment, as well as participate in an abandon ship drill. Operators are reminded that the review of emergency equipment and drills must be conducted after each crew change out.
- Exercise emergency power equipment to ensure proper operation.
- Ensure that all personnel involved in well operations are properly trained and capable of performing their tasks under both normal drilling and emergency well-control operations.

After the 30-day compliance period, the Department will provide a public report on operator verification, including any cases of non-compliance.

B. Organizational Management

Organizational Safety Case Documentation: A safety case is a comprehensive and structured set of safety documentation to ensure the safety of a specific vessel or equipment. This documentation is essentially a body of evidence that provides a basis for determining whether a system is adequately safe for a given application in a given environment. In response to the 1988

Piper Alpha disaster in the UK, the Lord Cullen investigation and report advanced the safety case concept for offshore oil and gas operations.

The use of a formal safety case for drilling operations is an important component in regulating drilling activities in many countries. The International Association of Drilling Contractors (IADC) has developed guidelines that can be applied to any drilling unit regardless of geographic location. The use of these guidelines can assist both the operator and regulatory authorities when evaluating a drilling contractor's safety management program by providing them assurance that the program encompasses a series of best industry practices designed to minimize operating risks. The Department will undertake an evaluation of requiring the application of all or part of these guidelines to OCS oil and gas operations.

Recommendation 2 – The Department Will Adopt Safety Case Requirements for Floating Drilling Operations on the OCS

The Department will assure the adoption of appropriate safety case requirements based on IADC Health, Safety and Environmental Case Guidelines for Mobile Offshore Drilling Units (2009), which will include well construction safety assessment prior to approval of APD. This safety case must establish risk assessment and mitigation processes to manage a drilling contractor's controls related to the health, safety, and environmental aspects of their operations. In addition to the safety case, a separate bridging document will be required to connect the safety case to existing well design and construction documents. Such a proposed Well Construction Interfacing Document will include all of the elements in a conventional bridging document plus alignment of the drilling contractor's management of change (MOC) and risk assessment to the lease operator's MOC and well execution risk assessments. The use of the IADC's Health, Safety, and Environmental Case Guidelines for Mobile Offshore Drilling Units will help operators and drilling contractors demonstrate their ability to operate safely and handle the risks associated with drilling on the OCS.

C. Personnel Accountability Procedures for Operational Safety (Risk, Injury, and Spill Prevention)

Recommendation 3 – Finalize a Rule that Would Require Operators to Develop a Robust Safety and Environmental Management System for Offshore Drilling Operations

Department investigation findings and reports indicate that unsafe offshore drilling operations often result from human error. The Department is proceeding with the rulemaking process to finalize a regulation to require operators on the OCS to adopt a comprehensive, systems-based approach to safety and environmental management that incorporates best practices from around the globe. The Department believes that requiring operators to implement robust and comprehensive safety and environmental management plans could reduce the risk and number of injuries and spills during OCS activities. The Department will finalize a rule that is informed by current operational conditions in the Gulf and the events and related investigation surrounding the BP Oil Spill.

Recommendation 4 – Study Additional Safety Training and Certification Requirements

The Department will immediately establish a workgroup to investigate safety training requirements for floating drilling rig personnel and possible requirements for independent or more frequent certification and testing of personnel and safety systems.

- Establish an oil production safety program or institute similar to U.S. Nuclear Regulatory Commission (NRC) reactor safety program.
- Establish a formalized analytical methodology to assess performance of safety systems in the event of multiple component failure or excursions outside normal environmental ranges.
- Strengthen technical support to the Department and other regulatory authorities, including the resources necessary to obtain independent technical review of regulations and standards.
- Charter a longer-term technical review of BOP equipment and emergency backup system reliability.
- Review and adopt as appropriate best practices from other agencies with similar responsibility for safety regulation of technically complex systems (e.g., Federal Aviation Administration, NRC, Chemical Safety Board, and National Transportation Safety Board).

VII. CONCLUSION

The Department developed these recommendations with input and suggestions from experts from across the field and reviewed by members of the National Academy of Engineering. The Department has presented new requirements for well design, construction and operation and for the quality and sufficient redundancy of fail-safes, so as to promote better well control and ensure the efficacy of the BOPs. The Secretary of the Interior has directed the Department to develop measures to increase the frequency, thoroughness, and transparency of inspections, such as for testing of BOPs and associated back-up systems. The Secretary has also directed the Department to look at innovative ways of promoting a greater culture of safety through a new rule that would require all rig operators to develop enhanced operational, safety, and environmental management plans, which would include more extensive worker training to enable them to adapt and respond effectively to events when something unexpected happens on a drilling rig.

The Department's approach to implementing these recommendations will follow a continuum from near-term prescriptive regulations, which are required to increase immediately the margin of safety in offshore oil and gas development, to longer-term actions designed to facilitate an environment where the absolute highest standard of performance is demanded of industry. This approach puts the onus on industry to perform safely, with the Government focusing on aggressive verification and enforcement. The majority of the specific recommendations

contained in this report fall within the category of near-term prescriptive actions necessary to increase offshore energy production safety immediately.

At the same time, the Secretary has directed a fundamental restructuring of the MMS to bring greater clarity to the roles and responsibilities of the Department while strengthening oversight of the companies that develop energy in our Nation's waters. This restructuring, the latest in a series of reforms to the MMS that the Secretary began in January 2009, will establish:

- **Bureau of Ocean Energy Management:** A new bureau under the supervision of the Assistant Secretary for Land and Minerals Management that will be responsible for the sustainable development of OCS conventional and renewable energy resources, including resource evaluation, planning, and other activities related to leasing.
- **Bureau of Safety and Environmental Enforcement:** A bureau under the supervision of the Assistant Secretary for Land and Minerals Management that will be responsible for ensuring comprehensive oversight, safety, and environmental protection in all offshore energy activities.
- **Office of Natural Resources Revenue:** An office under the supervision of the Assistant Secretary for Policy, Management and Budget that will be responsible for the royalty and revenue management function including the collection and distribution of revenue, auditing and compliance, and asset management.

Another critical part of the ongoing effort to reform the MMS began in September 2009 when the Secretary asked the National Marine Board, an arm of the highly respected National Academy of Sciences, to direct an independent review of MMS's inspection program for offshore facilities. That review is on-going.

The Secretary is committed to implementing the changes recommended in this report at the same time this and other reviews are ongoing and at the same time that the Department undertakes fundamental change in its OCS oversight. The Secretary established by Secretarial Order 3298 the OCS Safety Oversight Board. The OCS Safety Oversight Board is a high-level team, led by the Assistant Secretary for Land and Minerals Management, the Assistant Secretary for Policy, Management and Budget, and the Inspector General, that reviews and oversees OCS operations to support reasoned and fact-based recommendations for potential improvements.

The success of the Department's longer-term objective of creating a more dynamic and effective regulatory environment for offshore energy production overall is very much the focus of the efforts to restructure the MMS. Specifically, the persons responsible for designing the new Bureau of Safety and Environmental Enforcement have been tasked to create a structure, operational processes, and culture that supports both the longer-term recommendations contained in this report, as well as a continuously evolving set of additional policies and practices that provide the highest assurance of safety in offshore energy operations.

As the Presidential Commission completes its review and as the Department and the U.S. Coast Guard finish the root cause investigation, the Department will know more and will respond

accordingly. The measures contained in this report will increase the safety in offshore oil and gas development, but represent only the beginning of the Department's work.

Appendix 1: Expert Consultations

The Department consulted with a wide range of experts in state and Federal governments, academic institutions, and industry and advocacy organizations. In addition, draft recommendations were peer reviewed by seven experts identified by the National Academy of Engineering.

Expert Reviewers of the National Academy of Engineering

- **Bea, Robert** holds a Bachelor of Science in Civil Engineering and a Master of Science in Engineering both from the University of Florida. Dr. Bea has done post-graduate studies at Tulane University, Rice University, Texas A&M University, Bakersfield College, University of Houston, and the Technical and Scientific University of Norway. Dr. Bea received a PhD from the University of Western Australia. He is a registered Professional Civil Engineer (retired) in Louisiana, Texas, Florida, Alaska, Washington, Oregon and California. He is a registered Professional Geotechnical Engineer (retired) in California. He is a member of the American Society of Civil Engineers, the American Society of Mechanical Engineers, and the National Academy of Engineering. Dr. Bea has 55 years of experience in engineering and management of design, construction, maintenance, operation and decommissioning engineered systems, including offshore platforms, pipelines and floating facilities. Dr. Bea has worked for the U.S. Army Corp of Engineers, Shell Oil Company, the Ocean Services Division of Woodward-Clyde Consultants, PMB Engineering – Bechtel Inc., and the University of California at Berkeley where he is currently a professor. In 2009, he was honored by the Offshore Technology Hall of Fame.
- **Brett, Ford** holds a Bachelor of Science in mechanical engineering and physics from Duke University as well as a Master of Science in Engineering from Stanford University and a Masters of Business Administration from Oklahoma State University. Mr. Brett is recognized as a leader in the area of Petroleum Project Management. He has consulted more than 25 countries in the area of petroleum project and process management. Formerly, Mr. Brett worked with Amoco Production Company where he specialized in drilling projects in the Bering Sea, North Slope of Alaska, Gulf of Mexico, offshore Trinidad and Wyoming. In 1996, Mr. Brett was nominated for the National Medal of Technology, the U.S. Government's highest technology award. Mr. Brett has been granted over 25 U.S. patents.
- **Baugh, Benton** holds a Bachelor of Science in Mechanical Engineering from the University of Houston; a Master of Science in Mechanical Engineering and PhD in Mechanical Engineering from Kennedy Western University. Additionally, Dr. Baugh graduated from the Army Machinist School. Dr. Baugh has been employed by Bowen, Camco, Cameron, Vetco, Brown Oil Tools, and Baugh Consulting Engineers. Dr. Baugh is the owner and President of Radoil, Inc., which designs and manufactures oilfield and subsea products. Dr. Baugh has received over 100 U.S. patents for his tool and solution designs, consulting and management. Dr. Baugh has over 50 years of oilfield machine design, manufacturing, management, consulting, and expert witness experience.

- **Chenevert, Martin** holds a Bachelor of Science in Petroleum Engineering from Louisiana State University as well as a Master of Science in Petroleum Engineering and a Doctor of Philosophy in Petroleum Engineering, both from the University of Texas at Austin. Dr. Chenevert has over ten years of industrial experience with Exxon Production Research and Exxon USA and over 30 years of teaching experience from Oklahoma State University, the University of Houston, and the University of Texas. Dr. Chenevert has published over 120 articles on well control, wellbore stability, rock mechanics, drilling fluids, and cementing.
- **Holand, Per** graduated from Norwegian University of Science and Technology in 1982 with a Master of Science in Mechanical Engineering. He has 18 years experience from safety and reliability engineering at SINTEF, prior to joining ExproSoft on May 1, 2001. His main work focus in SINTEF and ExproSoft has been on the reliability of drilling equipment, offshore blowout experience, subsea and well reliability analyses. Dr. Holand carried out numerous subsea BOP reliability studies on behalf of clients in Norway, Brazil, the United States, and Italy. Since 1990 he has been responsible for maintaining the SINTEF Offshore Blowout Database, which serves as the key information in connection with blowout risk analyses in the North Sea area. Dr. Holand holds a PhD (1996) in safety and reliability engineering from the Norwegian University of Science and Technology in Trondheim, Norway. His PhD was later reworked and published as a book at the Gulf Publishing Company in 1997 (Title: Offshore Blowouts, Causes and Control).
- **Juvkam-Wold, Hans** holds a Bachelor of Science, Master of Science, and a Doctor of Science in Mechanical Engineering from the Massachusetts Institute of Technology. His area of expertise is buckling of tubular in horizontal drilling, well control, Arctic and offshore drilling, and dual-gradient drilling in ultra-deep water. Dr. Juvkam-Wold is a Registered Professional Engineer in Texas. Prior to his 24 years of teaching drilling experience at the University of Texas A&M, Dr. Juvkam-Wold has 20 additional years of oil industry experience: Juvkam-Wold has served as a Consultant for the National Institute of Standards & Technology; Frontier and Offshore Technology Co.; Western Irrigation Supply House; Oil & Gas Consultants Inc.; Ocean Drilling Program; Unocal E&P. He has served as the Gulf Mineral Resources Company's Representative on the industry's advisory committee on mine shaft drilling as well as manager of technical services and section supervisor of production engineering. Dr. Juvkam-Wold joined Texas A&M in 1985 with his main area of teaching and research in drilling; he is now a Professor Emeritus of Petroleum Engineering. Dr. Juvkam-Wold holds seven drill-related U.S. patents.
- **Stancell, Arnold** holds a Doctor of Science in Chemical Engineering from the Massachusetts Institute of Technology. Dr. Stancell is the retired Vice president of Mobil Oil, Exploration and Production, and Professor Emeritus, Chemical Engineering, Georgia Tech. Dr. Stancell was awarded nine U.S. patents and was inducted into the National Academy of Engineering and received the AIChE's National Award in Chemical

Engineering Practice. He is a licensed Professional Engineer in New York and Connecticut.

Other Experts Consultations

- **Arnold, Ken** holds a Bachelor of Science in Civil Engineering from Cornell University and a Master of Science in Civil Engineering from Tulane University. Mr. Arnold is currently a registered Professional Engineer in the State of Texas, is a member of the Marine Board of the National Research Council, Society of Petroleum Engineers, the Texas Society of Professional Engineers, was elected to the National Academy of Engineers in 2005 due to his work on offshore safety and is a member of the Academy of Medicine, Engineering and Science of Texas.
- **Danenberger, Elmer "Bud"** holds a Bachelor of Science degree in Petroleum and Natural Gas Engineering and a Master's degree in Environmental Pollution Control, both from Pennsylvania State University. After a 38-year career, Mr. Danenberger retired from the Department of the Interior's offshore oil and gas program in January 2010. During his career, Mr. Danenberger served as a staff engineer in the Gulf of Mexico regional office, Chief of the Technical Advisory Section at the headquarters office of the U.S. Geological Survey, District Supervisor for several MMS offices, and Chief of the Engineering and Operations Division at MMS Headquarters. For the last five years of his tenure at the Department, he served as Chief, Offshore Regulating Programs with responsibilities for safety and pollution prevention research, investigations, regulations and standards, and inspection and enforcement programs.
- **Epstein, Lois** holds a Bachelor of Science in Mechanical Engineering from Massachusetts Institute of Technology and a Master of Science in Mechanical Engineering from Stanford University. Ms. Epstein is currently a licensed engineer in Maryland. Ms. Epstein is a former Senior Engineer, Cook Inlet Keeper. Ms. Epstein is the President of LNE Engineering and Policy, which provides technical and policy consultant to non-profit organizations on oil/gas issues. Ms. Epstein was a public member of the Office of Pipeline Safety Federal Advisory Committee on Hazardous Liquid Pipelines from 1995 through 2007.
- **O'Reilly, David J.** is the retired Chairman and Chief Executive Officer of Chevron Corporation. Mr. O'Reilly is a native of Dublin, Ireland, where he earned his Bachelor's degree in Chemical Engineering from the University College, Dublin. Mr. O'Reilly started as a process engineer with Chevron Research Co in 1968 and after several decades and earning positions of increasing responsibility he was elected Senior Vice President and Chief Operating Officer of Chevron Chemical Company in 1989. Mr. O'Reilly was named Chairman and Chief Executive Office of Chevron Corporation on January 1, 2000, and he held that position until his retirement on December 31, 2009. Mr. O'Reilly is the Vice Chairman of the National Petroleum Council. He is a director of Bechtel Group, Inc., a member of The Business Council, the World Economic Forum's International Business Council, and the American Society of Corporate Executives. He also serves on the San Francisco Symphony Board of Governors.

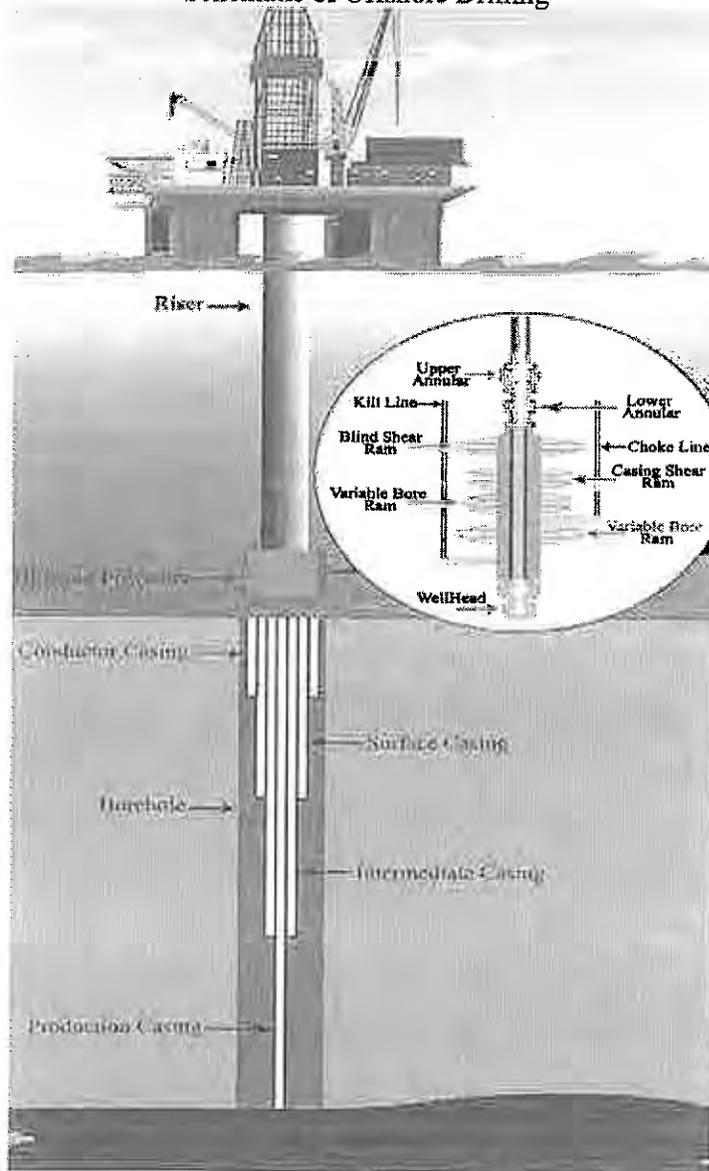
- **Regg, Jim** holds a Bachelor of Science in Petroleum and Natural Gas Engineering from Pennsylvania State University as well as a Bachelor of Art in Math/Science from Edinboro State University. Mr. Regg worked for the Minerals Management Service Field Operations for almost 20 years where his primary focus was technology assessment. Currently Mr. Regg is a Senior Petroleum Engineer for the Alaska Oil & Gas Conservation Commission where he is responsible for managing the compliance inspection program (including investigations and enforcement); well integrity and regulation development.
- **Ward, E.G. "Skip"** holds a Bachelor of Science in Mechanical Engineering from Lamar University and a Master's and Doctorate in Mechanical Engineering from the University of Houston. Dr. Ward spent 30 years with Shell Oil Co. beginning in Shell Development's E&P Research Division in 1968 as a researcher. From 1981 to 1985, he supervised the Oceanographic Engineering section. From 1985 through 1994, he managed the Offshore Engineering Research Department. In 1994, Dr. Ward became the technology manager of Shell Offshore Inc's Deepwater Division where he was responsible for a group that designed deepwater structures and developed new structural concepts and components for deepwater production systems. Dr. Ward has been a member of the American Petroleum Institute since 1976 and received API's 30+ Years of Service Recognition Award in 2006. Dr. Ward served on the Marine Board of the National Academies for nine years. Dr. Ward is currently the Associate Director of the Texas Engineering Experiment Station's Offshore Technology Research Center.
- **West, Robin** is the current Chairman, Founder, and Chief Executive Officer of PFC Energy where he advises chief executives of leading international oil and gas companies and national oil companies on corporate strategy, portfolio management, acquisitions, divestitures, and investor relations. Before founding PFC Energy in 1984, Mr. West was the Assistant Secretary of Policy, Management and Budget at the Department of the Interior from 1981 through 1983. While there, he conceived of and implemented the Outer Continental Shelf Leasing Schedule and managed the \$14 billion per year OCS budget policy. Mr. West also served as the Deputy Assistant Secretary of Defense for International Economic Affairs during the Ford Administration. Mr. West has served on several boards and commissions including a Presidential appointment to the National Advisory Committee on Oceans and Atmosphere in 1977. Mr. West is also a member of the National Petroleum Council; Director of the Magellan Petroleum Corporation; Director of Key Energy Services, Inc and Director of Cheniere Energy. He earned his Bachelor of Arts from the University of North Carolina at Chapel Hill and a Juris Doctorate from Temple University.
- **Williams, Tom** has been in the energy business for over 28 years. He is currently the Managing Director of Nautilus International LLC. Mr. Williams served as President of Maurer Technology Inc, a leading drilling research and development and engineering technology company. From 1993 through 2000, he was Business Director at Westport Technology Center, a leading upstream oil and gas research company. Mr. Williams held senior executive positions at the Departments of the Interior and Energy during the Bush

Administration from 1989 through 1993. He owned and operated an oil and gas exploration, production and consulting company prior to joining the Department of Energy. Mr. Williams is currently on the Board of Directors of Far East Energy Corporation, a public oil and gas company with operations in China; Board of Directors of Petris Technology, Inc, TerraPlatforms LLC; The Research Partnership to Restore Energy for America; The Contributor Committee Co-Chair of DeepStar Consortium; The Society of Petroleum Engineers; The Independent Petroleum Association of America; The International Association of Drilling Contractors; the American Association of Drilling Engineers. Mr. Williams' Environmentally Friendly Drilling Project was awarded the Environmental Stewardship Award by the Interstate Oil and Gas Compact Commission in May of 2010.

Appendix 2: Brief Primer on Offshore Drilling Technology and Systems

The process for an offshore oil and gas exploratory well begins by positioning a drill rig above the intended leasing tract for exploration (see Figure A1).

Figure A1
Schematic of Offshore Drilling



Source: Minerals Management Service Database, 2010.

The rig lowers drill pipe (also known as a drill string) with a drill bit attached to its end to the seafloor where it commences to drill. The borehole created by the drill is then set with casing.

At the seafloor, conductor casing is normally set to stabilize the soft sediments at the top of the borehole to ensure that continued drilling does not precipitate a borehole collapse. Once the conductor is in place, the drill rig lowers to the seafloor a marine riser (a large pipe that surrounds the drill pipe) that connects the conductor casing to the drill rig. As drilling proceeds, a blowout preventer (BOP) is lowered to the seafloor and sits atop the wellhead.

As drilling progresses with depth, additional casings (sections of pipe) that are slightly narrower in diameter than the hole created by the drill bit are inserted into the borehole and bonded into place by "cement." This process ensures that the borehole does not collapse on itself, and it isolates the borehole from any pockets of gas or water in the strata that the borehole passes through. A series of casings of equal diameter that are connected together and run down the borehole is a "string" and a string may be hundreds to thousands of feet long with a threaded connector between each 30-foot segment of casing. Deeper into the borehole, narrower casings are inserted one into the other resulting in strings of casing that are enclosed and cemented into the previous, slightly wider-diameter string of casing. The outermost casing can be up to four feet in diameter with the innermost string of casing less than six inches in diameter in some cases. The initial and final casing diameters, the types of casing, and type of cement used are determined by the profile (depth, temperature, pressure, etc.) of the well being drilled. Once the well is in production, the hydrocarbons will come to the surface through the production casing that is run down through the middle of the narrowest casing string.

During the process of drilling, drill fluid, referred to as "mud," is pumped down the drill pipe through drill bit nozzles. The mud's primary function is maintaining "well control," but it also cools the drill bit and carries the drill cuttings away from the bottom of the borehole and returns to the surface through the space (the annulus) between the drill pipe and the walls of the casing strings. To maintain well control, the pressure created by the weight of the mud in the drill pipe and annulus must be maintained equal to or greater than the pressures encountered in the borehole. Various indicators of well pressure measures allow the mud engineer on the rig to maintain the well bore fluid pressure equal to or slightly greater than the pressures from the deepest formation. This type of pressure balance is called overbalanced.

The pockets of oil, gas, or water that are encountered in porous layers during the drilling process can suddenly push the mud through the annulus with considerable pressure—what is referred to as a "kick." When a kick occurs there are various bypass mechanisms, such as diverters and BOPs, to shunt the pressure away from the well bore (diverter) or prevent the pressure from rising to the ocean surface (BOP), thereby maintaining well control. If a kick overwhelms the control mechanisms, a blowout can occur.

A BOP consists of a series of ram and annular preventers that sits atop the wellhead and connects to one of the outermost casing strings, allowing the narrower casing strings and drill pipe to be lowered down the borehole through the center of the BOP. In the event of significant loss of well control, one or more of the preventers can be activated from the drill rig. The annular preventer is typically the first to be utilized when an influx from a formation is experienced, but is not usually used with pressures above 3,500 pounds per square inch (psi). The pipe (variable bore) rams are utilized for pressures above 3,500 psi. A pipe ram and/or annular preventer will be closed around the drill pipe shutting off the upward movement of mud and pressure through

the annulus between the drill pipe and the casing string. A blind-shear ram can be used to cut through the entire drill pipe and seal the borehole. In the event that activation from the drill rig fails, BOPs may have one or more back-up means for activating the rams. Remote operated vehicles (ROVs) can trigger closure of the rams working at the BOP. Other redundant control systems include "acoustic switch" technology which can activate the BOP with an acoustic signal from the rig through the water. Another device called a "deadman" switch automatically closes rams if the BOP loses connection electronic or hydraulic communication with the drill rig for any reason.

The BOPs are a hydraulically activated device. The hydraulics are supplied by the accumulator system located on the rig through lines that run down the riser and connect to the BOP. The BOP contains control devices called pods which are blue and yellow. The hydraulic fluid is distributed by the pod to the desired components of the BOP. The communication system to the pod may either be a pilot hydraulic system or an electro-hydraulic system. The pilot hydraulic system uses hydraulic pressure to function the pod and the electro-hydraulic system uses electrical signals to communicate with the pod. All commands for the system are sent from the control panel on the rig. The subsea BOP also contains pre-charged bottles that provide hydraulic fluid to activate the BOP's auto shear or deadman devices in the event of disconnects. The BOP is also equipped with an ROV "hot stab" panel that allows the hydraulic line(s) from the accumulator system to be isolated in order for the ROV to "stab" in a separate control line and directly pump into the BOP to function the rams via a pump mounted on the ROV. The panel for the ROV to "stab" into may be capable of activating all rams or only designated ram(s).



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INVESTIGATIVE ACTIVITY REPORT

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|---|---------------------------------------|
| Case Title Federal Moratorium On Deepwater Drilling | Case Number PI-PI-10-0562-I |
| Reporting Office Program Integrity | Report Date July 15, 2010 |
| Report Subject Interview of Steve Black | |

On July 14, 2010, Senior Special Agent Richard Larrabee and Program Integrity Director Harry Humbert interviewed Steve Black, Counselor to Secretary of the Interior Ken Salazar from 1100 to 1220 hours in Black’s office at the Main Interior Building in Washington DC. Black was interviewed in relation to a letter that was sent by several peer-review experts to Louisiana Governor Bobby Jindal and Senators Mary Landrieu and David Vitter, expressing concern that their names were used by the Department of the Interior (DOI) to justify a deepwater drilling moratorium. The following is a summary of the interview.

The letter faxed to Landrieu, Vitter and Jindal, stated:

A group of those named in the Secretary of Interior’s Report, **“INCREASED SAFETY MEASURES FOR ENERGY DEVELOPMENT ON THE OUTER CONTINENTAL SHELF”** dated May 27, 2010 are concerned that our names are connected with the [deepwater drilling] moratorium as proposed in the executive summary of the report. There is an implication that we have somehow agreed to or **“peer reviewed”** the main recommendation of that report. **This is not the case.** (emphasis included in original)

The material paragraphs in the executive summary the peer-reviewers were concerned about are the following:

The Secretary further recommends an immediate halt to drilling operations on the 33 permitted wells, not including the relief wells currently being drilled by BP, that are currently being drilled using floating rigs in the Gulf of Mexico. Drilling operations should cease as soon as safely practicable for a 6-month period.

The recommendations contained in this report have been peer-reviewed by seven experts identified by the National Academy of Engineering. Those experts, who volunteered their time and expertise, are identified in Appendix 1. The government also

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| Reporting Official/Title Senior Special Agent Richard J. Larrabee | Signature |
| Authentication Number: 89DF9697468A0C56BC0F2A0E07154FA | |

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consulted with a wide range of experts from government, academia and industry.

During his interview, Black provided background information concerning the creation of the 30-day Report (Report). He said that in late April 2010 President Barack Obama directed DOI Secretary Salazar to prepare a report that would review current industry practices and standards for deepwater oil drilling and make recommendations as to how those practices and standards could be improved. Black said that Secretary Salazar placed him in charge of a team responsible for producing the Report.

Black said the Report was prepared with the help of scientists and engineers from DOI and the Department of Energy. He said that he also collaborated closely with the White House in preparing the report, specifically Carol Browner's staff.

According to Black, the President asked the National Academy of Sciences (NAS) and the National Academy of Engineers (NAE), a subdivision of NAS, to conduct a separate, distinct study to determine the root causes of the accident. When meeting with NAS and NAE, Black said that he asked them to recommend several experts in offshore drilling to peer review the recommendations that would be made in the Report he was tasked to prepare. Peter Blair of NAE subsequently provided a list of seven names and DOI contacted all seven experts and asked them for their voluntary assistance, which they all accepted. In addition to the seven NAE experts, Black said that DOI also sought peer reviewers from industry and academia to also assist in the effort to produce the recommendations in the Report, who included Ken Arnold (the author of the peer reviewer's complaint letter sent to members of Congress and Louisiana Governor Jindal).

According to Black, Peter Blair of NAE facilitated the interactions of the peer reviewers and the meetings were held via teleconference with the peer reviewers. Black said that the peer reviewers did not draft any portions of the report or the recommendations themselves, but rather they reviewed the recommendations and provided valuable oral and written feedback.

Black said that he held a final conference call with the peer reviewers on Tuesday, May 24, 2010 wherein they discussed a draft of the Report, not the final Report. According to Black, the peer reviewers knew that it was only a draft Report and they knew that they were not being consulted concerning "policy decisions." Black then explained that the decision to invoke the moratorium on current deepwater drilling projects was a policy decision made by Secretary Salazar and President Obama. Black further stated that there were some discussions of various parameters of a potential moratorium with the peer reviewers; however, the moratorium, as ultimately issued by DOI, was never peer reviewed by the peer reviewers.

According to Black, Secretary Salazar sent a Decision Memorandum to President Obama outlining the findings in the Report and his recommendation for a 6-month moratorium on current deepwater offshore drilling prior to meeting with the President on the evening of Wednesday, May 25, 2010. Black said that he was not a part of that meeting and after the meeting Secretary Salazar said that the President wanted to "sleep on [the idea of the moratorium]" overnight before making a final decision. Accordingly, Black said that Secretary Salazar instructed him and Black's special assistant Neil Kemkar to draft two different Executive Summaries to the Report; one including the decision to invoke the moratorium and a second not including the moratorium. Black said that the next morning Secretary Salazar directed him to begin working closely with Joe Aldy of Carol Browner's staff at the White House to draft the Executive Summary to deed include the moratorium.

According to Black, there was “a little disconnect” about the definitions used in the Report and the final parameters of the moratorium that was ultimately issued (e.g. the Report defined deepwater drilling as 1,000 feet versus the moratorium defining it as 500 feet); he then pointed out that neither him nor Aldy were present during the meeting between Salazar and the President.

Black said that he initially drafted the Executive Summary, which included at the behest of Salazar the mention that the recommendations contained in the report were peer reviewed by experts outside of the government. Black said that Salazar felt it was very important to have the recommendations undergo the peer review process and he wanted this stressed in the Executive Summary.

After he drafted the Executive Summary, Black sent it to Aldy and Browner’s staff at the White House. According to Black, Browner was concerned that the Executive Summary did not summarize the recommendations and the associated timetables well enough; therefore Browner’s staff drafted some of the text to be included in the Executive Summary themselves. After several iterations between him and Browner’s staff, Black said that he received a final version of the Executive Summary from the White House “around 2 or 3am” the morning it was ultimately finalized. He said that he has emails detailing the various communications between himself and the White House wherein they exchanged drafts of the Executive Summary. After receiving the final product from the White House, Black said that he reviewed the final draft and he did not have any issues with the text added by the White House.

Regarding the peer reviewer’s complaint that the Executive Summary misrepresented that they peer reviewed – and support and approved of – the 6-month moratorium on deepwater drilling, Black stated that it was no one’s intention to imply that the peer reviewers reviewed that particular policy decision. He explained that the “recommendations” the Executive Summary were referring to when it claimed peer review were the formal recommendations contained in the body of the Report, not the moratorium. When asked about how an objective reader of the Executive Summary may readily conclude that the peer reviewers reviewed the moratorium recommendation, due to the organization of the text, Black stated again that it was not the intention of DOI or the Administration to imply this was the case. He then offered the explanation that due to the rush to complete the Report and the Executive Summary, time did not allow for careful editing and review of the Executive Summary. He then said that the Report itself and the draft Executive Summary did undergo the surnaming process, yet the final Executive Summary did not do so.

Black stressed that he believes that the communications between DOI and the White House concerning the final nature of the Executive Summary should be “privileged” because it was the product of a conversation between the President and a member of his Cabinet.

Following release of the Report and the Executive Summary, Black said that he received a telephone call from Arnold, one of the peer reviewers DOI utilized in preparing the Report. He said that Arnold told him then that the peer reviewers were concerned that the Executive Summary misrepresented that the peer reviewers had reviewed and supported the moratorium recommendation made by Secretary Salazar to the President. Arnold also told him at that time that the peer reviewers were in the process of drafting a letter to various members of Congress explaining their concerns. Black said that until Arnold told him about these concerns, Black had never considered the possibility that an objective reader of the Executive Summary may believe that the peer reviewers had reviewed the moratorium policy decision.

Black said that he informed the Secretary about the peer reviewers concerns immediately after

speaking with Arnold, yet the Secretary was very busy at that time with travel due to the oil spill crisis in the Gulf of Mexico. During this time frame, according to Black, the letter drafted by the peer reviewers had been sent to Congressional members and subsequently leaked to the media.

According to Black, Secretary Salazar directed him to draft and issue a formal letter to the concerned peer reviewers apologizing for the misunderstanding and stating that the peer reviewers did not in fact peer review and support the moratorium ultimately decided upon by DOI and the Administration. Specifically, the letter issued by DOI to the concerned peer reviewers on June 3, 2010 stated:

By listing you as a member of the NAE panel that peer-reviewed the 22 safety recommendations contained in the Report, we did not mean to imply that you also agreed with the decision to impose a moratorium on all new deepwater drilling. We acknowledge that you were not asked to review or comment on the proposed moratorium. The recommendation and decision were based on the Report's safety recommendations, in particular the need for new blowout preventer and other safety equipment on subsea BOP stacks used on floating drilling rigs and the need for better wild-well intervention techniques in the event of future emergencies like the BP oil spill, particularly in deepwater. We regret any misunderstanding or confusion related to the inclusion of the recommendation to impose a 6-month moratorium on all new deepwater wells in the executive summary of the final report.

Black stated that sometime in mid-June, Secretary Salazar held a teleconference call with the concerned peer reviewers and apologized for any misunderstanding resulting from the text of the Executive Summary. Secretary Salazar then had a personal meeting with the concerned peer reviewers in Washington DC the following week and apologized once again to them for the misunderstanding. Black said that he was not present at this personal meeting between Secretary Salazar and the peer reviewers, but his assistant, Kemkar, was present.

According to Black, several versions of the draft Executive Summary are contained in the Administrative Record being compiled by DOI in relation to the "Hornbeck litigation" that ultimately resulted in the moratorium being overturned by the court because it was determined to be arbitrary and capricious.



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INVESTIGATIVE ACTIVITY REPORT

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|---|---------------------------------------|
| Case Title Federal Moratorium On Deepwater Drilling | Case Number PI-PI-10-0562-I |
| Reporting Office Program Integrity | Report Date July 8, 2010 |
| Report Subject Interview of Kenneth Arnold | |

On July 2, 2010, Senior Special Agent Richard Larrabee telephonically interviewed Kenneth Arnold, Professional Engineer, from 1900 to 1920 hours. Arnold was interviewed in relation to the letter he sent to Louisiana Governor Bobby Jindal and Senators Mary Landrieu and David Vitter, expressing concern that his name, along with others, was used by Secretary of the Interior Ken Salazar to justify a deepwater drilling moratorium. The following is a summary of the interview.

In the letter he faxed to Landrieu, Vitter and Jindal, Arnold stated:

A group of those named in the Secretary of Interior's Report, "**INCREASED SAFETY MEASURES FOR ENERGY DEVELOPMENT ON THE OUTER CONTINENTAL SHELF**" dated May 27, 2010 are concerned that our names are connected with the [deepwater drilling] moratorium as proposed in the executive summary of the report. There is an implication that we have somehow agreed to or "**peer reviewed**" the main recommendation of that report. **This is not the case.** (emphasis included in original)

The material paragraphs in the executive summary Arnold and the other peer-reviewers were concerned about are the following:

The Secretary further recommends an immediate halt to drilling operations on the 33 permitted wells, not including the relief wells currently being drilled by BP, that are currently being drilled using floating rigs in the Gulf of Mexico. Drilling operations should cease as soon as safely practicable for a 6-month period.

The recommendations contained in this report have been peer-reviewed by seven experts identified by the National Academy of Engineering. Those experts, who volunteered their time and expertise, are identified in Appendix 1. The government also consulted with a wide range of experts from government, academia and industry.

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| Reporting Official/Title Senior Special Agent Richard J. Larrabee | Signature |
| Authentication Number: 0DEBFBDB741E81A14A35F325E87D2B57 | |

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During his interview, Arnold stated that after he sent the letter to the Governor and Senators, Secretary Salazar conducted a teleconference with those who reviewed the report in order to apologize for any misunderstanding surrounding the representations made in the executive summary for the report. According to Arnold, Salazar stated that the executive summary was not meant to imply that the decision to invoke a six month moratorium on deepwater drilling was peer reviewed by Arnold and others, but rather the moratorium was an independent decision of Salazar and the current Administration. Additionally, subsequent to the teleconference, on June 3, 2010 the Department of the Interior (DOI) issued formal letters to each of the peer reviewers of the report stating:

By listing you as a member of the NAE panel that peer-reviewed the 22 safety recommendations contained in the Report, we did not mean to imply that you also agreed with the decision to impose a moratorium on all new deepwater drilling. We acknowledge that you were not asked to review or comment on the proposed moratorium. The recommendation and decision were based on the Report's safety recommendations, in particular the need for new blowout preventer and other safety equipment on subsea BOP stacks used on floating drilling rigs and the need for better wild-well intervention techniques in the event of future emergencies like the BP oil spill, particularly in deepwater. We regret any misunderstanding or confusion related to the inclusion of the recommendation to impose a 6-month moratorium on all new deepwater wells in the executive summary of the final report.

Based upon the teleconference Salazar conducted regarding the matter, along with the letters DOI issued to the peer reviewers, Arnold stated that he has accepted Salazar's explanation that the misrepresentations in the executive summary were a mistake rather than an intentional attempt to use the peer-reviewer's names to justify a political decision. As a result, Arnold said that he presently considers the matter a "non-issue" and he is now focusing on trying to assist DOI in instituting a moratorium that is supported by sound science and engineering, rather than a blanket moratorium.

Fax to: Gov. Jindal: 225-342-7099
Senator Landrieu: 202-224-9735
Senator Vitter: 202-228-5061

From: Kenneth E. Arnold, PE, NAE
3031 Shadowdale
Houston Texas 77043
832-212-0160

cc. Dr. Robert Bea, Department of Civil and Environmental
Engineering, Univeristy of California at Berkeley

Dr. Benton Baugh, President, Radoil, Inc.

Ford Brett, Managing Director, Petroskills

Dr. Martin Chenevert, Senior Lecturer and Director of
Drilling Research Program, Department of
Petroleum and Geophysical Engineering,
University of Texas

Dr. Hans Juvkam-Wold, Professor Emeritus, Petroleum
Engineering, Texas A&M University

Dr. E.G. (Skip) Ward, Associate Director, Offshore
Technology Research Center, Texas A&M
University

Thomas E. Williams, The Environmentally Friendly
Drilling Project

A group of those named in the Secretary of Interior's Report, "**INCREASED SAFETY MEASURES FOR ENERGY DEVELOPMENT ON THE OUTER CONTINENTAL SHELF**" dated May 27, 2010 are concerned that our names are connected with the moratorium as proposed in the executive summary of that report. There is an implication that we have somehow agreed to or "**peer reviewed**" the main recommendation of that report. **This is not the case.**

As outlined in the attached document, we believe the report itself is very well done and includes some important recommendations which we support. However, the scope of the moratorium on drilling which is in the executive

summary differs in important ways from the recommendation in the draft which we reviewed. We believe the report does not justify the moratorium as written and that the moratorium as changed will not contribute measurably to increased safety and will have immediate and long term economic effects. Indeed an argument can be made that the changes made in the wording are counterproductive to long term safety.

The Secretary should be free to recommend whatever he thinks is correct, but he should not be free to use our names to justify his political decisions.

The Primary Recommendation in the May 27, 2010 report, "INCREASED SAFETY MEASURES FOR ENERGY DEVELOPMENT ON THE OUTER CONTINENTAL SHELF" Given by Secretary Salazar to The President Misrepresents our Position

The National Academy of Engineering recommended us as contributors and reviewers of the recent Department of Interior "30 Day Review" of the BP Oil Spill. We were chosen because of our extensive petroleum industry expertise, and independent perspectives. The report states:

"The recommendations contained in this report have been peer-reviewed by seven experts identified by the National Academy of Engineering. Those experts, who volunteered their time and expertise, are identified in Appendix 1. The Department also consulted with a wide range of experts from government, academia and industry."

The BP Macondo blow out was a tragedy for eleven families, and an environmental disaster of worldwide scale. We believe the blowout was caused by a complex and highly improbable chain of human errors coupled with several equipment failures and was preventable. The petroleum industry will learn from this; it can and will do better. We should not be satisfied until there are no deaths and no environmental impacts offshore - ever. However, we must understand that as with any human endeavor there will always be risks.

We broadly agree with the detailed recommendations in the report and compliment the Department of Interior for its efforts. However, we do not agree with the six month blanket moratorium on floating drilling. A moratorium was added after the final review and was never agreed to by the contributors.

The draft which we reviewed stated:

"Along with the specific recommendations outlined in the body of the report, Secretary Salazar recommends a 6-month moratorium on permits for new exploratory wells with a depth of 1,000 feet or greater. This will allow time for implementation of the measures outlined in this report, and the

consideration of information and recommendations from the Presidential Commission as well as other investigations into the accident.

"In addition, Secretary Salazar recommends a temporary pause in all current drilling operations for a sufficient length of time to perform additional blowout preventer function and pressure testing and well barrier testing for the existing 33 permitted exploratory wells currently operating in deepwater in the Gulf of Mexico. These immediate testing requirements are described in Appendix 1."

We agree that the report and the history it describes agrees with this conclusion. Unfortunately after the review the conclusion was modified to read:

"The Secretary also recommends temporarily halting certain permitting and drilling activities. First, the Secretary recommends a six-month moratorium on permits for new wells being drilled using floating rigs. The moratorium would allow for implementation of the measures proposed in this report and for consideration of the findings from ongoing investigations, including the bipartisan National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling.

"The Secretary further recommends an immediate halt to drilling operations on the 33 permitted wells, not including the relief wells currently being drilled by BP, that are currently being drilled using floating rigs in the Gulf of Mexico. Drilling operations should cease as soon as safely practicable for a 6-month period."

We believe the moratorium as defined in the draft report addresses the issues evident in this case. We understand the need to undertake the limited moratorium and actions described in the draft report to assure the public that something tangible is being done. A blanket moratorium is not the answer. It will not measurably reduce risk further and it will have a lasting impact on the nation's economy which may be greater than that of the oil spill.

The report highlights the safety record of the industry in drilling over 50,000 wells on the US Outer Continental Shelf of which more than 2000 were in over 1000 feet of water and 700 were in greater than 5000 feet of water. We have been using subsea blowout preventers since the mid- 1960s. The

only other major pollution event from offshore drilling was 41 years ago. This was from a shallow water platform in Santa Barbara Channel drilled with a BOP on the surface of the platform.

The safety of offshore workers is much better than that of the average worker in the US, and the amount of oil spilled is significantly less than that of commercial shipping or petroleum tankers. The US offshore industry is vital to our energy needs. It provides 30% of our oil production, is the second largest source of revenue to the US Government (\$6 Billion per year), and has a direct employment of 150,000 individuals. The report outlines several steps that can be taken immediately to further decrease risk as well as other steps that should be studied to determine if they can be implemented in a way that would decrease risk even more.

This tragedy had very specific causes. A blanket moratorium will have the indirect effect of harming thousands of workers and further impact state and local economies suffering from the spill. We would in effect be punishing a large swath of people who were and are acting responsibly and are providing a product the nation demands.

A blanket moratorium does not address the specific causes of this tragedy. We do not believe punishing the innocent is the right thing to do. We encourage the Secretary of the Interior to overcome emotion with logic and to define what he means by a "blanket moratorium" in such a way as to be consistent with the body of the report and the interests of the nation.

The foregoing represents our views as individuals and does not represent the views of the National Academy of Engineering or the National Research Council or any of its committees.

Kenneth E. Arnold, PE, NAE

Dr. Robert Bea, Department of Civil and Environmental Engineering,
University of California at Berkeley .

Dr. Benton Baugh, President, Radoil, Inc.

Ford Brett, Managing Director, Petroskills

Dr. Martin Chenevert, Senior Lecturer and Director of Drilling Research Program, Department of Petroleum and Geophysical Engineering, University of Texas

Dr. Hans Juvkam-Wold, Professor Emeritus, Petroleum Engineering, Texas A&M University

Dr. E.G. (Skip) Ward, Associate Director, Offshore Technology Research Center, Texas A&M University

Thomas E. Williams, The Environmentally Friendly Drilling Project



THE DEPUTY SECRETARY OF THE INTERIOR
WASHINGTON

JUN 03 2010

Dr. Hans C. Juvkam-Wold, P.E.
Professor Emeritus
Dwight Look College of Engineering
Harold Vance Department of Petroleum Engineering
Texas A&M University
3116 TAMU - 507 Richardson Building
College Station, Texas 77843-3116

Dear Dr. Juvkam-Wold:

Thank you for your valuable assistance in connection with the preparation of the Secretary's May 27, 2010, report to the President, entitled "Increased Safety Measures for Energy Development on the Outer Continental Shelf." The Department of the Interior is working diligently to implement each of the recommendations as soon as practicable to improve the safety of offshore oil and gas development off our Nation's coasts.

As stated in the Report, each of the 22 numbered recommendations was developed after consulting with a wide range of experts in state and Federal governments, academic institutions, and industry and advocacy organizations. Given the technical nature of the Report and its recommendations, the Department asked Dr. Peter Blair of the National Academy of Engineering to identify a group of recognized academic and industry experts in the relevant fields to provide certain information to the Department related to offshore drilling safety and blowout protection equipment and to review and comment on the proposed safety recommendations to be included in the Report. We are indebted to each of you for agreeing to serve in that role and for your stated concurrence with the detailed safety recommendations contained in the Report.

Based on the Report's recommendations and the devastating consequences of the ongoing oil spill, the Administration independently concluded that a 6-month moratorium on new deepwater offshore drilling was necessary to implement the safety recommendations included in the Report and to learn from the information and recommendations developed by the Presidential Commission and other ongoing investigations into the Deepwater Horizon incident and resulting BP oil spill.

By listing you as a member of the NAE panel that peer-reviewed the 22 safety recommendations contained in the Report, we did not mean to imply that you also agreed with the decision to impose a moratorium on all new deepwater drilling. We acknowledge that you were not asked to review or comment on the proposed moratorium. The recommendation and decision were based on the Report's safety recommendations, in particular the need for new blowout preventer and other safety equipment on subsea BOP stacks used on floating drilling rigs and the need for

better wild-well intervention techniques in the event of future emergencies like the BP oil spill, particularly in deepwater. We regret any misunderstanding or confusion related to the inclusion of the recommendation to impose a 6-month moratorium on all new deepwater wells in the executive summary of the final report.

Again, the Department is grateful for your service to the United States in this extraordinary time of crisis. Your willingness to share your expertise and time were invaluable to our development of the Report's specific safety recommendations and will help to ensure that offshore drilling can be done safely and in an environmentally responsible manner.

Sincerely,

A handwritten signature in black ink, appearing to read "David J. Hayes". The signature is fluid and cursive, with a prominent initial "D" and a long, sweeping tail.

David J. Hayes

cc: Mr. Steve Black, Counselor to the Secretary of the Interior



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INVESTIGATIVE ACTIVITY REPORT

| | |
|---|---------------------------------------|
| Case Title Federal Moratorium On Deepwater Drilling | Case Number PI-PI-10-0562-I |
| Reporting Office Program Integrity | Report Date July 16, 2010 |
| Report Subject Interview of Neal Kemkar | |

On July 15, 2010, Senior Special Agent Richard Larrabee and Program Integrity Director Harry Humbert interviewed Neal Kemkar, Special Assistant to the Counselor to Secretary of the Interior Ken Salazar, from 1500 to 1530 hours in Kemkar’s office at the Main Interior Building in Washington DC. Kemkar was interviewed in relation to a letter that was sent by several peer-review experts to Louisiana Governor Bobby Jindal and Senators Mary Landrieu and David Vitter, expressing concern that their names were used by the Department of the Interior (DOI) to justify a deepwater drilling moratorium. The following is a summary of the interview.

The letter faxed to Landrieu, Vitter and Jindal, stated:

A group of those named in the Secretary of Interior’s Report, **“INCREASED SAFETY MEASURES FOR ENERGY DEVELOPMENT ON THE OUTER CONTINENTAL SHELF”** dated May 27, 2010 are concerned that our names are connected with the [deepwater drilling] moratorium as proposed in the executive summary of the report. There is an implication that we have somehow agreed to or **“peer reviewed”** the main recommendation of that report. **This is not the case.** (emphasis included in original)

The material paragraphs in the executive summary the peer-reviewers were concerned about are the following:

The Secretary further recommends an immediate halt to drilling operations on the 33 permitted wells, not including the relief wells currently being drilled by BP, that are currently being drilled using floating rigs in the Gulf of Mexico. Drilling operations should cease as soon as safely practicable for a 6-month period.

The recommendations contained in this report have been peer-reviewed by seven experts identified by the National Academy of Engineering. Those experts, who volunteered their time and expertise, are identified in Appendix 1. The government also

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| Reporting Official/Title Senior Special Agent Richard J. Larrabee | Signature |
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consulted with a wide range of experts from government, academia and industry.

Kemkar said that after President Barack Obama directed Secretary Salazar to prepare a 30-Day Report (Report) that would review current industry practices and standards for deepwater oil drilling and make recommendations as to how those practices and standards could be improved, his supervisor, Black, was assigned the task of completing the Report. Kemkar assisted Black in this task by helping collect and compile the background information related to offshore drilling. Kemkar said that he did not assist in drafting any of the recommendations in the Report because he is not an engineer and they were too technical. Kemkar said the Report was prepared in collaboration with the White House, specifically Carol Browner's staff.

According to Kemkar, he participated in the conference calls with the peer reviewers when they were asked to peer review the recommendations, including the final conference call on Tuesday, May 24, 2010. Kemkar said that he emailed the draft Report, including the draft recommendations to the peer reviewers that morning and that was the first time the peer reviewers had seen the entire Report. Kemkar stated that the peer reviewers understood that the Report was still only a draft and there was no discussion about the 6-month moratorium. According to Kemkar, the 6-month moratorium was a policy decision made by DOI and the Administration and thus was not open to peer-review.

Kemkar said that he was told on Thursday, May 26, 2010 that Secretary Salazar and the President had met on Wednesday and decided to invoke a 6-month moratorium and he personally was tasked to assist Black in editing the Executive Summary to the Report that discussed the moratorium. He said that he is not certain who actually prepared the initial draft of the Executive Summary, but he did assist in editing the document several times. According to Kemkar, he and Black eventually sent a draft of the Executive Summary to the White House for their edits, specifically to Joe Aldy of Carol Browner's staff. Kemkar said the White House made several edits and eventually returned the Executive Summary back to DOI sometime "after 3 am" on the morning of May 27, 2010. Kemkar said that he has the emails detailing these communications with the White House, which also would include the actual draft sent to the White House and the draft returned with their emendations.

According to Kemkar, he did review the final Executive Summary after it was returned by the White House and it never occurred to him that, based on the final text, an objective reader may believe that the peer reviewers had reviewed and supported the 6-month moratorium and not just reviewed the formal recommendations contained in the body of the Report. Kemkar said that he first learned of the peer reviewers' concerns about this alleged misrepresentation after he returned from a short vacation when he read the letter that had been sent to Governor Jindal and Senators Landrieu and Vitter. Upon reading the letter, Kemkar said that he was "jarred" by the tone of the letter inasmuch as he had believed that DOI had formed a great relationship with the peer reviewers during the Report writing process.

Kemkar said that he was not a part of any discussion with other DOI staff or White House staff that involved trying to imply in the Executive Summary that the peer reviewers had reviewed the 6-month moratorium. Additionally, Kemkar said that he participated in both the conference call and personal meeting Secretary Salazar had with the concerned peer reviewers in order to apologize for any misunderstanding.



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INVESTIGATIVE ACTIVITY REPORT

| | |
|---|---------------------------------------|
| Case Title Federal Moratorium On Deepwater Drilling | Case Number PI-PI-10-0562-I |
| Reporting Office Program Integrity | Report Date July 8, 2010 |
| Report Subject Interview of Ford Brett | |

On July 6, 2010, Senior Special Agent Richard Larrabee telephonically interviewed Ford Brett, Managing Director for Petroskills, a petroleum training alliance, from 1530 to 1600 hours. Brett was interviewed in relation to a letter he signed that was sent to Louisiana Governor Bobby Jindal and Senators Mary Landrieu and David Vitter, expressing concern that his name, along with others, was used by Secretary of the Interior Ken Salazar to justify a deepwater drilling moratorium. The following is a summary of the interview.

The letter faxed to Landrieu, Vitter and Jindal, which Brett signed, stated:

A group of those named in the Secretary of Interior's Report, "**INCREASED SAFETY MEASURES FOR ENERGY DEVELOPMENT ON THE OUTER CONTINENTAL SHELF**" dated May 27, 2010 are concerned that our names are connected with the [deepwater drilling] moratorium as proposed in the executive summary of the report. There is an implication that we have somehow agreed to or "**peer reviewed**" the main recommendation of that report. **This is not the case.** (emphasis included in original)

The material paragraphs in the executive summary Brett and the other peer-reviewers were concerned about are the following:

The Secretary further recommends an immediate halt to drilling operations on the 33 permitted wells, not including the relief wells currently being drilled by BP, that are currently being drilled using floating rigs in the Gulf of Mexico. Drilling operations should cease as soon as safely practicable for a 6-month period.

The recommendations contained in this report have been peer-reviewed by seven experts identified by the National Academy of Engineering. Those experts, who volunteered their time and expertise, are identified in Appendix 1. The government also consulted with a wide range of experts from government, academia and industry.

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| Reporting Official/Title Senior Special Agent Richard J. Larrabee | Signature |
| Authentication Number: 514D7E8F286C117A90A209448E59F562 | |

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During his interview, Brett stated that after the letter was sent to the Governor and Senators, Secretary Salazar conducted a teleconference with those who reviewed the report in order to apologize for any misunderstanding surrounding the representations made in the executive summary for the report. According to Brett, Salazar stated that the executive summary was not meant to imply that the decision to invoke a six month moratorium on deepwater drilling was peer reviewed by Brett and others, but rather the moratorium was an independent decision of Salazar and the current Administration. Additionally, subsequent to the teleconference, on June 3, 2010 the Department of the Interior (DOI) issued formal letters to each of the peer reviewers of the report stating:

By listing you as a member of the NAE panel that peer-reviewed the 22 safety recommendations contained in the Report, we did not mean to imply that you also agreed with the decision to impose a moratorium on all new deepwater drilling. We acknowledge that you were not asked to review or comment on the proposed moratorium. The recommendation and decision were based on the Report's safety recommendations, in particular the need for new blowout preventer and other safety equipment on subsea BOP stacks used on floating drilling rigs and the need for better wild-well intervention techniques in the event of future emergencies like the BP oil spill, particularly in deepwater. We regret any misunderstanding or confusion related to the inclusion of the recommendation to impose a 6-month moratorium on all new deepwater wells in the executive summary of the final report.

Based upon the teleconference Salazar conducted regarding the matter, along with the letters DOI issued to the peer reviewers, Brett said that he has was prepared to believe that the misrepresentation was an editing "mistake" and not intentional. Brett, however, said that he was still concerned about the "process" the government was following in pursuing the moratorium. He explained that he believes DOI should not make such a blanket decision without first seeking expert peer-review, but rather DOI should seek such peer-review and then make a moratorium decision based on that review (as was misrepresented in the executive summary).

Brett further said that a 6-month moratorium on deepwater drilling was not discussed during the peer-review process.



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INVESTIGATIVE ACTIVITY REPORT

| | |
|---|---------------------------------------|
| Case Title Federal Moratorium On Deepwater Drilling | Case Number PI-PI-10-0562-I |
| Reporting Office Program Integrity | Report Date July 8, 2010 |
| Report Subject Interview of Robert Bea | |

On July 6, 2010, Senior Special Agents Richard Larrabee and David Williams interviewed Robert Bea, Associate Director for the Center for Catastrophic Risk Management, University of California, from 1800 to 2120 hours at the Intercontinental Hotel in New Orleans, LA. Bea was interviewed in relation to a letter he co-signed that was sent to Louisiana Governor Bobby Jindal and Senators Mary Landrieu and David Vitter, expressing concern that his name, along with others, was used by Secretary of the Interior Ken Salazar to justify a deepwater drilling moratorium. The following is a summary of the interview.

The letter faxed to Landrieu, Vitter and Jindal, which Bea co-signed, stated:

A group of those named in the Secretary of Interior's Report, "**INCREASED SAFETY MEASURES FOR ENERGY DEVELOPMENT ON THE OUTER CONTINENTAL SHELF**" dated May 27, 2010 are concerned that our names are connected with the [deepwater drilling] moratorium as proposed in the executive summary of the report. There is an implication that we have somehow agreed to or "**peer reviewed**" the main recommendation of that report. **This is not the case.** (emphasis included in original)

The material paragraphs in the executive summary Bea and the other peer-reviewers were concerned about are the following:

The Secretary further recommends an immediate halt to drilling operations on the 33 permitted wells, not including the relief wells currently being drilled by BP, that are currently being drilled using floating rigs in the Gulf of Mexico. Drilling operations should cease as soon as safely practicable for a 6-month period.

The recommendations contained in this report have been peer-reviewed by seven experts identified by the National Academy of Engineering. Those experts, who volunteered their time and expertise, are identified in Appendix 1. The government also

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consulted with a wide range of experts from government, academia and industry.

During his interview, Bea stated that he first heard of the moratorium recommended by DOI in the executive summary of the May 27, 2010 report when Senator Landrieu asked him about it on May 29, 2010. He said the proposed moratorium had not been discussed with the peer-reviewers prior to issuance of the report.

According to Bea, after the letter was sent to the Governor and Senators, Secretary Salazar conducted a teleconference with those who reviewed the report in order to apologize for any misunderstanding surrounding the representations made in the executive summary for the report. According to Bea, Salazar stated that the executive summary was not meant to imply that the decision to invoke a six month moratorium on deepwater drilling was peer reviewed by Bea and others, but rather the moratorium was an independent decision of Salazar and the current Administration. Additionally, subsequent to the teleconference, on June 3, 2010 the Department of the Interior (DOI) issued formal letters to each of the peer reviewers of the report stating:

By listing you as a member of the NAE panel that peer-reviewed the 22 safety recommendations contained in the Report, we did not mean to imply that you also agreed with the decision to impose a moratorium on all new deepwater drilling. We acknowledge that you were not asked to review or comment on the proposed moratorium. The recommendation and decision were based on the Report's safety recommendations, in particular the need for new blowout preventer and other safety equipment on subsea BOP stacks used on floating drilling rigs and the need for better wild-well intervention techniques in the event of future emergencies like the BP oil spill, particularly in deepwater. We regret any misunderstanding or confusion related to the inclusion of the recommendation to impose a 6-month moratorium on all new deepwater wells in the executive summary of the final report.

Based upon the teleconference Salazar conducted regarding the matter, along with the letters DOI issued to the peer reviewers, Bea said that he has was prepared to believe that the misrepresentation was a "mistake" and not intentional because he always tries to believe people are telling the truth, unless proven otherwise. He explained that he simply does not know whether it was a mistake or intentional, but he was not interested in speculating one way or the other because he was now focused on trying to persuade DOI to institute a moratorium that is supported by sound science and engineering, rather than a blanket moratorium.

Bea then expressed concern that DOI is not approaching the moratorium issue in the correct way inasmuch as DOI is proposing the moratorium without any input from expert peer-reviewers. He mused why DOI would not peer-review such an important, far-reaching decision in light of the fact that DOI had all of the other safety recommendations listed in the report undergo peer-review.



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INVESTIGATIVE ACTIVITY REPORT

| | |
|---|--|
| Case Title Federal Moratorium on Deepwater Drilling | Case Number PI-PI-10-0562-I |
| Reporting Office Program Integrity | Report Date September 17, 2010 |
| Report Subject Interview of S. Elizabeth Birnbaum | |

On September 15, 2010, Senior Special Agent Richard Larrabee and Program Integrity Director Harry Humbert interviewed S. Elizabeth Birnbaum, former Director of the Minerals Management Service (MMS) from 1315 to 1345 hours at Birnbaum's Residence in Arlington, Virginia. The interview was audio recorded and a transcript has been completed; the following is a summary of the interview.

After Birnbaum read the Congressional Request submitted to the OIG asking for an investigation into whether there was intentional misrepresentation on the part of the Department of the Interior related to their recommendation of a 6-month deepwater drilling moratorium, Birnbaum said that she personally did not work on preparing the Executive Summary containing the moratorium recommendation. According to Birnbaum, Secretary of the Interior Counselor Steve Black was the principle person responsible for heading up the department's effort to issue the 30-Day Report on deepwater drilling safety and Birnbaum's participation was limited to surnaming the report and its recommendations.

Birnbaum said that there were general discussions about extending a moratorium on deepwater drilling and its associated parameters; however, she had no knowledge that Secretary of the Interior Ken Salazar planned on recommending to the President of the United States in the Executive Summary of the 30-Day Report for a 6-month extension of the deepwater drilling moratorium. She stated that she learned of the recommendation only when MMS Deputy Director Mary Katherine Ishee told her about as she was delivering the report and Executive Summary to Birnbaum for surnaming. According to Birnbaum, she asked Ishee why the moratorium recommendation had been inserted in the Executive Summary and Ishee told her that Black had inserted the moratorium recommendation based upon an agreement with the White House to do so.

Regarding whether the Executive Summary was intentionally drafted in a manner to misrepresent that the peer review team of engineers and scientists that reviewed the safety recommendations in the 30-Day Report had also reviewed and supported the recommendation for a 6-month moratorium, Birnbaum said that she has no knowledge that the misrepresentation was intentional. Birnbaum opined that the misrepresentation was probably a product of editing and a review of the email trail related to the creation of the Executive Summary would be the best way to identify who may have edited the

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| Reporting Official/Title Senior Special Agent Richard J. Larrabee | Signature |
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document that resulted in the misrepresentation.

Birnbaum also stated that she does not believe that Secretary Salazar's request for her resignation was in any way related to the issuance of the 6-month moratorium on deepwater drilling, regardless of the fact that both events occurred on the same day, May 27, 2010.



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INVESTIGATIVE ACTIVITY REPORT

| | |
|---|---------------------------------------|
| Case Title Federal Moratorium on Deepwater Oil Drilling | Case Number PI-PI-10-0562-I |
| Reporting Office Program Integrity Division | Report Date June 22, 2010 |
| Report Subject Case Initiation Report | |

BASIS OF INVESTIGATION

This investigation was initiated based upon a request from David Vitter U.S. Senate and Steve Scalise, U.S. House of Representatives, to review the Moratorium on Deepwater Oil Drilling in the Gulf of Mexico. The OIG received a request from Sen. Vitter and Rep. Scalise to look into allegations that inappropriate activity may have occurred relating to the 30-day review the DOI used in justifying the current moratorium in the Gulf of Mexico. Press releases allege that a team of engineers reviewed, approved, and signed off on a version of the 30-day review that was presented to them by the administration. However, after they signed their names to the document a significant change was made, a change that led to the 6-month suspension of deepwater exploratory drilling. In justifying its broad moratorium on deepwater drilling, senior officials emphasized that the measure was recommended by a DOI report prepared in consultation with scientists and industry experts, however the team of scientists assembled by the National Academy of Engineering strongly refutes this claim.

POTENTIAL VIOLATION(S)

Section 515 Information Quality Act

AFFECTED DOI PROGRAM(S)

Office of the Secretary

POSSIBLE SUBJECT(S)

| | |
|--|-----------|
| Reporting Official/Title Harry L. Humbert, Director/Program Integrity Division | Signature |
| Authentication Number: 7F526C1CD46815A30683E0C2D12A447A | |

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RELATED INVESTIGATION(S)/AUDIT(S) - (if applicable)

INVESTIGATIVE PLAN

1. Interview Mr. Steve Black, Counselor to the Secretary of the Interior

Ken Arnold

Friday 7/2/10 - telephone 7:00 - 7:20

now as:

• Non-issue

• Salazar teleconference to explain misunderstanding

• DOI issued than all letter

• Now just concerned about working w/ Feds to help put a moratorium in place that is supported by science and engineering versus blanket moratorium

①

July 6, 2010
1800 - 2120 hrs

Bea

Hired Ken Arnold when Chief Offshore Engineer for Shell

(May 9th)

Background

Fisher - Corps of Engineer - Born into Texas moved to FLA - 14 yrs old → started working on roofing, septic, forester

after H.S. - U.S. Army Corp of Engineers →

South FLA flood control district - how to drain Everglades → Univ. of FLA → civil/environmental engineer → geo technical → "Coastal Ocean" engineering (minor degree) ⇒ graduated 4.0 GPA

"Structural"

USAF → Early warning radar stations in Alaska 1200/mo

Shell - 600/mo - ← 1960-1962 as Roughneck on Drill rigs - on monkey boards

1962 → started working in LA

Fred Coetz

Texas Tower - 220' H₂O of Coast of NY City ⇒ early radar selection

Failed

- very deep - 220' H₂O Hurricane

Shell asked Bea to understand why Texas tower Failed

28 people dead

attended Congressional Investigation

→ started studying offshore structures in depth

→ included going to Cook Inlet

→ shell tasked him w/ these breaking edge technology

②
January 1965 - assigned by Shell as head of their
1st Offshore Engineering Group.
→ conducted another investigation into failed offshore structures
→ sent to Harvard

→ sent to Houston - worked for Shell USA
President (1967)
↳ worked for Shell CEO in London (1968)
tutoring him on offshore engineering
↳ Hague - work w/ Royal Dutch Shell HQ
~~work headed up their product development group~~
Shell Nigeria, Borneo, New Zealand

1969 - in charge of Shell Production
in Bakersfield
July 1969
→ Santa Barbara Unocal Blowout
↳ Tasked by Shell to investigate why
it failed.

① 1970
↳ Then sent to NOAA → To study another
Blowout → Bay Marshland blowout
became head of Shell's Disaster Research & Development Group
Mississippi → worked on a well-kill team

1976 - Opened own company ^{100 men} - troubleshooting all over
world - ~~not~~ - sold business - very profitable
- moved to S. Fran

(3)

Started
New Company - PMB

1985 → become Risk Assessment ~~Expert~~ & Mgt. Expert
→ called to London to teach them (BP)
Risk Assessment & Mgt. → contracting them

1987 - "engineering prostitute"
- sold company to Vental - VP

1987 - applied to Berkeley as a student
Applied for Prof. of Naval Architecture Offshore Engineering

1988 → became Professor at Berkeley

1998 - Investigated Piper Alpha ex B/O in N. Sea

↳ Fully concluded that 90% of B/O causes was
people (regulatory coziness w/ industry) and
only 10% was engineering

⇒ Exxon Valdez - review - for 3 years
- Found "same damn thing" as Piper
Alpha - "Iron ships - Wood men"

- NASA - asked him to do Risk Assessment Mgt
for space propulsion systems - generic spacecrafts
worked on → Columbia accident investigator board
↳ Same damn thing - human thing feeding
HP system.

2002 - Asked by BP to consult w/ them on 3
issues (Tony Brown - President)

④

meet Executives - Mgrs.

3 problems:

① Clash of corporate cultures

English - very regimented - class focused

Am. Company not so much

② Loss of Corps competencies - Old experienced engineers gone

③ Downsize / Outsource => Done it 3 times

Katrina Investigation

4/20/10 - 7:10 PST

call @ home from ~~Bea~~ "Lillian Miller"
former offshore worker for Transocean

Angus McCellan - Transocean - positioning engineer

Lillian heard from radio

=> 460°F mud - ran out of mud -> Screening to bring mud b/c running out of mud

=> Next day learns of explosion

Bea asked Lillian to collect all data/info about DTH incident

Lillian believes phone lines breached by DTHS and former Blackhawk.

made it ~~responsible~~ possible for Bea to receive anonymous transcripts of rig waters on DTH. => Ultimately - sent 3

③

3 transcripts → 2 of them not on
179 but know → all important
information.

Solly → 60 minutes guy - got 3 more transcripts w/
names

↳ comic book drive

⇒ another one from group fishing near
structure

→ 1 IP transcript in re Schlumberger in re
CBL

→ Audio Transcript "James" for 1/2 hour (2x)

↳ Friend sends him audio transcripts

May 9th - call @ office from Callie
Hanley w/ Lisa of DOJ.

↳ asks him to serve as "advisor" to help
DOJ produce report for w/ by
May 28th

May 10th Email contact from NAS - ^{Peter} Blair

= Bea agrees to do it ⇒ NAS gives 1st
clear marching orders as to scope of
report ⇒ reduce likelihood of these
types of failures

↳ Decides to go to D.C.

→ Received 2 assessments from DOJ

↳ was only 10% - engineering issues
in re BOP / CBL's, etc.

⑥

1980 - Tells MMS that they need to tighten the regs (was subcontractor at time)
↳ larger, respectable oil/gas players asked Bea to pass this message onto MMS (~~had~~ poor actors make whole industry look tainted)

↳ MMS didn't change → Bea got blackballed on MMS related grants

1999 - Bud Duenkelberger - (excellent engineer) ^{Elmer}
Nominated for Safety Award by J (won it)

MMS Alaska - very tight } b/c very
MMS California - " " } intense local pressure

went to Alaska 2002 - ^{for BP} Corrosion ^{saw massive} problems
→ can't reach pig lines.
"cutting costs"

↳ yet went to Ferry Point in WA state
↳ super tight ship.

↳ Texas City → same as AK - big problems

⇒ Phone Conference - final conference call on interim measures ⇒ only ISE NAS group

⇒ 2 separate groups → Advisory Board
pages 31-35 of 30 day report.

⑦ Run by Steve Black Bea (Continued)

During final phone call in re recommendations,

Bea told them Steve Black

→ 1/2 hour - 10% of problem only discussed

↳ 90% organizational, cultural problems

→ asked him to write up report about this in one night → Bea sends draft of summary

helping him = Casey M. Kishlee

1st heard from Sen Landriew about 6 mo. moratorium on May 29th - she asked him what he thought about it.

⇒ BP. Lord of Flies mentality - "I wanna, I canna, I gonna"

Have done "it" incorrectly → Don't send whole class to prison

* Don't know if was misunderstandly or intentional
* Won't fight President - but rather work towards making it work!
→ Going about it wrong way

Panel dispersed in May 28 67 people
Deeper into Horizon Study Group - zero funding
↳ Mission: Write Report - 6 months from now

② Implement Tech Delivery System (TOS) (A) Looking Back = engineering = cultural policy
③ Looking Forward = engineering = cultural policy
next 2 calls: - Govt - media - environment

8

Conrad Patna

- Sen Boxer's office subpoenaed camera data from BP prior to accident → Have it now in Berkeley. → ^{have reviewed} silk stockings over lens sometimes other times very clear → → internet transmission ^{possibly causing this?? Don't know}

versus
physically carried ←
off rig

Casing design - ~~terrible~~ horrible
was very below industry standard

- Total lack of redundancy in re
1/6" - 9 7/8 liners

"BP's designed to fail" - 4728 feet on

- Rig man for BP did not make decisions
ALL decisions made in Houston
at HQ level - Chief Drilling Engineer
Chief Offshore "r

- MMS "aren't get a chance" in being responsible to regulate the BP's

- Accident investigations are a joke - Don't

- Offloading mud → can't bracket into pressure/balance
major mistake

9

BP employees - former students of Bea

Walter Guelroz - Risk Hazards - BP - Houston

Edward Clukey - Geotechnical Engineering Group

Dr. Bernie Stahl - former Amoco Risk Mgt Leader

"Cloak of silence"

BP has put out informal

known this was inevitable.

sent to email to Bea

1 million/day = true cost to BP

for drilling DTH => high interest in putting well into production

BP man on rig - telephone operator

- Daily Drill Logs

- May 17th - Totally Dry - major loss

- April 10th - another major loss

1/6/10

Ford Brett (918) 828-2511

3:30-4:00pm

Managing Director - Petroskills

"World's Leading Petroleum Trng Alliance"

↳ "help define the industry's standard in Technical training."

Alliance ^{members}

BP, Shell, Chevron, ConocoPhillips, Marathon.

According to website - Brett is an "expert in the area ~~of~~ process and project performance training." He is recognized worldwide as a leader in the area of Petroleum Project Mgt.

→ Agree with it, ~~yet~~

Am completely satisfied that there was a misrepresentation - yet am prepared to believe that it was a ~~strip~~ last-minute mistake

→ Am still however am concerned that there are still "process" issues

→ should get experts → then make "policy decisions" based on expert review.

Pleasantly surprised

Amst "stunned" how well 30 day report was → that govt. could do such a ^{project} ~~thing~~ w/in 30 days

Salazar acknowledged it was his
decision → did it mean to misrepresent

• Moratorium ^{not} discussed at all

⇒ If accidental misrepresentation - fine with it.

→ but if not - problem

needs to be clear vull between
"advice" and "policy."

①

Steve Black Counselor to Sec Salazar

7/14/10 - 11:00 - 12:10 - MIB

Jan 20, 2009 - Counselor to Secretary

President order Sec to provide report w/in 30 days
to review - public announcement - (late April)

undertake review of existing industry practices

to compare w/ best practices

- regulatory program

- workplace practices & proc

that could be improved.

quality
well design
well control
= 12.1

- Put in charge of team responsible for producing
report

w/ with MMS engineers/experts
~~with~~

→ looking at: MMS Regs

Safety culture

Technological aspects

worked closely w/ staff - Carol Browner's

staff to put it together

• produced report of recommendations

Also worked closely w/ DOE

→ oversight or collaborative effort? Collaborative

②

with role - helping to develop relevant background info

↳ Did not change report

" " help develop report

Doc assist in putting together ES.

22 recommendations → Developed exclusive of
with

→ NAE asked by President to ID root causes of
explosion - looking for independent review.

met w/ NAE/NAE → Block asked them
to recommend peer review panel →
different than root cause investigation.

w/ NAE

~~Peter Blair~~
nominated

NAE provided a list of names → accepted
all of them → ^{DOT} contacted each expert
- (not all 7 are members of NAE)

Also hired Ken Arnold (is a member of NAE) -
not on peer review panel (-) under a
separate agreement and

Bud Danenbarger

mtgs w/ peer reviewers by phone call
Peter Blair helped facilitate → oral & written
feedback

Peer Reviewers did not develop or write
recommendations

(3)

Monday - (5/23) - final conference call - went over draft report of them - they knew it was a Draft → not a Final

⇒ No discussion about recommendations

Peer reviews were told - they knew - they were not being consulted about policy decisions.

Moratorium was a policy advice decision between President & Sec. → Peer reviews were made on May 27.

⇒ Never asked about morat. → not peer reviewed.

Drafting of Moratorium

a lot happened in last couple of hours before going to pros

- Sec. reviewed drafts before went to President

- Sec felt it was very important to have peer review - this wanted to stress how heavily DOJ relied on these Peer Reviews

This led to statement in ES. 9.

Never intended to suggest/imply they reviewed morat. recommendation.

(4)

draft did go through changes w/ both & both w/ Pres.

— Sec met w/ Pres on Wed night
(Black not in room)

Decision Memo was given to Pres by Secretary prior to their meeting.

After conversation - Sec instructed Black to work w/ Joe Aday (w/ H) to finalize

language of report
Black worked w/ Spec. Asst.
Neal

works for Carol
Browner
PhD in economics

That evening - were asked to prepare 2
draft reports exec. summaries: ① w/ Morat.
② w/ out Morat.

(Pres ~~was going~~ wanted to sleep on
Morat. decision)

⇒ little bit of a disconnect between Black
and Aday b/c neither were in
room when Sec & Pres met - not
surprising though.

One Policy decision made by Pres & Sec → Black was
told and he included it in Exec. Summary.

- Thought never occurred to him that
ES would be taken that Pres Reviews

③

revised 6 mo. memorandum

Browner ~~and staff~~ ^{was} ~~more~~ concerned that original draft of ES (Monday draft) was not a good enough summary of recommendations & associated timetables.

Some ~~the~~ text of ES was drafted by Browner and staff overnight (Wed night)

Original ES had been edited by Browner & staff overnight

↳ read revised draft of recommended changes \approx 2-3 am. \rightarrow Revised

changes and had no issues w/ changes
ONE added text from w/ft

\rightarrow created a "juxtaposition" that was not originally in the ES

\Rightarrow Never anyone's intention by DOJ or WH that reviewer's revised policy decision

\hookrightarrow refers ^{only} ~~to~~ ^{to} recommendations "not Secretary's recommendations"

\Rightarrow time did not allow for careful editing & review

Final ES was not surnamed \rightarrow Report and original ES was surnamed, but

(6)

12:10

Final FS was not based on conversation
between Pocs & Sec that night

↳ Request
↳ Privileged

↳ congruence of cabinet member meeting
w/ Pocs.

after
Release of
Rpt.

Ken Arnold contacted Black personally
to let him know concerns and that
Fax/Letter was being drafted

↳ Black let Sec. know about issue

↳ Eventually letter was leaked to press

Sec ~~was~~ teleconference w/ most/all peer
reviewers in mid June → personal
meeting thereafter on a Monday
Black was not at meeting but
Neal was.

Black drafted letter that was sent out
to peer-reviewers

→ (6) no mark was in FS Black sent one
to WH before working was edited
and returned to DOJ.

Doc's → draft of Black sent to WH ??
before editing.

①

~~All drafts in Admin Record in Hornbeck
Case → SOL.~~

Ry

(1)

[Neal Kumar Kar / 3:00-3:30 7/15/10
April 2009 - started working for Steve Black

- Brown - Law Student - Georgetown -
- Practiced in DC as Energy Atty.
- NY litigator - environmental law firm

main part of goal - to assist
President's renewable energy agenda

- Reviewed Senate letter

- Here to help Steve

-> after briefing given to Steve -> helped him
in drafting 30 Day Report - helped w/ background

-> Did not draft recommendations - too technical.

prior to
Tuesday
had
seen them
drafts of
Full Report

Participated in conference calls - ^{peer reviewers of} recommendations only
including Tuesday May 24th call
final - 1st time they actually ~~seeing~~ saw ^{draft} 30-Day Report

* Moratorium never discussed
during conference calls

Understand that was only draft? Yes

~~Kumar~~

did not do initial draft of Executive Summary
Not sure who drafted it -> but lots
back and forth between DOJ and White House
"Joe Aldy" => part of Carol Browner's staff
-> and with did not necessarily "direct" but more
a supply of resources.

Told Sec & Pres talked on Wed → moratorium decided.

→ Wed pm thru Thurs morning → worked w/ Black on ES - and reviewed WH's edits ~ 2 am → Did not occur to him whatsoever that an objective reader would get impression Peer reviewers renewed moratorium

→ 1st learned of ^{scientists'} concern when seeing the letter.

→ certainly no discussion about trying to imply such a thing.

* Attended personal meeting & conference call

↳ They actual put on a powerpoint about arguing to have the moratorium lifted
↳ hard line argument. →

There is an emend trail going back & forth w/ WH



OFFICE OF
INSPECTOR GENERAL
U.S. DEPARTMENT OF THE INTERIOR

JUL 21 2010

The Honorable Doc Hastings
Ranking Member
Committee on Natural Resources
U.S. House of Representatives
Washington, D.C. 20515

The Honorable Doug Lamborn
Ranking Member
Subcommittee on Energy and Minerals
Committee on Natural Resources
U.S. House of Representatives
Washington, D.C. 20515

Dear Congressmen Hastings and Lamborn:

This is in response to your letter of July 20, 2010 encouraging the Office of Inspector General for the Department of the Interior (Department) to open an investigation into allegations concerning the Department's 30-day Safety Report to the President and the recommendation for a six-month deepwater drilling moratorium on the Outer Continental Shelf.

The Office of Inspector General has, in fact, been conducting an investigation into these allegations. When we have completed the investigation, we will make the results available to the public. We will ensure that you, and the other members of Congress who made a similar request, are provided a copy of the results of our investigation directly.

Sincerely,

A handwritten signature in cursive script that reads "Mary L. Kendall".

Mary L. Kendall
Acting Inspector General

Cc: OIG Subject/Reading
AIGI Chron
Kris Kolesnik-AIG EA
PI-Richard Larrabee
Ed Woo, Desk Officer
Congressional File
CTS 2010-G-00192



OFFICE OF
INSPECTOR GENERAL
U.S. DEPARTMENT OF THE INTERIOR

SEP 01 2010

Steve Black
Counselor to the Secretary
Department of the Interior

Dear Mr. Black:

Thank you for recently taking the time to meet with Special Agent Richard Larrabee and me regarding our investigation related to the 6-month moratorium on deepwater drilling issued by the Secretary of the Interior.

During your interview, you informed us that you initially drafted the Executive Summary to the 30-Day Review on Offshore Drilling on May 26, 2010 (which was ultimately released on May 27, 2010) and thereafter exchanged drafts of the Executive Summary with the White House, which they edited, through the early morning hours of May 27, 2010.

Accordingly, I respectfully request that you provide all of the emails you sent externally which contained the draft Executive Summaries as well as the last and final revision. Please send the emails and all of their respective attachments to me at: Harry.Humbert@dohio.gov.

Thank you for your assistance in this matter. Should you require additional information please feel free to contact me at (202) 219-0635.

Sincerely,

A handwritten signature in black ink, appearing to read "Harry Humbert", written over a large, stylized flourish.

Harry Humbert
Director
Program Integrity Division

1 PI-PI-10-0562-I

2 Interview of Liz Birnbaum

3 September 15, 2010

4

5 RICHARD LARRABEE: This is Special Agent Richard Larrabee
6 with the Department of Interior's Office of Inspector General.
7 Today is September 15th. It's approximately 1:15 in the
8 afternoon. I'm here today with Program Integrity Director,
9 also Special Agent, Harry Humbert and Elizabeth Birnbaum.

10 LIZ BIRNBAUM: Liz.

11 RICHARD LARRABEE: Liz Birnbaum. And go ahead, if you would
12 please, to identify yourself.

13 HARRY HUMBERT: Yeah, it's Harry Humbert.

14 LIZ BIRNBAUM: And this is Liz Birnbaum, the former Director
15 of the Minerals Management Service, officially Susan Elizabeth
16 Birnbaum, but we'll go with Liz.

17 RICHARD LARRABEE: Okay, great. And as I mentioned before
18 I started the tape, we'd just like to throw out the general
19 ballpark question to you related to your involvement, what
20 extent, what you remember of the decision to extend that
21 moratorium that was in place for another six months, which
22 ultimately was issued on May 27th. And I believe that was
23 the same day that you submitted your letter of resignation?

24 LIZ BIRNBAUM: Yes, I resigned on May 27th. That was the
25 same day that the Secretary forwarded what we called the "30-day
26 report, the report that the President had requested from the

1 Secretary regarding recommendations to improve safety of offshore
2 operations. That was the day the Secretary forwarded that report
3 to the President. I don't know anything about decisions that
4 were made after that, because as I understand, the actual
5 moratorium decision wasn't until after that. That was just
6 the Secretary's recommendation to the President. And after
7 that, I was completely out of the loop.

8 You should be able to find in email files and old email
9 traffic material on the preparation of the 30-day report. It was
10 prepared principally under the direction of Steve Black with the
11 lead person at MMS being Mary Katherine Ishee, Deputy Director.
12 She was a political Deputy and didn't have a lot of experience
13 with offshore drilling, certainly, and worked very closely
14 with MMS career staff, as well as Steve Black and his Special
15 Assistant, Neal Kemkar, in the preparation of that report.

16 I got involved in it somewhat as I was overseeing all of
17 our response efforts, but to a large extent, the first time I
18 saw it was when the sort of technical recommendations had been
19 put together. They had hired some outside consultants. I only
20 ever spoke to one of them once, and that was when we were trying
21 to nail down details on one of the recommendations, and I do not
22 remember the details of that again. But it was after a draft of
23 the recommendations had already been put together, and we spent
24 part of a weekend going over that and talking about - oh, why
25 were we meeting on them? I think we were trying to nail down
26 how long we thought it would take to accomplish many of the

1 recommendations. We were trying to make sure that we had them.
2 The organization of the recommendations was going to need to say,
3 "What could be done immediately? What could be done in 30 days?
4 What could be done longer?"

5 And so that was the first time that I actually worked on
6 the details of the report was in a meeting, which we had over the
7 weekend, and we talked on the phone on a conference call with the
8 folks from our New Orleans Regional Office. I think Lars Herbst
9 was on that call. I think maybe Mike Saucier, but I'm not sure.
10 We had a big conference call just trying to sort out how we were
11 going to sort out these pieces of the report. And I believe
12 that was the weekend before the report was due, although I'm
13 not certain, but it seems likely.

14 There was not a moratorium recommendation in what I saw, but
15 the moratorium recommendation wasn't included in those technical
16 recommendations portion of the report. It was put in sort
17 of later transmittal language as opposed to the technical
18 recommendations that were worked on by the engineers and by the
19 outside consultants. So there was never, as I said before, there
20 was never any anticipation that the statement that the report
21 had been reviewed by outside engineers was a statement that the
22 Secretary's transmittal language about a moratorium had been
23 reviewed by the outside engineers. That's the discussion of its
24 having been reviewed by outside engineers. From my perspective,
25 it was always a reference to those technical recommendations that

1 we had worked on and tried to figure out what was doable in what
2 time period and so on.

3 I did end up surnaming the report. The surname book sheet
4 will be the best reference to when I did that. It was either
5 Monday or Tuesday before the report went to the President.
6 And at the time that I surnamed it, I did not realize that
7 the moratorium recommendation had been served, because -

8 HARRY HUMBERT: Did you surname the Executive Summary?
9 Did you read that along with - because the 30-day report wasn't
10 (inaudible/mixed voices).

11 LIZ BIRNBAUM: Right. Well, that's the thing is that I had
12 had several drafts of it and had reviewed them. As I understand
13 the email version, and this is where you may want to look at the
14 emails. As I understand the email version that I had received
15 that Monday morning, I believe it was that Monday, maybe Tuesday,
16 may have included the moratorium recommendation also, but I
17 didn't realize that change had been made. So I had received an
18 email copy, and then I surnamed it shortly thereafter without
19 realizing that the moratorium recommendation had been inserted.

20 HARRY HUMBERT: Into the Executive Summary section?

21 LIZ BIRNBAUM: Right. Yeah, this is the one thing that
22 I can tell you that is entirely hearsay, but my understanding
23 about the moratorium recommendation is that Steve Black inserted
24 it. I was told this by Mary Katherine, not by Steve. I was
25 told by Mary Katherine that Steve Black had inserted it, and she

1 understood that he inserted it as part of an agreement with the
2 White House to insert the moratorium recommendation.

3 That's actually all that I know about the insertion of that
4 recommendation in that report is that it happened at a point
5 where I didn't realize that it had, and it happened very late,
6 and that, at least from Mary Katherine's perspective, it was
7 done at Steve Black's request, and that from her understanding,
8 that that was an agreement with the White House that the
9 recommendation would be in there.

10 HARRY HUMBERT: Can we talk about that conversation a little
11 bit more?

12 LIZ BIRNBAUM: My conversation with Mary Katherine?

13 HARRY HUMBERT: Yeah. I mean, how did this conversation
14 come about?

15 LIZ BIRNBAUM: Mary Katherine and I had a conversation about
16 the fact that I had surnamed the report, and she's the one who
17 told me the recommendation was in there when I surnamed it.

18 HARRY HUMBERT: What brought about that conversation?

19 LIZ BIRNBAUM: What brought about that conversation? Exec
20 Sec had said that we only needed one surname on this report from
21 MMS, so it was my signature. So Mary Katherine hadn't surnamed
22 it. So I was talking to Mary Katherine about the fact that
23 she had not surnamed it and that I had. And I do not remember
24 exactly how she raised the fact that there had been a change.
25 She raised the fact that there had been this change, that the
26 moratorium recommendation had been inserted. I think she perhaps

1 asked me if I realized that when I surnamed it, and I said I had
2 not. And I said, "Where did that come from?" And she said that
3 it had been inserted at Steve's request - or perhaps Steve had
4 even edited it. I don't even know who had the hands on the
5 document at that point, before I got it to surname. So, I mean,
6 we were just talking about the surnaming process when she asked
7 me if I knew that that change had been made.

8 HARRY HUMBERT: When you said, "Wow, I didn't know that that
9 had been made," I mean, was there a follow-on question like, "Why
10 would he put that in there and not say something?" or -?

11 LIZ BIRNBAUM: Well, I just said, "How did it get in there?"
12 And she said, "Steve directed it go in, and that it was based
13 on Steve's" - and Steve had told her this, or perhaps Neal had.
14 Either Steve or Neal had told her this. I don't know which one,
15 again, because this is all third-hand.

16 HARRY HUMBERT: When she provided that information to you,
17 did she have issue with it or -?

18 LIZ BIRNBAUM: I think that's a question to ask her.

19 HARRY HUMBERT: Well, and that certainly may take place.

20 LIZ BIRNBAUM: I think she wanted to make sure that I
21 knew that I had signed this, because it was significant. And
22 I agreed that it was significant, which is why I said, "How did
23 that happen?" But I don't know her view on that?

24 HARRY HUMBERT: Did she share with you, you know, did she
25 say that there had been conversations that night, it was a
26 back-and-forth between the White House and Interior? Or did

1 she mention who it was that Mr. Black had made this, you know,
2 that this concession had been made? Was there any talk about
3 that?

4 LIZ BIRNBAUM: No. No, she just said "the White House," and
5 Steve was dealing with several people at the White House on this
6 report. That was another thing. There was a lot of interest in
7 it from the White House. Obviously, the President's request the
8 Secretary (inaudible). And I know that Steve had been dealing
9 with several people from the White House. And, actually, M.K.
10 had found herself dealing with several people from the White
11 House, too. But she did not specify who it was that he had
12 talked to about that.

13 HARRY HUMBERT: Mary Katherine, what's her last name?

14 LIZ BIRNBAUM: Ishee, I-S-H-E-E. She is, or was last I
15 knew, the Deputy Director of the Minerals Management Service,
16 now BOEMRE.

17 HARRY HUMBERT: Deputy Director.

18 LIZ BIRNBAUM: Deputy Director.

19 HARRY HUMBERT: There's two Deputies.

20 LIZ BIRNBAUM: There are two Deputies. There's a career
21 Deputy and a political Deputy.

22 HARRY HUMBERT: Okay, okay, yeah, I interviewed Walter
23 several times.

24 LIZ BIRNBAUM: Yes, during the period that I was there,
25 there were three political appointees at MMS, me, Mary Katherine,
26 and then my Science Advisor, Alan Thornhill.

1 RICHARD LARRABEE: To get back to the moratorium thing, was
2 there a discussion about this moratorium before?

3 LIZ BIRNBAUM: No.

4 RICHARD LARRABEE: Is that why she felt it significant to
5 let you know that?

6 LIZ BIRNBAUM: Yeah, it was significant, but it wasn't
7 completely out of the blue. There had been discussion about the
8 possibility of stopping all deepwater drilling from within a week
9 after the accident. I guess that the Secretary's announcement,
10 as I recall, was like May 5th when we announced that we weren't
11 going to be approving any additional applications for permits to
12 drill, which became incredibly confusing in the press, because
13 people didn't understand that what we were saying is we were
14 stopping our approval process for new holes, but we were
15 continuing to manage the holes we'd already approved, which
16 meant allowing new drilling or potentially allowing revisions
17 to existing permits, that it wasn't a complete moratorium. And
18 there was a lot of confusion in the press, and so it kept coming
19 up.

20 And the Secretary's Communications Office ended up getting
21 a pretty good communication statement together on it, but it
22 probably took like a week after May 5th before they were really
23 clear, explaining that to the press. And throughout that period,
24 and even before, there were just discussions about what would
25 happen if we stopped it all. Should we stop it all? Several

1 times, I mean, the Secretary said, "We ought to stop drilling,"
2 and it was like, "Well, let's look at it."

3 There were a lot of communications with the White House
4 about what the economic impact would be, and there should be
5 some email record of that. The information from MMS and MMS
6 economists generally came through me or Walter Cruikshank. It
7 would generally have gone to David Hays or to people working for
8 him, Laura Davis or {Brian Screener}. And at least once, I was
9 emailing directly with Joe Aldy in the White House, who works for
10 the Council of Economic Advisors, as well as for Carol Browner.
11 He sort of crosses those two. And I think I was also on the
12 phone with him, explaining some of this stuff at least once.

13 So there was a lot of conversation about what the economic
14 impacts would be, and there was a lot of conversation about
15 whether or not we should do it. But, you know, there hadn't
16 been any formal written proposal for it that I had ever seen.
17 It had simply been a discussion.

18 You'll also find, I mean, things were really confusing.
19 During that period, things were really confusing. You'll find
20 in the email record, there was a point at which David Hays told
21 us to stop approving exploration plans, and we actually stopped
22 approving exploration plans for about 24 hours. You'll find that
23 in the emails, I know, between me and Lars Herbst. And, in the
24 meantime, we went back and figured out if we stopped approving
25 exploration plans, how quickly we would become in violation of
26 the 30-day approval requirement in the Outer Continental Shelf

1 Lands Act and, you know, sent him back a note saying, you know,
2 inside a month, we're going to fail to approve some number of
3 these if we have to do EAs on all of them. And, you know, so
4 he said, "Okay, we have to go forward with those." And so there
5 was a lot of confusion about exactly what we were doing at that
6 point. So this issue had certainly come up several times.

7 RICHARD LARRABEE: Do you know if the issue ever got
8 presented or discussed with the team of engineers or scientists,
9 you know, that were referred to?

10 LIZ BIRNBAUM: I don't think it was. As I said, the
11 expectation was that they were providing input on the technical
12 recommendations about how to drill, which is basically what much
13 of the report is about, and that was all I ever thought that they
14 had been asked about.

15 RICHARD LARRABEE: You read the Executive Summary and you
16 surnamed it.

17 LIZ BIRNBAUM: Yeah.

18 RICHARD LARRABEE: The question that was posed to us about,
19 you know, this misrepresentation, I picked it up myself and just
20 read it.

21 LIZ BIRNBAUM: Right.

22 RICHARD LARRABEE: And I've given it to other people who
23 don't do what we do, just lay people, and say, "Would you
24 believe that these people approved this recommendation, or
25 could you interpret it this way?" And to a person, they all
26 said, "Absolutely, that's the way it's written."

1 LIZ BIRNBAUM: Okay.

2 RICHARD LARRABEE: Make these recommendations, and then the
3 Secretary further recommends moratorium being placed. Next
4 paragraph, "All of these recommendations were reviewed by this
5 peer board."

6 LIZ BIRNBAUM: Yeah, from my perspective, that's probably an
7 editorial problem, that the sentence should have been put after
8 rather than before, because I absolutely don't think anybody ever
9 meant that to mean that.

10 RICHARD LARRABEE: Okay, you don't think anybody ever -?

11 LIZ BIRNBAUM: But, you know, I wasn't doing the drafting.
12 You know, in fact, there's probably some copy of it someplace
13 that I did some word editing on but, again, it was an earlier
14 version. And as I said, I don't even know who had the pen there
15 at the last minute when that went in.

16 RICHARD LARRABEE: Well, we've spoken with Steve Black, and
17 he mentions making the initial draft and then exchanging some
18 drafts with the White House.

19 LIZ BIRNBAUM: Yeah.

20 RICHARD LARRABEE: And that's what we're trying to identify.
21 We're in this sort of - because I've seen one of his initial
22 drafts, and it's not written that way.

23 LIZ BIRNBAUM: Yeah.

24 RICHARD LARRABEE: And then, yet, it came back that way and,
25 you know, obviously we're being asked to look into this. And
26 then when you read this thing, you got to sit here and step back

1 a little bit. You know, there was a lot of very intelligent
2 people sitting around reading this thing, and how can nobody
3 pick up on that this could be taken this way?

4 LIZ BIRNBAUM: Right.

5 RICHARD LARRABEE: It's a little difficult to understand.

6 LIZ BIRNBAUM: Well, when those drafts were going back and
7 forth between Steve and the White House, I wasn't seeing those,
8 of course. So, again, I have to say when I surnamed it, I
9 assumed it was the same thing I'd seen earlier, which was an
10 error on my part, but it doesn't mean I wouldn't have surnamed
11 it nonetheless. I mean, once Steve and the White House had
12 agreed on a draft, I wasn't going to probably not surname.

13 HARRY HUMBERT: When exactly again did you realize that this
14 had been inserted? Was it before it was made public, after it
15 was made public?

16 LIZ BIRNBAUM: Oh, it was before it was made public. I
17 wasn't talking to - I mean, I've talked to Mary Katherine since
18 I left. But, again, none of this became public until actually
19 after my resignation became public. I mean, the order of events
20 here was I resigned at nine a.m. The report went over to the
21 President, and there was some press conference that afternoon.
22 In the meantime, my resignation had become the big story. We
23 won't even discuss how that happened. I have some assumptions,
24 but I can't say. It became the big story before the Secretary
25 announced it at the hearing at 10:00. And so I have just no idea
26 what happened with respect to publicity on this at all. I have

1 to say that for the next couple of days, my concern was not the
2 content of this report or how it was being made public.

3 HARRY HUMBERT: Did you voice any concerns to Mary
4 Katherine?

5 LIZ BIRNBAUM: I may have. I don't remember. I predicted,
6 and I may have predicted to Mary Katherine, that there would be
7 a lawsuit over it, at the time, which was actually prescient
8 (inaudible/mixed voices).

9 HARRY HUMBERT: Specifically over the six months?

10 LIZ BIRNBAUM: Just over the moratorium.

11 RICHARD LARRABEE: The moratorium itself.

12 LIZ BIRNBAUM: Yeah. I don't know if I said that to Mary
13 Katherine. I certainly said it to myself, and I probably said
14 it to somebody. That was before I was preoccupied with my
15 resignation, so I probably did say it to somebody.

16 RICHARD LARRABEE: And, I mean, prior to her mentioning that
17 it got put in, the six-month moratorium, you said there was some
18 discussions about lots of confusing things going on about what
19 we're going to stop, what we're not going to stop.

20 LIZ BIRNBAUM: Right. I had no conversation about it going
21 into this report with anybody at any time until after I had
22 surmised it. Again, we'd had a lot of conversation about
23 whether we were going to do it and whether we ought to do it.
24 And, as I said, we'd had some conversations back and forth
25 providing information on potential income impact with the White
26 House, some of which was pretty good information about the number

1 of people employed, and some of which was pretty bad projection
2 about what the response of the drilling contractors would be
3 which thus far hasn't (inaudible/mixed voices).

4 HARRY HUMBERT: So all of that had been discussed?

5 LIZ BIRNBAUM: That had been discussed in one context or
6 another, just sort of not in an organized way. Nobody ever sat
7 down and said, "Now is when we're going to make this decision.
8 Let's write down the factors on either side." I had never had
9 been in a conversation like that. There may very well have been
10 a conversation like that with the White House. David Hays may
11 have had a conversation like that with the White House, and Steve
12 Black may have had a conversation. But I never did. There was
13 just sort of ongoing conversations about, "Well, what's this
14 economic factor? What's that economic factor? Can we project
15 how many drilling contractors leave?" "We don't know. It's
16 hard to judge" - you know, that sort of conversation. And,
17 again, there are emails showing some of that stuff.

18 RICHARD LARRABEE: And throughout those conversations, did
19 you ever express an opinion whether you thought it was a good
20 idea or not, prior to that, a blanket moratorium, or did it ever
21 even come to that question?

22 LIZ BIRNBAUM: It never came to that question.

23 RICHARD LARRABEE: Because you guys are talking about a lot
24 of things that -

25 LIZ BIRNBAUM: We were talking about the factors that would
26 go into it. It was sort of like "Why don't we do this?" And it

1 was like, "Okay, let's talk about it," sort of thing. But it
2 never got to the point where I said, "Okay, weighing this and
3 that, I would say do 'X.'" It never got to that point. And
4 this is actually what I said to the Presidential Commission.
5 This was all above my pay grade. Those conversations were
6 above my pay grade.

7 RICHARD LARRABEE: Right. And this is a question, and if
8 you choose to answer it or not, I mean, but I think you could
9 probably certainly give us a speculation or an opinion, your
10 own opinion. This moratorium that was issued and ultimately
11 reported, is that related in any way to your resignation at all?

12 LIZ BIRNBAUM: Not at all.

13 RICHARD LARRABEE: Okay, the days just happened to fall on
14 the same?

15 LIZ BIRNBAUM: The days happened to fall on the same day.
16 It's just really my resignation I probably don't want to discuss
17 with you unless you start an investigation of that, which I hope
18 you don't. But there was no way it was related. People have
19 written a lot of different stories for themselves about my
20 resignation, and it's all fine.

21 RICHARD LARRABEE: Well, the media tends to glob onto things
22 like that.

23 LIZ BIRNBAUM: Yeah, various people have characterized it in
24 ways that serve themselves.

25 RICHARD LARRABEE: Right, and they end up having a field
26 day. Okay, so it's clear you've already said a couple of

1 different times, you don't believe, you're not aware certainly
2 of anybody intentionally writing in a way to suggest that it was
3 (inaudible) in order for a justification type of factor, say,
4 "Hey, let's word it this way to justify our decision."

5 LIZ BIRNBAUM: Right, I'm not but, again, as I said, I'm not
6 aware of that, but I'm also completely not aware of the drafts
7 in which it was inserted. So all I know is I signed off on
8 the final one where it was there. And, again, did that without
9 realizing it.

10 RICHARD LARRABEE: Okay. Do you have anything further?

11 HARRY HUMBERT: Nothing further. Do you have anything
12 further that you'd like to add, anything that we haven't asked
13 you about that you think we might need to know?

14 LIZ BIRNBAUM: This is about all I know about this. I can't
15 say the number of times that I met with the Secretary, with David
16 Hays regarding issues related to this. It was numerous times
17 over the month after the accident. But I just never had a
18 conversation about putting this in this report.

19 RICHARD LARRABEE: Okay, well, we'll go ahead and stop the
20 tape then and, right now, it's about 1:35.

21

22 (End of Interview)

23



United States Department of the Interior

OFFICE OF THE SOLICITOR
Washington, D.C. 20240

SEP 27 2010

DO NOT REPLY TO THIS EMAIL

Memorandum

To: Harry Humbert,
Director, Program Integrity Division
Office of Inspector General

From: Arthur E. Gary 
Deputy Solicitor

Subject: Transmission of Records

I am attaching herewith paper copies of the emails and attachments from Steve Black and Neal Kemkar that are responsive to the September 1 request letter from Harry Humbert to Steve Black. Steve forwarded them to the Solicitor's Office for review for potential privileges and FOIA exemptions, and to assist him in providing them to your office. I transmitted the documents electronically via email on Friday, along with the enclosed transmittal note.

We have concluded that all of these communications and attachments are subject to the deliberative process and presidential communications privileges. Together, these privileges attach to the documents in their entirety. The Department would assert these privileges and withhold these documents from disclosure under exemption 5 of the Freedom of Information Act, as well in response to discovery requests in litigation. In providing this information to you in cooperation with OIG's investigative responsibilities, we expressly do not waive any litigation privileges or exemptions from disclosure that are attached to the documents. We request that OIG treat information derived from its review of these documents as confidential and take all reasonable steps to ensure preservation of the Federal Government's litigation privileges. In accordance with the protocol we have developed with your office, if OIG proposes to disclose any portions of the emails or their attachments outside of DOI, we request the opportunity to meet with you or appropriate OIG staff to discuss the Department's interest in asserting these privileges to the particular information you would propose to disclose.

At your request, I would be happy to share my research and more detailed analysis regarding the applicability of these privileges. Please let me know if I can assist you further in this inquiry.

Attachments

Cc: Steve Black

Gary, Art

From: Kemkar, Neal
Sent: Thursday, May 27, 2010 1:55 PM
To: Ken Arnold
Cc: Black, Steve; Ishee, Mary Katherine; Hanley, Kallie
Subject: FINAL 30-DAY SAFETY REPORT
Attachments: Interim Measures Report 100527 FINAL.pdf; 30day report transmittal letter.pdf

Ken – Final report and transmittal letter are attached, with thanks from the Secretary and the whole team. We will be in touch shortly about next steps.

Neal

Neal Kemkar
Office of the Secretary
U.S. Department of the Interior
(202) 208-5379

NOT RESPONSIVE (FINAL REPORT)

Identical emails w/ same attachments (final) sent to other team members. Not printed at this time.

DEPARTMENT OF THE INTERIOR

**INCREASED SAFETY MEASURES FOR ENERGY DEVELOPMENT
ON THE OUTER CONTINENTAL SHELF**

MAY 27, 2010

INCREASED SAFETY MEASURES FOR ENERGY DEVELOPMENT ON THE OUTER CONTINENTAL SHELF

EXECUTIVE SUMMARY

Overview

On April 20, 2010, an explosion and fire erupted on an offshore drilling rig in the Gulf of Mexico called the *Deepwater Horizon*, which had just completed an exploratory well 52 miles from shore in 4,992 feet of water. Eleven members of the crew are missing and presumed dead. The remainder of the crew abandoned the rig and was rescued by a nearby supply vessel, the *Damon Bankston*. The fire destroyed the rig, which sank on April 22, 2010. The resulting oil spill has been declared “a spill of national significance” and could become one of the oil industry’s gravest disasters. Crude oil continues to flow from a broken pipe on the seafloor, has spread across thousands of square miles, and is damaging local economies, sensitive coastlines and wildlife throughout the Gulf region. On April 30, 2010, the President directed the Secretary of the Interior to conduct a thorough review of this event and to report, within 30 days, on “what, if any, additional precautions and technologies should be required to improve the safety of oil and gas exploration and production operations on the outer continental shelf.” This report responds to the President’s directive.

Recommendations

The Secretary recommends a series of steps immediately to improve the safety of offshore oil and gas drilling operations in Federal waters and a moratorium on certain permitting and drilling activities until the safety measures can be implemented and further analyses completed.

The report recommends a number of specific measures designed to ensure sufficient redundancy in the blowout preventers (BOPs), to promote the integrity of the well and enhance well control, and to facilitate a culture of safety through operational and personnel management (see Table ES-1). Recommended actions include prescriptive near-term requirements, longer-term performance-based safety measures, and one or more Department-led working groups to evaluate longer-term safety issues. The recommendations take into account that drilling activities conducted in the deepwater environment create increased risks and challenges.

Key recommendations on BOPs and related safety equipment used on floating drilling operations include:

- *Mandatory inspection of each BOP to be used on floating drilling operations to ensure that the BOP: meets manufacturer design specifications, taking into account any modifications that have been made; is compatible with the specific drilling equipment on the rig it is to be used on, including that the shear ram is compatible with the drill pipe to be used; has not been compromised or damaged from previous service; is designed to operate at the planned operating depth. Certification of these requirements will be made publicly available.*

- *Requirement of new safety features on BOPs and related backup and safety equipment including: a requirement that BOPs have two sets of blind shear rams spaced at least four feet apart to prevent BOP failure if a drill pipe or drill tool is across on set of rams during an emergency; requirements for emergency back-up control systems; and requirements for remote operating vehicle capabilities. The Department will develop new surface and subsea testing requirements to verify reliability of these capabilities.*
- *Overhaul of the testing, inspection and reporting requirements for BOP and related backup and safety equipment to ensure proper functioning, including new means of improving transparency and providing public access to the results of inspections and routine reporting.*

Key recommendations on well control systems include:

- *Development of enhanced deepwater well-control procedures.*
- *Verification of a set of new safeguards that must be in place prior to displacement of kill-weight drilling fluid from the wellbore.*
- *New design, installation, testing, operations, and training requirements relating to casing, cement or other elements that comprise an exploratory well.*
- *A comprehensive study of methods for more rapid and effective response to deepwater blowouts.*

Key recommendations on a systems-based approach to safety:

- *Immediate, enhanced enforcement of current regulations through verification within 30 days of compliance with the April 30, 2010, National Safety Alert.*
- *Enhanced requirements to improve organizational and safety management for companies operating offshore drilling rigs.*
- *New rules requiring that offshore operators have in place a comprehensive, systems-based approach to safety and environmental management.*

The Secretary also recommends temporarily halting certain permitting and drilling activities. First, the Secretary recommends a six-month moratorium on permits for new wells being drilled using floating rigs. The moratorium would allow for implementation of the measures proposed in this report and for consideration of the findings from ongoing investigations, including the bipartisan National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling.

The Secretary further recommends an immediate halt to drilling operations on the 33 permitted wells, not including the relief wells currently being drilled by BP, that are currently being drilled using floating rigs in the Gulf of Mexico. Drilling operations should cease as soon as safely

practicable for a 6-month period.

The recommendations contained in this report have been peer-reviewed by seven experts identified by the National Academy of Engineering. Those experts, who volunteered their time and expertise, are identified in Appendix 1. The Department also consulted with a wide range of experts from government, academia and industry.

Relationship to Ongoing Investigations

This 30-day review has been conducted without the benefit of the findings from the ongoing investigations into the root causes of the explosions and fire on the Deepwater Horizon and the resulting oil spill (collectively "BP Oil Spill") including if there were any violations of existing safety or construction law, gross negligence, or willful misconduct. In the coming months, those investigations will likely suggest refinements to some of this report's recommendations, as well as additional safety measures. Nevertheless, the information currently available points to a number of specific interim recommendations regarding equipment, systems, procedures, and practices needed for safe operation of offshore drilling activities.

Furthermore, because the purpose of this review is to recommend immediate measures to improve the safety of offshore drilling activities, nothing in this report should be used to influence or prejudice any ongoing investigations, or impact any current or future litigation.

Table ES-1. Recommendations for Increased Safety Measures

| Recommendations | Key Components (with implementation plan) |
|--|---|
| Blowout Preventer (BOP) Equipment and Emergency Systems | <ul style="list-style-type: none"> • Order re-certification of subsea BOP stacks (immediately) • Order BOP equipment compatibility verification (immediately) • Establish formal equipment certification requirements (rulemaking) |
| New Safety Equipment Requirements and Operating Procedures | <ul style="list-style-type: none"> • Develop new BOP and remote operated vehicle (ROV) testing requirements (immediately) • Develop new inspection procedures and reporting requirements (immediately) • Develop secondary control system requirements (emergency rulemaking) • Establish new blind shear ram redundancy requirements (emergency rulemaking) • Develop new ROV operating capabilities (rulemaking) |
| Well-Control Guidelines and Fluid Displacement Procedures | <ul style="list-style-type: none"> • Establish new fluid displacement procedures (immediately) • Establish new deepwater well-control procedure requirements (emergency rulemaking) |
| Well Design and Construction – Casing and Cementing | <ul style="list-style-type: none"> • Establish new casing and cementing design requirements – two independent tested barriers (immediately) • Establish new casing installation procedures (immediately) • Develop formal personnel training requirements for casing and cementing operations (rulemaking) • Develop additional requirements for casing installation (rulemaking) • Enforce tighter primary cementing practices (rulemaking) • Develop additional requirements for evaluation of cement integrity (immediately) • Study Wild-Well intervention techniques and capabilities (immediately) |
| Increased Enforcement of Existing Safety Regulations and Procedures | <ul style="list-style-type: none"> • Order compliance verification for existing regulations and April 30, 2010, National Safety Alert (immediately) • Adopt safety case requirements for floating drilling operations on the Outer Continental Shelf (emergency rulemaking) • Adopt final rule to require operators to adopt a robust safety and environmental management system for offshore drilling operations (rulemaking) • Study additional safety training and certification requirements (rulemaking) |

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I. INTRODUCTION

On April 20, 2010, the crew of the Transocean drilling rig *Deepwater Horizon* was preparing to temporarily abandon BP's discovery well at the Macondo prospect 52 miles from shore in 4,992 feet of water in the Gulf of Mexico. An explosion and subsequent fire on the rig caused 11 fatalities and several injuries. The rig sank two days later, resulting in an uncontrolled release of oil that has been declared a spill of national significance. The Nation faces a potentially massive and unprecedented environmental disaster, which has already resulted in the tragic loss of life and personal injuries as well as significant harm to wildlife, coastal ecosystems, and other natural resources. The disaster is commanding the Department of the Interior's resources as we work to ensure that the spill is stopped and the well permanently plugged; that our natural resources along the Gulf Coast are protected and restored; and that we get to the bottom of what happened and hold those responsible accountable.

On April 30, 2010, the President ordered the Secretary of the Interior to evaluate what, if any, additional precautions and technologies should be required to improve the safety of oil and gas exploration and production operations on the Outer Continental Shelf (OCS). In addition to this review of the OCS regulatory structure, the President recently created the bipartisan National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling. The President established the National Commission to examine the relevant facts and circumstances concerning the root causes of the BP Oil Spill, to develop options for guarding against, and mitigating the impact of, oil spills associated with offshore drilling, and to submit a final public report to him with its findings and options for consideration within six months of the date of the Commission's first meeting.

In addition, the Departments of the Interior and Homeland Security are undertaking a joint investigation into the causes of the BP Oil Spill, including holding public hearings, calling witnesses, and taking any other steps necessary to determine the cause of the spill. Several committees in Congress have held and will continue to hold hearings on the events associated with the BP Oil Spill. Respecting the ongoing investigations, this report does not speculate as to the possible causes of the BP Oil Spill. This report is intended to identify an initial set of safety measures that can and will be implemented as soon as practicable to improve the safety of offshore oil and gas development.

To provide context for the safety recommendations, this report presents a history of OCS production, spills, and blowouts, a review of the existing U.S. regulatory and enforcement structure, a survey of other countries' regulatory approaches, and a summary of existing Minerals Management Service (MMS)-sponsored studies on technologies that could reduce the risk of blowouts.

In compiling the recommendations presented in this report, the Department has drawn from expertise within the Federal Government, academia, professional engineers, industry, and other governments' regulatory programs. In particular, seven members of the National Academy of Engineering peer reviewed the recommendations in this report. The Department received ideas from the Department of Energy National Laboratories on ways to improve offshore safety. Appendix 1 lists expert consultations for this report.

This report examines all aspects of drilling operations, including equipment, procedures, personnel management, and inspections and verification in an effort to identify safety and environmental protection measures that would reduce the risk of a catastrophic event. (A brief primer on offshore drilling technology and systems is included in Appendix 2). In particular, this report examines several issues highlighted by the BP Oil Spill regarding operational and personnel safety while conducting drilling operations in deepwater environments.

While technological progress has enabled the pursuit of deeper oil and gas deposits in deeper water, the risks associated with operating in water depths in excess of 1,000 feet are significantly more complex than in shallow water. This report describes safety and environmental issues involved in offshore drilling, including the unique challenges associated with drilling operations in deepwater.

The recommendations address well-control and well abandonment operations; specific requirements for devices, such as blowout preventers (BOPs) and their testing; industry practices; worker training; inspection protocol and operator oversight; and the responsibility of the Department for safety and enforcement.

In developing the recommendations contained in this report, the Department has been guided by the principle that feasible measures that materially and undeniably reduce the risk of a loss-of-well-control event should be pursued. Therefore, some recommended measures—particularly those the Department intends to implement immediately—are necessarily prescriptive. At the same time, the Department is examining innovative ways to promote a culture of safety for offshore operations by addressing the human element of operations. The Department is committed to moving to finalize a rulemaking that would require operators to adopt a systems-based approach to safety and environmental management. This rule would require operators to incorporate global best practices regarding environmental and safety management on offshore platforms into their operating plans and procedures. In finalizing this rulemaking, the Department will analyze carefully the current circumstances in the Gulf of Mexico and lessons learned from the ongoing investigation into the causes of the BP Oil Spill.

To realize an improved margin of safety associated with the recommended equipment standards and operating procedures, the report proposes new inspection and verification measures, which the Department will implement. Several of these efforts will also allow the public to access information about the inspection and verification structures, to promote confidence that: (1) the Federal Government undertakes appropriate actions to review, audit, and confirm industry performance; and (2) industry follows the best possible practices and the new set of regulatory requirements.

A comprehensive set of reforms encompassing all aspects of oil and gas development on the OCS simply could not be fully developed in the 30-day timeframe of this report. With respect to some safety measures, the Department will undertake further study—with appropriate input from independent experts, academia, industry, and other stakeholders—to develop new regulations and other appropriate steps to promote drilling safety. These Department-led strike teams will also help to inform the work of the President's new bipartisan National Commission. Finally, this report does not address several important issues associated with the safety of offshore

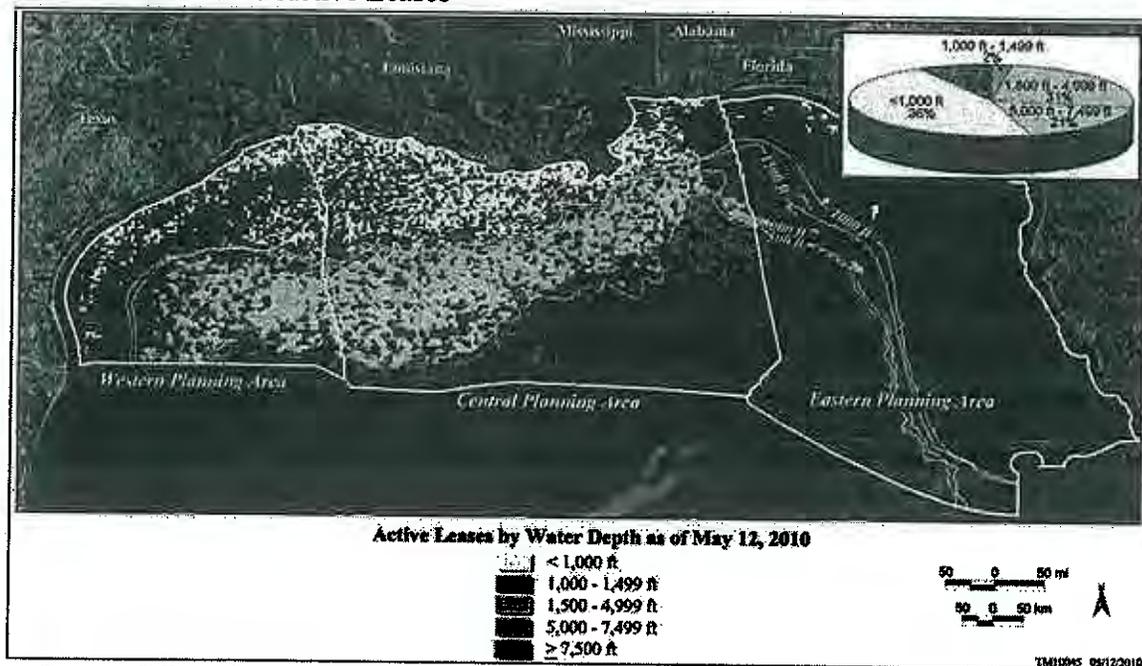
drilling that implicate shared responsibilities with other departments and agencies. For example, the Department will work in close cooperation with the Department of Homeland Security, including the United States Coast Guard, the Environmental Protection Agency, and other agencies to evaluate and improve oil spill response capabilities and industry responsibilities.

II. OFFSHORE OIL AND GAS PRODUCTION

A. Federal OCS Oil and Gas Activities

The Gulf of Mexico provides 97 percent of Federal OCS production. The Gulf of Mexico has nearly 7,000 active leases (see Figure 1), 64 percent of which are in deepwater. The Pacific OCS has 49 active leases off the coast of Southern California, 43 of which are producing. There have been no Pacific OCS lease sales since 1984. Alaska has 675 active leases and production from a single joint State-Federal field. The Atlantic does not have any active leases or production.

Figure 1
Gulf of Mexico OCS Active Leases



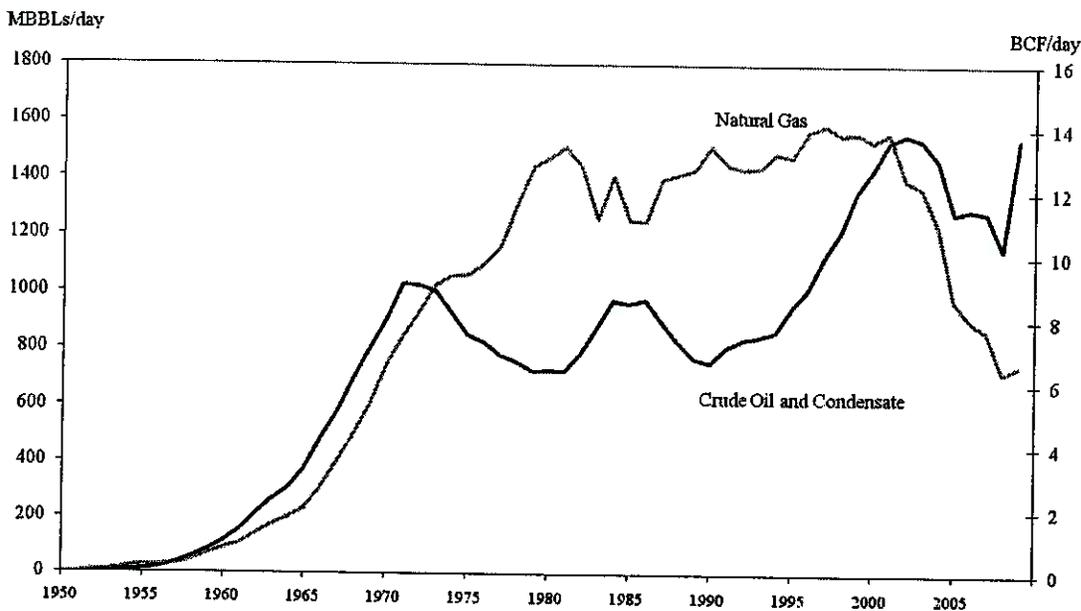
Source: Minerals Management Service Database, 2010.

Since 1947, more than 50,000 wells have been drilled in the Federal Gulf of Mexico, and there are now approximately 3,600 structures in the Gulf. In 2009, production from these structures accounted for 31 percent of total domestic oil production and 11 percent of total domestic, marketed natural gas production. Oil production in 2009 represented the second highest annual production for the Gulf of Mexico OCS (see Figure 2). Minerals Management Service Database, 2010.

Since the first major deepwater leasing boom in 1995 and 1996, a sustained and robust expansion of deepwater drilling activity has occurred, largely enabled by major advances in drilling

technology. In 2001, U.S. deepwater offshore oil production surpassed shallow water offshore oil production for the first time. By 2009, 80 percent of offshore oil production and 45 percent of natural gas production occurred in water depths in excess of 1,000 feet, and industry had drilled nearly 4,000 wells to those depths. In 2007, a record 15 rigs were drilling for oil and gas in water depths of 5,000 feet or more in the Gulf of Mexico. Operators have drilled about 700 wells in water depths of 5,000 feet or greater in the OCS. While fewer wells are drilled in the OCS today, they tend to be more sophisticated with higher per-well production levels than those in the past.

Figure 2
Gulf of Mexico OCS Oil and Gas Production



Source: Minerals Management Service Database, 2010.

Since 1953, the Federal Government has received approximately \$200 billion in lease bonuses, fees, and royalty payments from OCS oil and gas operators. Last year, the Federal OCS leasing revenue was \$6 billion. The OCS oil and gas industry provides relatively high-paying jobs in drilling and production activities, as well as employment in supporting industries. Offshore operations provide direct employment estimated at 150,000 jobs. Minerals Management Service Database, 2010.

B. OCS Petroleum Spills

Since the 1969 Santa Barbara, California, oil spill, there have been relatively few major oil spills from offshore oil and gas operations in the U.S. and around the world. Yet several notable blowouts have occurred, including one in June 1979, when the Ixtoc I exploratory well located about 50 miles off the Yucatan Peninsula blew out and was not brought under control until March 1980, releasing over three million barrels of oil off the coast of the Mexican state of Campeche. In 2009, the Australian Montara well in the Timor Sea blew out and was not brought under control for more than 10 weeks, releasing oil into the open ocean and forming a thin sheen covering up to 10,000 square miles. Nevertheless, the relatively infrequent occurrence of a major oil spill from an offshore drilling operation has led many to view these operations as safe.

From 1964 to 2009, operators in the Federal OCS produced about 17.5 billion barrels of oil (crude oil and condensate). Over this same time, the total estimated petroleum volume spilled from OCS activities was approximately 532,000 barrels, or 30.3 barrels spilled per million barrels produced. The spill rates from OCS platform and rig activities improved each decade from the 1960s through the 1990s, although the past decade reversed this trend (see Table 1). The oil spilled from OCS rigs and platforms over the past 30 years totaled about 27,000 barrels, illustrating how a catastrophic spill like the current BP Oil Spill can vastly exceed the impacts of typical spills on the OCS.

Table 1
Crude Oil Spills from Platform and Rigs from Federal OCS Activities, 1960-2009

| Time Period | OCS Oil Production (Thousand Barrels) | Number of Spills | Barrels Spilled (Thousand Barrels) | Thousand Barrels Produced per Barrel Spilled |
|-------------|---------------------------------------|------------------|------------------------------------|--|
| 1960-1969 | 1,460,000 | 13 | 99 | 15 |
| 1970-1979 | 3,455,000 | 32 | 106 | 33 |
| 1980-1989 | 3,387,000 | 38 | 7 | 473 |
| 1990-1999 | 4,051,000 | 15 | 2 | 1,592 |
| 2000-2009 | 5,450,000 | 72 | 18 | 296 |

Note: Only covers spills of 50 barrels or more.

Source: Minerals Management Service Database, 2010.

Blowouts represent a type of loss of well control event that can result in large discharges of oil into the natural environment. Since 1970, the number of blowouts per number of wells drilled has varied significantly from year to year. From 1964 through 1970, a total of approximately 178,000 barrels of oil was spilled on the Federal OCS as a result of blowout events (see Table 2). Of this total, about 13,000 barrels resulted from blowouts related to external forces, such as hurricanes and ship collisions. An additional 30,000 barrels were released when a production fire resulted in the loss of well control of 12 wells on a production platform. The remaining 135,000 barrels that were released during blowouts occurred during drilling, well completion, or workover operations.

Table 2

Blowout Events Exceeding 1,000 Barrels on the Federal Outer Continental Shelf, 1964-2009

| Year | Description of Event |
|------|---|
| 1964 | Two blowouts associated with a hurricane event that destroyed four platforms. Total of 10,280 barrels crude oil spilled. |
| 1965 | One blowout associated with drilling. 1,688 barrels condensate spilled. |
| 1969 | One blowout that occurred when a supply vessel collided with a drilling rig during a storm and sheared the wellhead. 2,500 barrels crude oil spilled. |
| 1969 | One blowout (Santa Barbara, California) was associated with drilling. 80,000 barrels spilled. |
| 1970 | One blowout was caused by a fire in the production area that resulted in the loss of control of 12 wells on the platform. 30,000 barrels crude oil spilled. |
| 1970 | One blowout associated with wireline work during workover operations. 53,000 barrels spilled. |

Source: Minerals Management Service Database, 2010.

After these blowouts, in the period from 1971 through 2009, a total of approximately 1,800 barrels was spilled on the Federal OCS as a result of blowout events. Of that amount, 425 barrels were blowouts resulting from hurricane damage. An additional 450 barrels occurred at an oil pump during production operations. Since 1956, 15 blowouts resulted in at least one fatality; three of these events occurred after 1986.

While the rate of blowouts per well drilled has not increased, even as more activity has moved into deeper water, the experience with the BP Oil Spill illustrates the significant challenges in containing a blowout in deepwater, as compared to containing a blowout in shallower water.

III. EXISTING WELL CONTROL STUDIES

The Department has conducted research related to offshore oil and gas exploration, development, and production for two purposes: (1) to augment the overall knowledge base in the field, and (2) to identify information supporting new or modified requirements in a regulation or recommended practices. The Department maintains interagency agreements and working arrangements for research with other Federal agencies who share responsibility for regulatory oversight of OCS operations, including the Departments of Commerce, Energy, and Transportation.

Through the Technical Assessment & Research (TA&R) Program, the Department studies the operational safety, technology, and the pollution prevention and spill response capabilities associated with offshore operations. The TA&R Program serves "to promote new technology and safety through the funding of collective research with industry, academia, and other

government agencies and disseminate findings through a variety of public forums.” *Minerals Management Service Engineering and Research Branch 2008-2012 Strategic Plan*. This program has funded or co-funded numerous studies investigating the use of well control techniques and equipment, including those associated with drilling fluid of a specified weight and circulation, cement with a specific bond and integrity, casing with a specific design, pressure control safety valves, and BOPs (see Table 3 for a list of well control studies funded by the Department since 1990). These studies have led to offshore drilling safety improvements around the world.

Table 3
TA&R Funded Well Control Research, 1990-2010

| Study No. | Title of Study | Completion Date |
|------------|---|-----------------|
| <u>8</u> | Blowout Prevention Procedures for Deepwater Drilling | 1978 to 2003 |
| <u>150</u> | Floating Vessel Blowout Control | December 1991 |
| <u>151</u> | Investigation of Simulated Oil Well Blowout Fires | 1989 to 1993 |
| <u>170</u> | Improved Means of Offshore Platform Fire Resistance | 1991 and 1994 |
| <u>220</u> | Study of Human Factors in Offshore Operations | 1995 to 1997 |
| <u>253</u> | Blowout Preventer Study | December 1996 |
| <u>264</u> | Development of Improved Drill String Safety Valve Design and Specifications | 1996 and 1998 |
| <u>319</u> | Reliability of Subsea Blowout Preventer Systems for Deepwater Applications—Phase II | November 1999 |
| <u>382</u> | Experimental Validation of Well Control Procedures in Deepwater | December 2005 |
| <u>383</u> | Performance of Deepwater BOP Equipment During Well Control Events | July 2001 |
| <u>403</u> | Repeatability and Effectiveness of Subsurface-Controlled Safety Valves | March 2003 |
| <u>408</u> | Development of a Blowout Intervention Method and Dynamic Kill Simulated for Blowouts in Ultra-Deepwater | December 2004 |
| <u>431</u> | Evaluation of Secondary Intervention Methods in Well Control | March 2003 |
| <u>440</u> | Development and Assessment of Well Control Procedures for Extended Reach and Multilateral Wells | December 2004 |
| <u>455</u> | Review of Shear Ram Capabilities | December 2004 |
| <u>463</u> | Evaluation of Sheer Ram Capabilities | September 2004 |

| | | |
|------------|--|--|
| <u>519</u> | Drilling and Completion Gaps for High Temperature and High Pressure In Deep Water | June 2006 |
| <u>540</u> | Risk Assessment of Surface vs. Subsurface BOP's on Mobile Offshore Drilling Units | August 2006 |
| <u>541</u> | Application of Dual Gradient Technology to Top Hole Drilling | November 2006 |
| <u>566</u> | Using Equipment, Particularly BOP and Wellhead Components in Excess of the Rated Working Pressure | October 2006 |
| <u>582</u> | A Probabilistic Approach to Risk Assessment of Managed Pressure Drilling in Offshore Drilling Applications | October 2008 |
| <u>631</u> | Risk Profile of Dual Gradient Drilling | Estimated completion in September 2010 |
| <u>640</u> | Risk Analysis of Using a Surface Blow Out Preventer | April 2010 |

Note: This report includes hyperlinks to the reports via the study numbers.

Source: Minerals Management Service Database, 2010.

These studies have examined, among other things, blind shear ram capabilities, back-up BOP systems, and drilling and cementing design and operations, which have informed the setting of Department regulations. For example, the 1999 *Reliability of Subsea BOP systems for Deepwater Applications* (study number 319) recommended modifying testing regulations to ensure that the testing of variable pipe rams appropriately account for the diameters of all the sizes of pipe in use in a given drilling project. The Department used this recommendation in revising its 2003 final drilling regulations.

The 2002 *Review of Shear Ram Capabilities* (study number 455) identified issues associated with the cutting power of shear rams, which are intended to cut through drill pipe when the well must be secured in an emergency situation. The Department adopted the report's recommendation that the BOP must be capable of shearing pipe planned for use in current drilling programs under 30 CFR 250.416(e). This regulation requires the submittal of information demonstrating that shear rams on the proposed BOP stack can cut drill pipe under maximum anticipated surface pressure.

The 2004 *Evaluation of Shear Ram Capabilities* (study number 463) expanded on the analysis in study number 455 through an evaluation of BOP shear rams under the most demanding conditions. In this study, 214 pipe samples were tested against various ram models, and 16 (7.5 percent) were unsuccessful in shearing the pipe below a certain pressure (3,000 pounds per square inch). All 16 of these cases involved a particular combination of shear ram and pipe, which was found unsuitable for actual drilling operations. The results of this study confirmed the regulatory decision to require operators to submit documentation that shows the shear rams are capable of shearing the pipe in the hole under maximum anticipated surface pressures.

The 2003 *Evaluation of Secondary Intervention Methods in Well Control* (study number 431) reviewed the design and capabilities of various secondary BOP intervention systems used in practice. Secondary intervention represents an alternate means to operate BOP functions in the event of total loss of the primary control system or a means to assist personnel during situations involving imminent equipment failure or well-control problems. This study discusses the possible use of acoustic systems in the Gulf of Mexico. According to the report, there remain significant doubts about the ability of an acoustic control system to provide a reliable emergency back-up to the primary control system during an actual well flow event.

IV. LEGAL FRAMEWORK, INSPECTIONS, AND ENFORCEMENT

A. Statutory Authority

In 1953, the Congress passed the Outer Continental Shelf Lands Act (OCSLA) that defines the OCS as any submerged land outside state jurisdiction and established Federal jurisdiction over these waters and all resources they contain. The OCSLA also set Federal responsibilities for managing and maintaining the OCS subject to environmental constraints and safety concerns. The legislation authorized the Department to lease areas of the OCS for development and to regulate offshore operations and development. Since then, the OCSLA has been amended to address changing issues, including the 1978 requirement for the Department to develop 5-year leasing program schedules after consideration of environmental, social, and economic effects of natural gas and oil activity on OCS resources, location-specific risks, energy needs, laws, and stakeholder interests. This amendment also requires the Department to seek a balance between potential damage to the environment and coastal areas and potential energy supply. The first 5-year leasing program started in 1980 and the current 5-year plan ends in 2012.

Congress has also enacted laws to promote production in frontier areas like the Gulf of Mexico deepwater. For example, the 1995 Deepwater Royalty Relief Act encouraged oil and gas development in the Gulf of Mexico in water depths greater than 200 meters (656 feet) through royalty relief. Royalty relief incentives were also offered to encourage production from wells drilled for deep natural gas (greater than 15,000 feet or 4,572 meters total depth) on new leases located in shallow waters (less than 200 meters). The Energy Policy Act of 2005 included additional incentives for oil and gas development in offshore areas to stimulate production in deepwater and expanded the OCSLA to include the areas offshore Alaska for royalty suspension.

Oil and gas leasing and operations are subject to environmental reviews under the National Environmental Policy Act (NEPA). On May 14, 2010, Secretary of the Interior Ken Salazar and the Council on Environmental Quality Chair Nancy Sutley announced a full review of NEPA compliance for oil and gas activities on the OCS, and accordingly, NEPA will not be covered in this report.

B. Regulations

Under the OCSLA, the Secretary of the Interior, through the MMS, manages and regulates leasing, exploration, development, and production of resources on the OCS. Current regulations are a combination of prescriptive and performance-based measures.

Prescriptive regulations specify rules or courses of action that must be explicitly followed in order to comply with regulation. A prescriptive approach sets clear rules for industry to follow. Performance-based regulations, in contrast, specify objectives for industry to achieve but allow flexibility in the technology and approaches used to meet these objectives. This approach allows improved technologies and methodologies to be incorporated into industry practices without major revisions to regulations and puts the onus on industry to develop systems for continuous improvement of safety and environmental protection practices. Internationally, many countries (e.g., United Kingdom, Norway, and Australia) are moving toward more performance-based regulations. The Department also incorporates by reference recommended practices and standards from industry associations and technical standard setting groups such as the American National Standards Institute, API standards and recommended practice documents, and National Association of Corrosion Engineers documents. The Department also issues Notice to Lessees (NTLs) to clarify and provide direction on regulatory requirements.

The regulations in 30 CFR 250 govern important drilling operations on the OCS. Subpart D covers all aspects of the drilling operation including permitting, casing requirements, cementing requirements, diverter systems, BOP systems, drilling fluids requirements, equipment testing, and reporting. The minimum requirements for BOPs are stated in detail, including system components, surface and subsea BOP stacks, associated systems and equipment, choke manifolds, kelly valves, drill-string safety valves, maintenance and inspections, pressure tests and additional testing, and recordkeeping. Subpart Q covers decommissioning, which includes temporary abandonment of wells. These regulations are mainly prescriptive in nature, and convey the minimum requirements for safe operations.

While regulations governing OCS exploration, development, and production activities have been largely prescriptive, the Department has been considering more performance-based approaches. For example, the 2002 Subpart O (30 CFR 250.1500) training rule is a performance-based regulation. In addition, the Department has incorporated by reference nearly 100 consensus standards into current offshore operating regulations. In this way, the Department imposes a responsibility on operators to ensure safe operations through compliance with prescribed standards as well as compliance with performance-based, overarching measures. As such, it is the responsibility of operators to meet the requirements of 30 CFR 250.401:

What must I do to keep wells under control? You must take necessary precautions to keep wells under control at all times. You must: (a) Use the best available and safest drilling technology to monitor and evaluate well conditions and to minimize the potential for the well to flow or kick and...(e) Use and maintain equipment and materials necessary to ensure the safety and protection of personnel, equipment, natural resources, and the environment.

Review of Applications for Permit to Drill (APDs)

Upon receipt of an APD, the Department reviews the approval documents for the Exploration or Development Plans for conditions that apply to the APD or the well's proposed location. The Department also assesses whether the applicant has oil spill financial responsibility coverage.

The Department conducts an engineering review of the APD, to check the proposed drilling rig's maximum operating limits for drilling depth and water depth to ensure appropriateness for the proposed well program. The review consists of, but is not limited to, the proposed procedure, well location and directional program, geological and geophysical hazards, subsurface environment for pore pressure and fracture gradient, wellbore design and schematic, design calculations for pressure containment during drilling and completion, cement volumes, and testing pressures for the well control equipment, casing and casing shoe. This review is performed for shallow and deepwater drilling operations, and a hurricane risk assessment is performed during hurricane season. The Department reviews APDs to determine how the proposed operation satisfies the regulations in meeting its objective of safely reaching a targeted depth. This review includes an assessment of:

- well casing setting depths determined by formation strength, predicted formation fluid pressure, drilling mud weight limits, any anticipated subsurface hazards;
- effectiveness of well casing strength for pressure containment at its specified depth;
- effectiveness of cementing the well casing after successfully securing and isolating the hydrocarbon zones or any encountered subsurface hazards; and
- maintaining well control by adjusting drilling mud properties and the use of well control equipment such as diverters and BOPs.

The Department reviews the operator's plans and APDs to verify the use of best available and safest technology (BAST), and inspections verify the use of approved equipment and maintenance thereof.

Upon completing the engineering review, the Department may approve the APD with conditions if warranted, return it to the operator for modifications, or deny it. If the applicant makes changes to the drilling application, the Department must grant approval before the applicant performs its work.

C. Inspections

The Department maintains a comprehensive inspection program to promote the safety of offshore oil and gas operations on the OCS. This program places inspectors offshore on drilling rigs and production platforms to enforce operator compliance with Federal safety and environmental protection requirements. When a drilling rig enters Federal waters to drill a well, Federal inspectors will meet the rig where it is moored to provide training to the rig operators about the Federal regulatory structure. At this time, inspectors will conduct a drilling inspection of the equipment. It is Departmental policy for inspectors to inspect the rig once on location every 30 days.

For production platforms, it is practice for initial inspections to take place during the fabrication of the platform at a shipyard. Federal inspectors and engineers review the flow diagrams and

charts to determine if the specific facility meets regulatory requirements. A complete production inspection of the facility occurs typically about 30 to 45 days after a production platform is installed.

After operations begin, the Department conducts additional announced and unannounced inspections. Inspectors typically give the operator a few days notice for announced inspections. Inspectors also fly to platforms or rigs unannounced, and in such cases, inspectors contact the operator as they approach the facility. These unannounced inspections foster a climate of safe operations, maintain an inspector presence, and allow regulators to focus on operators with a poor performance record. They are also conducted after a critical safety feature has previously been found defective during previous inspections or by operator reporting.

During a drilling inspection an inspector typically conducts the following:

- a general safety walk through of the facility looking for general housekeeping hazards related to slips/trips/falls/railings/open gratings;
- verification of the location of gas detectors/hydrogen sulfide detectors/mud volume detectors;
- verification that the mud trip tank is operational and properly marked (graduated), that appropriate quantities of a mud weighting material are onboard (barite), and that the drilling mud currently in use has been periodically tested and is of the proper density as indicated in the APD (viewing mud logger's report);
- verification that proper well control data relative to the well depth and type of tubulars (drill pipe, casing) in the well is clearly marked and posted on the rig floor and that there are remote BOP and Diverter control panels on the facility;
- verification that equipment is properly grounded and that drill string safety valves with proper wrenches for the diameter of drill pipe or casing currently in the well are located on the drill floor in an open position and within easy access to rig personnel;
- verification that the crown block safety device is installed and operational and that fresh air intakes are properly located on the rig;
- verification that diesel engines have required shut down devices, that breathing air is properly labeled, that engine exhaust is insulated;
- verification that crane load charts on platform rigs have been recorded, that all equipment has proper catch basins/drains/curbs/gutters/drip pans, that the facility is properly marked as to location, that the facility is properly lighted;
- if drilling is being conducted on a production facility, verification that there is an operational Emergency Shut Down device on the rig floor;

- verification of the status/switch position of the BOP pumps that the stand-by pump operates in an automatic fashion, that the accumulator bottles are in service;
- review the BOP tests records;
- checks the Subpart O well control status of contractor and lessee employees;
- checks for certain Potential Incidents of Noncompliance, which allow the inspector to check for general competency related to drilling operations; and
- inspectors may test, randomly or as a result of a safety concern, an offshore employee's competency with various safety devices.

The records check and documentation components of a drilling inspection apply to equipment, procedures, and operations that were conducted prior to the inspector boarding the facility, including but not limited to casing, cement, diverter, and BOP pressure testing results, casing setting depths, cement volumes, proper wait on cement time, formation pressure integrity tests, formation evaluation tests, required well control drills, hydrogen sulfide training certifications, and gas detector and hydrogen sulfide detector calibration records. Furthermore, the inspector confirms that proper paperwork is available in regard to any granted departures approved during the drilling of the well which were not previously approved in the APD.

During 2009, industry drilled a total of 331 wells in the Gulf of Mexico, and the MMS Gulf of Mexico Region conducted the following types and numbers of inspections:

- 561 drilling inspections;
- 3,678 production inspections;
- 268 well workover and well completion inspections;
- 6,804 meter inspections;
- 82 abandonment inspections;
- 4,837 pipelines inspections; and
- 3,342 personal safety inspections, on behalf of the U.S. Coast Guard.

E. Enforcement

The Secretary of the Interior, the Secretary of the Army, and the U.S. Coast Guard have the authority to pursue civil and criminal enforcement actions against persons who violate the OCSLA, the regulations created to implement the OCSLA, and the terms of any lease, license, or permit issued under OCSLA. The Department maintains a National Potential Incident of Noncompliance (PIN) List to help inspectors carry out enforcement actions: it contains a checklist of requirements for specific installations or procedures and prescribed enforcement

actions consisting of written warnings, shut-in of a component, including wells, equipment, or pipelines, or shut-in of an entire platform if noncompliance with the National PINC is detected. If the violation does not impose an immediate danger to personnel or equipment, a warning Incident of Noncompliance (INC) is issued. An INC must be corrected within 14 days from the time specified on the INC, and the operator may not continue the activity-in question until it has corrected the INC.

The OCSLA (43 U.S.C. § 1334(a)(2)) and regulations at 30 CFR 250.181-188 authorize the Secretary to cancel a lease or permit if, after opportunity and notice for a hearing, it is determined that: (1) continued activity would probably cause serious harm or damage to life, property, the environment, minerals, or national security or defense; (2) the threat of harm or damage will not disappear or decrease to an acceptable extent within a reasonable time; (3) the advantages of cancellation outweigh the advantages of continued activity; and (4) a suspension has been in effect for at least five years or the termination of suspension and lease cancellation are at the request of the lessee.

Regulations appearing in 30 CFR 250.135-136 provide for a disqualification process for operators exhibiting chronic poor compliance. This procedure allows operators to be placed on probation and requires that they submit Performance Improvement Plans. This gives the operator an opportunity to improve their performance. Should it not improve during a specified time, the operator may be disqualified from operating a given facility, including up to any and all facilities. Ultimately, an operator can go through Departmental debarment procedures that would prevent it from transacting any business with the Federal Government.

Under 43 U.S.C. § 1350(b) of the OCSLA, as amended, and regulations appearing at 30 CFR 250.200-206, civil penalties can be assessed for failure to comply with responsibilities under the law, a lease, a license, a permit, or any regulation or order issued pursuant to the Act. In addition to the enforcement actions specified above, civil penalty of up to \$35,000 per violation per day may be assessed if: (1) the operator fails to correct the violation in the amount of time specified on the INC; or (2) the violation resulted in a threat of serious, irreparable, or immediate harm or damage to life, property, minerals, or the environment. On a drilling rig, for example, 160 items are checked for potential violations. If significant enough, the violation may call for the particular well component or the entire complex to be shut in. In 2009, drilling operations of 20 facilities were shut-in.

V. REGULATORY AUTHORITY AND REQUIREMENTS IN OTHER NATIONS

There have been and continue to be a number of approaches for regulating offshore drilling activity. Some countries have adopted a prescriptive approach directing offshore oil and gas activities through detailed regulations and requirements, while other regulatory bodies have adopted a performance-based approach. Some regulators have adopted a hybrid approach by being prescriptive in areas deemed critical, while also establishing broad performance parameters where they deem industry needs the latitude to meet particular objectives.

There is a major difference among offshore oil and gas regulators in the number of technical standards referenced within their regulations, and the effect of referenced standards. For

example, in the United Kingdom, the standards are not compulsory, while in the United States, referenced standards have the same status as regulations. A standard is a formal document that establishes or defines a method or practice; these may also be called recommended practices. Some of the standards developing organizations, referenced in the regulations, include API, American Society of Mechanical Engineers, and American National Standards Institute. The following summarizes the regulatory structures in Norway, the United Kingdom, Australia, and Canada.

Norway

Over the past 40 years, Norway has moved from a prescriptive to a performance-based approach for regulating offshore oil and gas. Like the United States today with joint regulatory oversight of mobile drilling rigs by the Department and the U.S. Coast Guard, Norway originally regulated mobile units through its maritime authority and fixed installations by the Norwegian Petroleum Directorate (NPD).

Over time, the NPD has developed new approaches, including “compliance responsibility” that required companies to verify that their business was run acceptably and in line with the rules. The NPD eliminated the concept of inspection and replaced it with the concept of “supervision.” They also replaced the term “approvals” with “consents.” Supervision spans audits, verification, investigations, and most significantly, interaction with industry in the form of studies, professional seminars, and the development of regulations. These changes transformed the earlier approvals system that had the effect of the NPD being a virtual guarantor that company activities were acceptable into one centered on the concept of consent.

Since this major change in 1985, the trend has been away from prescription towards a regulatory approach based more on performance and risk management. Also, a series of reforms has resulted in regulations that are aligned with the changes in regulatory approach. Norway’s regulatory requirements are general and primarily specify the conditions or functions that must be achieved to be compliant. Within this framework, companies have the freedom to choose practical solutions along with the responsibility to ensure compliance. To avoid misunderstandings about requirements for complying with the regulations, non-binding recommendations and guidelines have also been issued that reference reputable Norwegian and/or international industrial standards for structures, equipment, or procedures. These recommendations and guidelines rely primarily on Det Norske Veritas *Offshore Standards* that provide technical requirements and acceptance criteria and *Recommended Practices* for proven technology and sound engineering practice.

This approach also means that the regulator must keep abreast of and participate in developing and revising industry standards to ensure that they remain relevant and reflect best practice. Supervision by the regulator involves checking whether the administrative management systems at the companies ensure acceptable operation. This auditing must be conducted by personnel who have special technical and management expertise and experience.

The NPD acknowledges that the requirements for successfully delivering performance-based regulations demands extensive participation from industry, employees, and the regulator in terms

of expertise, management and flexibility. To achieve a safe and environmentally responsible offshore work environment, strategic, and operational plans must be drawn up, selected development measures implemented, progress monitored and corrective action taken when problems arise.

The Petroleum Safety Authority Norway (PSA) was established as an independent government regulator in 2004. It took over the safety department of the NPD and continued its role. Its authority was also extended to cover supervision of safety, emergency preparedness, and the working environment for petroleum-related plants and associated pipeline systems on land. Norway is working toward harmonizing their regulations for offshore and land-based petroleum operations under the PSA.

United Kingdom

The UK safety regulation is predominantly performance-based. Indeed, the safety case concept for offshore oil and gas operation began after the 1988 explosion and resulting fire of a North Sea oil production platform called Piper Alpha, which killed 167 men. The subsequent investigation led to the issuance of the Public Inquiry into the Piper Alpha Disaster (the Lord Cullen report) and the reorganization of the UK offshore safety laws from prescriptive to a safety case approach. UK standards describe objectives, and operators can select the methods and equipment used to achieve these objectives and meet their statutory obligations. Complementing the safety case regulations are approved codes of practice and guidance documents.

The UK regulates offshore oil and gas through the Health and Safety Executive (HSE). The core activities of HSE are safety case assessment, verification, inspection, investigation, and enforcement. The approval process for the HSE is case-specific, and each case must be accepted and approved before offshore installation operates. A government inspectorate is in place as an assurance mechanism. The HSE oversight includes over 300 installations including, production platforms, Floating Production Storage and Offloading units, and mobile offshore drilling units. Other legislation is applied offshore on an activity basis. In 1992, the Offshore Installation (Safety Case) Regulations were introduced into the UK sector. These require all fixed and mobile offshore installations operating in UK waters to have a safety case which must be reviewed and approved by the Health and Safety Executive.

Australia

The organization responsible for regulating Australia's oil and gas industry is The National Offshore Petroleum Safety Authority, an independent statutory agency designated under the Commonwealth *Offshore Petroleum and Greenhouse Gas Storage Act 2006*. This organization implements a performance-based regulatory approach. The regulator is responsible for providing assurance that the operators address risks identified by a safety case. The organization includes a joint government inspectorate, and requires third party validations for regulatory assurance. Each manned facility is inspected at least once every year. The inspections are planned and usually take several days. The subject of planned inspections includes both control and management of major equipment and occupational health and safety.

The primary features of the Australian regulatory system are:

- Duties of care: Specific categories of persons (operators, employers, etc.) who are involved in offshore petroleum activities at facilities are required to "take all reasonably practicable steps" to protect the health and safety of the facility workforce and of any other persons who may be affected.
- Consultation provisions: Mechanisms are set out that will enable effective consultation between each facility operator, relevant employers, and the workforce regarding occupational health and safety.
- Powers of inspectors: Inspectors are granted powers to enter offshore facilities or other relevant premises, conduct inspections, interview people, seize evidence and otherwise take action to ensure compliance by parties with legal obligations.
- Standards and best practices are based on a safety case approach, similar to that specified in the UK regulatory system.

Canada

The Canada-Nova Scotia Offshore Petroleum Board (C-NSOPB) and the Canada Newfoundland & Labrador Offshore Petroleum Board (C-NLOPB) are responsible for the regulation of petroleum activities in the Nova Scotia, Newfoundland, and Labrador offshore areas. Their principle responsibilities include ensuring health and safety for offshore workers, protection of the environment, conservation of offshore petroleum resources, compliance with legislative provisions regarding employment and industrial benefits, issuance of licenses for offshore exploration and development, and resource evaluation. Both boards are independent joint agencies of the Government of Canada and their respective provinces. Each work activity proposed in the offshore area related to exploration, drilling, production, conservation, processing, or transportation of petroleum requires the authorization of the responsible board. Assurance mechanisms include board inspections, audits and investigations programs, and industry self inspections. Operators are required to submit reports detailing the status of their work programs on an ongoing basis, along with other documentation to demonstrate compliance with regulatory requirements. The C-NSOPB oversees one operational natural gas project comprised of five production platforms and one 26-inch pipeline. The C-NLOPB oversees three oil projects comprised of Floating Production Storage and Offloading units and one integrated drilling/production accommodation installation.

VI. RECOMMENDATIONS FOR IMMEDIATE ACTION TO IMPROVE OFFSHORE DRILLING SAFETY

The BP Oil Spill demonstrates the possibility of a catastrophic event (or multiple catastrophic failures) and, therefore, the need to ensure that oil and gas development on the Outer Continental Shelf can be conducted safely and that another event like the BP Oil Spill never occurs again.

This 30-day review has of necessity been conducted without the results of the ongoing investigations into the precise causes of the event. A series of other investigations will determine

those causes in the coming months. Nevertheless, this report makes a set of interim recommendations based upon what is known about the equipment, systems, and practices necessary for safe operation. For example, the BP Oil Spill has underscored that as drilling activity moves increasingly into very deep water environments, it is important to reevaluate whether the best practices for safe drilling operations developed over the years need to be bolstered to account for the unique challenges of drilling in deepwater. In addition, the presumed failure of the BOP points to a need to examine standards specifically related to BOP safety.

With that context in mind, the recommendations are designed to address specific policies, practices, and procedures, which the Department has identified as important for workplace and environmental safety, even before completion of the investigation into the event. Many of the near-term recommendations are prescriptive in nature, reflecting the importance of addressing immediate needs while the Department conducts a more comprehensive examination of the entire regulatory program and determines whether additional performance-based standards are necessary.

Implementation of these recommendations is expected to improve safety of offshore drilling operations. In the coming months, these measures will be refined and supplemented based on recommendations from other reviews and investigations, including from continuing work at the Department as described below, from the Joint Investigation and from the independent bipartisan commission established by the President.

Each recommendation below is accompanied by a brief discussion of the context of the recommendations and an explanation of how it will enhance the safety of future OCS drilling activities. Each is also identified with regard to priority of expected implementation. Certain measures are intended for immediate implementation (within the next 30 days), through issuance of either a NTL, internal Departmental guidance, or in the case of a safety and environmental rule, through publication of the final rulemaking.

Other recommendations will be addressed through emergency rulemaking, where appropriate. It is the intent of the Department to issue expeditiously interim final rules to implement these recommendations. Such rules will become effective immediately upon issuance, but will also be opened for public review and comment and may be adjusted after comments are received through the appropriate process.

Finally, several recommendations require further study and, therefore, will be addressed through notice and comment rulemaking. The Department will immediately establish strike teams within the Department to further develop these measures. These strike teams will address the highly technical and complex issues raised and will seek input as appropriate from academia, industry, and other technical experts and stakeholders. The teams will present their recommendations for additional environmental protection and safety measures within six months. Recommendations will be implemented as expeditiously as possible through formal rulemaking. The recommendations from these strike teams may also inform the efforts of the President's new bipartisan National Commission.

A primer on offshore drilling technology and systems describes many of the terms used in the below recommendations (see Appendix 2).

The specific recommendations of the Department follow:

I. Blowout Preventer Equipment and Emergency Systems

BOPs and Emergency Systems: BOPs are used to control the release of oil and gas in the event of loss of well control. Current drilling regulations impose specific requirements addressing BOP systems, including requirements for annular preventers and the primary systems that control those preventers, as well as pipe and blind-shear rams.

Although the regulations do not require specific secondary control systems (back-up systems) including subsea BOP safety systems, which are designed to shut-in the wellbore automatically during emergency events the Department only approves permits for which they are secondary control systems. These safety systems include autoshear and deadman systems. Emergency events could include the loss of communication and power between the surface and the BOP stack or an unplanned disconnect of the marine riser from the BOP stack. In addition, all Gulf of Mexico drilling rigs are currently equipped to use a remote operated vehicle (ROV) to provide secondary control of the subsea BOP stack, and most provide other tertiary control systems as well. The ROV intervention capability is limited on some subsea BOP stacks while others have the ability to control multiple functions.

A. Certification of Subsea BOP Stack

Recommendation 1 – Order Immediate Re-certification of All BOP Equipment Used in New Floating Drilling Operations

Prior to spudding any new well from a floating vessel, the operator will be required to obtain a written and signed certification from an independent third party attesting that, on or after the date of this report, a detailed physical inspection and design review of the BOP has been conducted in accordance with the Original Equipment Manufacturer specifications and that: (i) the BOP will operate as originally designed, and (ii) any modifications or upgrades to the BOP stack conducted after delivery have not compromised the design or operation of the BOP. This certification must be submitted to the Department and made publicly available. Prior to deploying the BOP, the operator must also verify that any modifications or upgrades to the BOP are approved by the Department and that documentation showing that the BOP has been maintained and inspected according to the requirements in 30 CFR 250.446(a) and other applicable standards and is on file with the Department and available for inspection.

Recommendation 2 – Order BOP Equipment Compatibility Verification for Each Floating Vessel and for Each New Well

For each new well, the Department will require, as part of a structured risk management process, the operator to obtain an independent third party verification that:

- The BOP stack is designed for the specific drilling equipment on the rig and for the specific well design including certification that the shear ram is appropriate for the drilling project.
- The BOP stack has not been compromised or damaged from previous service.
- The BOP stack will operate in the water depth in which it will be deployed.

Recommendation 3 – Develop Formal Equipment Certification Requirements

The Department will investigate new certification requirements for BOP equipment and other components of the BOP stack such as control panels, communication pods, accumulator systems, and choke and kill lines. In addition, the Department will develop a system to make BOP certifications publicly available in order to increase transparency and accountability.

B. New Safety Equipment Requirements and Operating Procedures

Recommendation 4 – New Blind Shear Ram Redundancy Requirement

The BOPs used in all floating drilling operations will be required to have two sets of blind shear rams spaced at least four feet apart (to prevent system failure if drill pipe joint or drill tool is across one set of rams during an emergency).

Recommendation 5 –Secondary Control System Requirements and Guidelines

The Department will establish clear requirements for secondary BOP control systems on all subsea BOPs and for systems that address well-control emergencies. These requirements will include:

- ROV intervention capabilities for secondary control of all subsea BOP stacks, including the ability to close all shear and pipe rams, close the choke and kill valves and unlatch the lower marine riser package (LMRP).
- Requirements for an emergency back-up BOP control system, e.g., autoshear, deadman, emergency disconnect system, and/or an acoustic activation system that is powered by a separate and independent accumulator bank with sufficient capacity to open and close one annular-type preventer and all ram-type preventers, including the blind shear ram.
- Guidelines for arming and disarming the secondary BOP control system.
- Requirements for documentation of BOP maintenance and repair (including any modifications to the BOP stack and control systems).

Recommendation 6 –New ROV Operating Capabilities

The Department will develop requirements for ROV operating capabilities including the following:

- Standardized intervention ports for all subsea BOP stacks to ensure compatibility with any available ROV.
- Visible mechanical indicator or redundant telemetry channel for BOP rams to give positive indication of proper functioning (e.g., a position indicator).
- ROV testing requirements, including subsea function testing with external hydraulic supply.
- An ROV interface with dual valves below the lowest ram on the BOP stack to allow well-killing operations.

C. New Testing Guidelines and Inspection Procedures

Recommendation 7 – Develop New Testing Requirements

The Department will develop surface and subsea testing of ROV and BOP stack capabilities. These will include:

- Surface and subsea function and pressure testing requirements to ensure full operability of all functions (emergency disconnect of the LMRP and loss of communication with the surface control pods (e.g., electric and hydraulic power)).
- Third party verification that blind-shear rams will function and are capable of shearing the drill pipe that is in use on the rig.
- ROV performance standards, including surface and subsea function testing of ROV intervention ports and ROV pumps, to ensure that the ROV can close all shear and pipe rams, close the choke and kill valves, and unlatch the LMRP.
- Protocols for function testing autoshear, deadman, emergency disconnect systems, and acoustic activation systems.
- Mandatory inspection and testing of BOP stack if any components are used in an emergency (e.g., use of pipe or casing shear rams or circulating out a well kick). This testing must involve a full pressure test of the BOP after the situation is fully controlled, with the BOP on the wellhead.

Recommendation 8 – Develop New Inspection Procedures and Reporting Requirements

- The Department will evaluate and revise the manner in which it conducts its drilling inspections. Revised drilling inspections will include the witnessing of actual tests of BOP equipment, including the new requirements and guidance that address the surface and subsea testing of ROV and BOP stack capabilities. The Department will also develop methods to increase transparency and public availability of the results of inspections as well as routine reporting. The Department will work with Congress to obtain the necessary resources to implement these recommendations.
- Within 15 days of the date of this report, all operators of floating drilling equipment will report to the Department the following: (i) BOP and well control system configuration; (ii) BOP and well control system test results, including any anomalies in testing or operation of critical BOP components; (iii) BOP and loss of well control events; and (iv) BOP and well control system downtime for the last three years of drilling operations.
- The electronic log from the BOP control system must be transmitted online to a secure location onshore and made available for inspection by the Department.

II. Procedures to Ensure Adequate Physical Barriers and Well Control Systems are in Place to Prevent Oil and Gas from Escaping into the Environment

Minimizing Risk of Uncontrolled Flow: A well creates a conduit for subsurface formations to potentially flow uncontrolled to the surface. There are multiple methods that can be utilized to minimize the risk of the occurrence of uncontrolled flow. Those methods include the installation of rigid physical barriers such as cement plugs or mechanical plugs, well casing design and securing of the casing, and well control equipment. An appropriate well safety program must account for many factors unique to the drill location and dictates the installation of plugs and casing at strategic points to maintain well control and to enable drilling to the desired depth. Current Department regulations require that well-control equipment be in place at all times during the drilling operation to mitigate against failure of a plug or casing. Other, more specific standards may be appropriate to improve physical barriers and well-control systems. Well-control procedures must be revisited for deepwater operations because of the complexity of the equipment design in deepwater and the location of the BOP stack on the seafloor. Enhanced training for rig personnel will complement new well-control requirements.

A. Well-Control Guidelines and Fluid Displacement Procedures

Recommendation 1 – Establish Deepwater Well-Control Procedure Guidelines

As expeditiously as possible, the Department will establish new requirements for deepwater well-control procedures no later than 120 days of the date of this report.

Recommendation 2 – New Fluid Displacement Procedures

Prior to displacement of kill-weight drilling fluid from the wellbore, the operator must independently verify that:

- The BOPs are closed during displacement to underbalanced fluid columns to prevent gas entry into the riser should a seal failure occur during displacement.
- Two independent barriers, including one mechanical barrier, are in place for each flow path (i.e., casing and annulus), except that a single barrier is allowable between the top of the wellhead housing and the top of the BOP.
- If the shoe track (the cement plug and check valves that remain inside the bottom of casing after cementing) is to be used as one of these barriers, it is negatively pressure tested prior to the setting of the subsequent casing barrier. A negative pressure test must also be performed prior to setting the surface plug.
- Negative pressure tests are made to a differential pressure equal to or greater than the anticipated pressure after displacement. Each casing barrier is positively tested to a pressure that exceeds the highest estimated integrity of the casing shoes below the barrier.
- Displacement of the riser and casing to fluid columns that are underbalanced to the formation pressure in the wellbore is conducted in separate operations. In both cases, BOPs must be closed on the drill string and circulation established through the choke line to isolate the riser, which is not a rated barrier. During displacement, volumes in and out must be accurately monitored.
- Drill pipe components positioned in the shear rams during displacement must be capable of being sheared by the blind-shear rams in the BOP stack.

B. Well Design and Construction

1. Requirements for Both Casing and Cementing

Recommendation 3 – New Casing and Cement Design Requirements: Two Independent Tested Barriers

Before spudding any new floating drilling operation, all well casing and cement designs must be certified by a Professional Engineer, who verifies that there will be at least two independent tested barriers, including one mechanical barrier, across each flow path during well completion and abandonment activities and that the casing design is appropriate for the purpose for which it is intended under reasonably expected wellbore conditions.

Recommendation 4 – Study Formal Personnel Training Requirements for Casing and Cementing Operations

The Department will immediately establish a technical workgroup to evaluate new training and certification requirements for rig personnel specifically related to casing and cementing operations.

2. Casing Requirements

Recommendation 5 – New Casing Installation Procedures

The Department will ensure the requirement of the following BAST practices:

- Casing hanger latching mechanisms or lock down mechanisms must be engaged at the time the casing is installed in the subsea wellhead.
- For the final casing string, the operator must verify the installation of dual mechanical barriers (e.g., dual floats or one float and a mechanical plug) in addition to cement, to prevent flow in the event of a failure in the cement.

Recommendation 6 – Develop Additional Requirements or Guidelines for Casing Installation

The Department will establish specific requirements for the following procedures and practices:

- Positive and negative test procedures and use of test results for evaluation of casing integrity.
- Use of float valves and other mechanical plugs in the final casing string or liner.

3. Cementing Requirements

Recommendation 7 – Enforce Tighter Primary Cementing Practices

- The Department will institute a rulemaking address previously identified gaps in primary cementing practices).
- The Department, with input from independent experts will determine specific cementing requirements.

Recommendation 8 – Develop Additional Requirements or Guidelines for Evaluation of Cement Integrity

The Department will immediately evaluate whether and under what circumstances the use of cement bond logs is feasible and practical and will increase safety.

Discussion of Recommendations 3-8

Recommendations 3-8 are intended to result in better well control. Requiring a Professional Engineer to review and certify the well design will add another level of review to the current well design requirements. The Department's review new training requirements for casing and cementing operations helps focus industry and rig personnel on the importance of proper casing and cementing operations. Additional operational requirements for casing installation and cementing operations will add new assurances that adequate barriers are in place before continuing on to new drilling activities. Incorporation of the new cementing standard will bring all of industry up to state-of-art cementing practices—this means less chance of a well blowout due to a poor cement job.

C. Wild-Well Intervention

Recommendation 9 – Increase Federal Government Wild-Well Intervention Capabilities

Blown out, or “wild” wells, involve the uncontrolled release of crude oil or natural gas from an oil well where pressure control systems have failed. The Federal Government must develop a plan to increase its capabilities for direct wild-well intervention to be better prepared for future emergencies, particularly in deepwater. Development of the plan should consider existing methods to stop a blowout and handle escaping wellbore fluids, including but not limited to coffer dams, highly-capable ROVs, portable hydraulic line hook-ups, and pressure-reading tools, as well as appropriate sources of funding for such capabilities.

Recommendation 10 – Study Innovative Wild-Well Intervention, Response Techniques, and Response Planning

The Department will investigate new methods to stop a blowout and handle escaping wellbore fluids. A technical workgroup will take a fresh look at how to deal with a deepwater blowout. In particular, the workgroup will evaluate new, faster ways of stopping blowouts in deepwater. The technical workgroup will also address operators' responsibility, on a regional or industry-wide basis, to develop and procure a response package for deepwater events, to include diagnostic and measurement equipment, pre-fabricated systems for deepwater oil capture, logistical and communications support, and plans and concepts of operations that can be deployed in the event of an unanticipated blowout, as well as assess and certify potential options (e.g., deepwater dispersant injection).

III. Organizational and Safety Management

A. Increased Enforcement of Existing Safety Regulations and Procedures

Enforcing Existing Regulations: Immediately following the BP Oil Spill, the MMS and the U.S. Coast Guard issued a joint Safety Alert to compel operators and drilling contractors to inspect their drilling equipment (both surface and subsea), review their procedures to ensure the safety of personnel and protection of the environment, and review all emergency shutdown and dynamic positioning procedures. Inspections began immediately to verify that all active

deepwater drilling activities complied with these recommendations and all other regulations. Following the completion of the drilling inspections, inspections of all deepwater production facilities began immediately to ensure compliance by those facilities with the regulations. Reconfirmation of adherence to this Safety Alert and all existing regulations will heighten safety awareness.

Recommendation 1 – Compliance Verification for Existing Regulations and April 30, 2010, National Safety Alert

Within 30 days of the date of this report, the Department, in conjunction with the Department of Homeland Security, verify compliance by operators with existing regulations and National Safety Alert (issued April 30, 2010), which issued the following safety recommendations to operators and drilling contractors:

- Examine all well-control equipment (both surface and subsea) currently being used to ensure that it has been properly maintained and is capable of shutting in the well during emergency operations. Ensure that the ROV hot-stabs are function-tested and are capable of actuating the BOP.
- Review all rig drilling/casing/completion practices to ensure that well-control contingencies are not compromised at any point while the BOP is installed on the wellhead.
- Review all emergency shutdown and dynamic positioning procedures that interface with emergency well control operations.
- Inspect lifesaving and firefighting equipment for compliance with Federal requirements.
- Ensure that all crew members are familiar with emergency/firefighting equipment, as well as participate in an abandon ship drill. Operators are reminded that the review of emergency equipment and drills must be conducted after each crew change out.
- Exercise emergency power equipment to ensure proper operation.
- Ensure that all personnel involved in well operations are properly trained and capable of performing their tasks under both normal drilling and emergency well-control operations.

After the 30-day compliance period, the Department will provide a public report on operator verification, including any cases of non-compliance.

B. Organizational Management

Organizational Safety Case Documentation: A safety case is a comprehensive and structured set of safety documentation to ensure the safety of a specific vessel or equipment. This documentation is essentially a body of evidence that provides a basis for determining whether a system is adequately safe for a given application in a given environment. In response to the 1988

Piper Alpha disaster in the UK, the Lord Cullen investigation and report advanced the safety case concept for offshore oil and gas operations.

The use of a formal safety case for drilling operations is an important component in regulating drilling activities in many countries. The International Association of Drilling Contractors (IADC) has developed guidelines that can be applied to any drilling unit regardless of geographic location. The use of these guidelines can assist both the operator and regulatory authorities when evaluating a drilling contractor's safety management program by providing them assurance that the program encompasses a series of best industry practices designed to minimize operating risks. The Department will undertake an evaluation of requiring the application of all or part of these guidelines to OCS oil and gas operations.

Recommendation 2 – The Department Will Adopt Safety Case Requirements for Floating Drilling Operations on the OCS

The Department will assure the adoption of appropriate safety case requirements based on IADC Health, Safety and Environmental Case Guidelines for Mobile Offshore Drilling Units (2009), which will include well construction safety assessment prior to approval of APD. This safety case must establish risk assessment and mitigation processes to manage a drilling contractor's controls related to the health, safety, and environmental aspects of their operations. In addition to the safety case, a separate bridging document will be required to connect the safety case to existing well design and construction documents. Such a proposed Well Construction Interfacing Document will include all of the elements in a conventional bridging document plus alignment of the drilling contractor's management of change (MOC) and risk assessment to the lease operator's MOC and well execution risk assessments. The use of the IADC's Health, Safety, and Environmental Case Guidelines for Mobile Offshore Drilling Units will help operators and drilling contractors demonstrate their ability to operate safely and handle the risks associated with drilling on the OCS.

C. Personnel Accountability Procedures for Operational Safety (Risk, Injury, and Spill Prevention)

Recommendation 3 – Finalize a Rule that Would Require Operators to Develop a Robust Safety and Environmental Management System for Offshore Drilling Operations

Department investigation findings and reports indicate that unsafe offshore drilling operations often result from human error. The Department is proceeding with the rulemaking process to finalize a regulation to require operators on the OCS to adopt a comprehensive, systems-based approach to safety and environmental management that incorporates best practices from around the globe. The Department believes that requiring operators to implement robust and comprehensive safety and environmental management plans could reduce the risk and number of injuries and spills during OCS activities. The Department will finalize a rule that is informed by current operational conditions in the Gulf and the events and related investigation surrounding the BP Oil Spill.

Recommendation 4 – Study Additional Safety Training and Certification Requirements

The Department will immediately establish a workgroup to investigate safety training requirements for floating drilling rig personnel and possible requirements for independent or more frequent certification and testing of personnel and safety systems.

- Establish an oil production safety program or institute similar to U.S. Nuclear Regulatory Commission (NRC) reactor safety program.
- Establish a formalized analytical methodology to assess performance of safety systems in the event of multiple component failure or excursions outside normal environmental ranges.
- Strengthen technical support to the Department and other regulatory authorities, including the resources necessary to obtain independent technical review of regulations and standards.
- Charter a longer-term technical review of BOP equipment and emergency backup system reliability.
- Review and adopt as appropriate best practices from other agencies with similar responsibility for safety regulation of technically complex systems (e.g., Federal Aviation Administration, NRC, Chemical Safety Board, and National Transportation Safety Board).

VII. CONCLUSION

The Department developed these recommendations with input and suggestions from experts from across the field and reviewed by members of the National Academy of Engineering. The Department has presented new requirements for well design, construction and operation and for the quality and sufficient redundancy of fail-safes, so as to promote better well control and ensure the efficacy of the BOPs. The Secretary of the Interior has directed the Department to develop measures to increase the frequency, thoroughness, and transparency of inspections, such as for testing of BOPs and associated back-up systems. The Secretary has also directed the Department to look at innovative ways of promoting a greater culture of safety through a new rule that would require all rig operators to develop enhanced operational, safety, and environmental management plans, which would include more extensive worker training to enable them to adapt and respond effectively to events when something unexpected happens on a drilling rig.

The Department's approach to implementing these recommendations will follow a continuum from near-term prescriptive regulations, which are required to increase immediately the margin of safety in offshore oil and gas development, to longer-term actions designed to facilitate an environment where the absolute highest standard of performance is demanded of industry. This approach puts the onus on industry to perform safely, with the Government focusing on aggressive verification and enforcement. The majority of the specific recommendations

contained in this report fall within the category of near-term prescriptive actions necessary to increase offshore energy production safety immediately.

At the same time, the Secretary has directed a fundamental restructuring of the MMS to bring greater clarity to the roles and responsibilities of the Department while strengthening oversight of the companies that develop energy in our Nation's waters. This restructuring, the latest in a series of reforms to the MMS that the Secretary began in January 2009, will establish:

- **Bureau of Ocean Energy Management:** A new bureau under the supervision of the Assistant Secretary for Land and Minerals Management that will be responsible for the sustainable development of OCS conventional and renewable energy resources, including resource evaluation, planning, and other activities related to leasing.
- **Bureau of Safety and Environmental Enforcement:** A bureau under the supervision of the Assistant Secretary for Land and Minerals Management that will be responsible for ensuring comprehensive oversight, safety, and environmental protection in all offshore energy activities.
- **Office of Natural Resources Revenue:** An office under the supervision of the Assistant Secretary for Policy, Management and Budget that will be responsible for the royalty and revenue management function including the collection and distribution of revenue, auditing and compliance, and asset management.

Another critical part of the ongoing effort to reform the MMS began in September 2009 when the Secretary asked the National Marine Board, an arm of the highly respected National Academy of Sciences, to direct an independent review of MMS's inspection program for offshore facilities. That review is on-going.

The Secretary is committed to implementing the changes recommended in this report at the same time this and other reviews are ongoing and at the same time that the Department undertakes fundamental change in its OCS oversight. The Secretary established by Secretarial Order 3298 the OCS Safety Oversight Board. The OCS Safety Oversight Board is a high-level team, led by the Assistant Secretary for Land and Minerals Management, the Assistant Secretary for Policy, Management and Budget, and the Inspector General, that reviews and oversees OCS operations to support reasoned and fact-based recommendations for potential improvements.

The success of the Department's longer-term objective of creating a more dynamic and effective regulatory environment for offshore energy production overall is very much the focus of the efforts to restructure the MMS. Specifically, the persons responsible for designing the new Bureau of Safety and Environmental Enforcement have been tasked to create a structure, operational processes, and culture that supports both the longer-term recommendations contained in this report, as well as a continuously evolving set of additional policies and practices that provide the highest assurance of safety in offshore energy operations.

As the Presidential Commission completes its review and as the Department and the U.S. Coast Guard finish the root cause investigation, the Department will know more and will respond

accordingly. The measures contained in this report will increase the safety in offshore oil and gas development, but represent only the beginning of the Department's work.

Appendix 1: Expert Consultations

The Department consulted with a wide range of experts in state and Federal governments, academic institutions, and industry and advocacy organizations. In addition, draft recommendations were peer reviewed by seven experts identified by the National Academy of Engineering.

Expert Reviewers of the National Academy of Engineering

- **Bea, Robert** holds a Bachelor of Science in Civil Engineering and a Master of Science in Engineering both from the University of Florida. Dr. Bea has done post-graduate studies at Tulane University, Rice University, Texas A&M University, Bakersfield College, University of Houston, and the Technical and Scientific University of Norway. Dr. Bea received a PhD from the University of Western Australia. He is a registered Professional Civil Engineer (retired) in Louisiana, Texas, Florida, Alaska, Washington, Oregon and California. He is a registered Professional Geotechnical Engineer (retired) in California. He is a member of the American Society of Civil Engineers, the American Society of Mechanical Engineers, and the National Academy of Engineering. Dr. Bea has 55 years of experience in engineering and management of design, construction, maintenance, operation and decommissioning engineered systems, including offshore platforms, pipelines and floating facilities. Dr. Bea has worked for the U.S. Army Corp of Engineers, Shell Oil Company, the Ocean Services Division of Woodward-Clyde Consultants, PMB Engineering – Bechtel Inc., and the University of California at Berkeley where he is currently a professor. In 2009, he was honored by the Offshore Technology Hall of Fame.
- **Brett, Ford** holds a Bachelor of Science in mechanical engineering and physics from Duke University as well as a Master of Science in Engineering from Stanford University and a Masters of Business Administration from Oklahoma State University. Mr. Brett is recognized as a leader in the area of Petroleum Project Management. He has consulted more than 25 countries in the area of petroleum project and process management. Formerly, Mr. Brett worked with Amoco Production Company where he specialized in drilling projects in the Bering Sea, North Slope of Alaska, Gulf of Mexico, offshore Trinidad and Wyoming. In 1996, Mr. Brett was nominated for the National Medal of Technology, the U.S. Government's highest technology award. Mr. Brett has been granted over 25 U.S. patents.
- **Baugh, Benton** holds a Bachelor of Science in Mechanical Engineering from the University of Houston; a Master of Science in Mechanical Engineering and PhD in Mechanical Engineering from Kennedy Western University. Additionally, Dr. Baugh graduated from the Army Machinist School. Dr. Baugh has been employed by Bowen, Camco, Cameron, Vetco, Brown Oil Tools, and Baugh Consulting Engineers. Dr. Baugh is the owner and President of Radoil, Inc., which designs and manufactures oilfield and subsea products. Dr. Baugh has received over 100 U.S. patents for his tool and solution designs, consulting and management. Dr. Baugh has over 50 years of oilfield machine design, manufacturing, management, consulting, and expert witness experience.

- **Chenevert, Martin** holds a Bachelor of Science in Petroleum Engineering from Louisiana State University as well as a Master of Science in Petroleum Engineering and a Doctor of Philosophy in Petroleum Engineering, both from the University of Texas at Austin. Dr. Chenevert has over ten years of industrial experience with Exxon Production Research and Exxon USA and over 30 years of teaching experience from Oklahoma State University, the University of Houston, and the University of Texas. Dr. Chenevert has published over 120 articles on well control, wellbore stability, rock mechanics, drilling fluids, and cementing.
- **Holand, Per** graduated from Norwegian University of Science and Technology in 1982 with a Master of Science in Mechanical Engineering. He has 18 years experience from safety and reliability engineering at SINTEF, prior to joining ExproSoft on May 1, 2001. His main work focus in SINTEF and ExproSoft has been on the reliability of drilling equipment, offshore blowout experience, subsea and well reliability analyses. Dr. Holand carried out numerous subsea BOP reliability studies on behalf of clients in Norway, Brazil, the United States, and Italy. Since 1990 he has been responsible for maintaining the SINTEF Offshore Blowout Database, which serves as the key information in connection with blowout risk analyses in the North Sea area. Dr. Holand holds a PhD (1996) in safety and reliability engineering from the Norwegian University of Science and Technology in Trondheim, Norway. His PhD was later reworked and published as a book at the Gulf Publishing Company in 1997 (Title: Offshore Blowouts, Causes and Control).
- **Juvkam-Wold, Hans** holds a Bachelor of Science, Master of Science, and a Doctor of Science in Mechanical Engineering from the Massachusetts Institute of Technology. His area of expertise is buckling of tubular in horizontal drilling, well control, Arctic and offshore drilling, and dual-gradient drilling in ultra-deep water. Dr. Juvkam-Wold is a Registered Professional Engineer in Texas. Prior to his 24 years of teaching drilling experience at the University of Texas A&M, Dr. Juvkam-Wold has 20 additional years of oil industry experience: Juvkam-Wold has served as a Consultant for the National Institute of Standards & Technology; Frontier and Offshore Technology Co.; Western Irrigation Supply House; Oil & Gas Consultants Inc.; Ocean Drilling Program; Unocal E&P. He has served as the Gulf Mineral Resources Company's Representative on the industry's advisory committee on mine shaft drilling as well as manager of technical services and section supervisor of production engineering. Dr. Juvkam-Wold joined Texas A&M in 1985 with his main area of teaching and research in drilling; he is now a Professor Emeritus of Petroleum Engineering. Dr. Juvkam-Wold holds seven drill-related U.S. patents.
- **Stancell, Arnold** holds a Doctor of Science in Chemical Engineering from the Massachusetts Institute of Technology. Dr. Stancell is the retired Vice president of Mobil Oil, Exploration and Production, and Professor Emeritus, Chemical Engineering, Georgia Tech. Dr. Stancell was awarded nine U.S. patents and was inducted into the National Academy of Engineering and received the AIChE's National Award in Chemical

Engineering Practice. He is a licensed Professional Engineer in New York and Connecticut.

Other Experts Consultations

- **Arnold, Ken** holds a Bachelor of Science in Civil Engineering from Cornell University and a Master of Science in Civil Engineering from Tulane University. Mr. Arnold is currently a registered Professional Engineer in the State of Texas, is a member of the Marine Board of the National Research Council, Society of Petroleum Engineers, the Texas Society of Professional Engineers, was elected to the National Academy of Engineers in 2005 due to his work on offshore safety and is a member of the Academy of Medicine, Engineering and Science of Texas.
- **Danenberger, Elmer "Bud"** holds a Bachelor of Science degree in Petroleum and Natural Gas Engineering and a Master's degree in Environmental Pollution Control, both from Pennsylvania State University. After a 38-year career, Mr. Danenberger retired from the Department of the Interior's offshore oil and gas program in January 2010. During his career, Mr. Danenberger served as a staff engineer in the Gulf of Mexico regional office, Chief of the Technical Advisory Section at the headquarters office of the U.S. Geological Survey, District Supervisor for several MMS offices, and Chief of the Engineering and Operations Division at MMS Headquarters. For the last five years of his tenure at the Department, he served as Chief, Offshore Regulating Programs with responsibilities for safety and pollution prevention research, investigations, regulations and standards, and inspection and enforcement programs.
- **Epstein, Lois** holds a Bachelor of Science in Mechanical Engineering from Massachusetts Institute of Technology and a Master of Science in Mechanical Engineering from Stanford University. Ms. Epstein is currently a licensed engineer in Maryland. Ms. Epstein is a former Senior Engineer, Cook Inlet Keeper. Ms. Epstein is the President of LNE Engineering and Policy, which provides technical and policy consultant to non-profit organizations on oil/gas issues. Ms. Epstein was a public member of the Office of Pipeline Safety Federal Advisory Committee on Hazardous Liquid Pipelines from 1995 through 2007.
- **O'Reilly, David J.** is the retired Chairman and Chief Executive Officer of Chevron Corporation. Mr. O'Reilly is a native of Dublin, Ireland, where he earned his Bachelor's degree in Chemical Engineering from the University College, Dublin. Mr. O'Reilly started as a process engineer with Chevron Research Co in 1968 and after several decades and earning positions of increasing responsibility he was elected Senior Vice President and Chief Operating Officer of Chevron Chemical Company in 1989. Mr. O'Reilly was named Chairman and Chief Executive Office of Chevron Corporation on January 1, 2000, and he held that position until his retirement on December 31, 2009. Mr. O'Reilly is the Vice Chairman of the National Petroleum Council. He is a director of Bechtel Group, Inc., a member of The Business Council, the World Economic Forum's International Business Council, and the American Society of Corporate Executives. He also serves on the San Francisco Symphony Board of Governors.

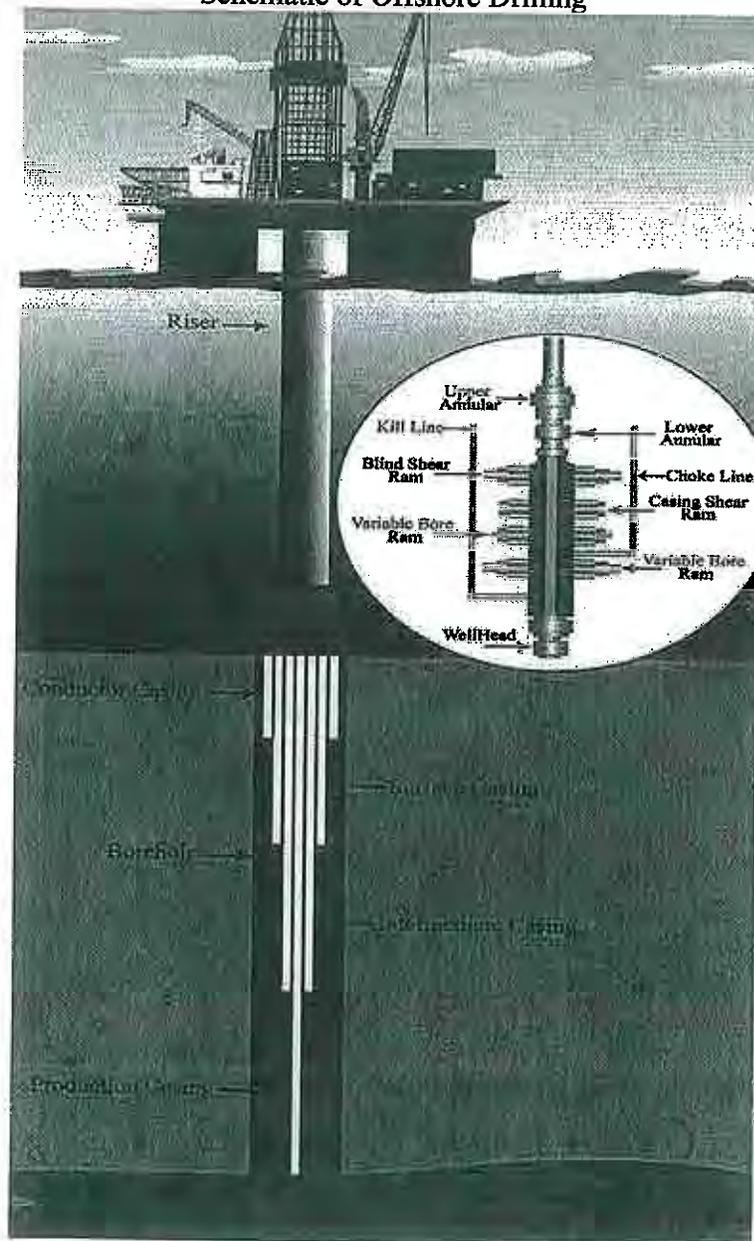
- **Regg, Jim** holds a Bachelor of Science in Petroleum and Natural Gas Engineering from Pennsylvania State University as well as a Bachelor of Art in Math/Science from Edinboro State University. Mr. Regg worked for the Minerals Management Service Field Operations for almost 20 years where his primary focus was technology assessment. Currently Mr. Regg is a Senior Petroleum Engineer for the Alaska Oil & Gas Conservation Commission where he is responsible for managing the compliance inspection program (including investigations and enforcement); well integrity and regulation development.
- **Ward, E.G. "Skip"** holds a Bachelor of Science in Mechanical Engineering from Lamar University and a Master's and Doctorate in Mechanical Engineering from the University of Houston. Dr. Ward spent 30 years with Shell Oil Co. beginning in Shell Development's E&P Research Division in 1968 as a researcher. From 1981 to 1985, he supervised the Oceanographic Engineering section. From 1985 through 1994, he managed the Offshore Engineering Research Department. In 1994, Dr. Ward became the technology manager of Shell Offshore Inc's Deepwater Division where he was responsible for a group that designed deepwater structures and developed new structural concepts and components for deepwater production systems. Dr. Ward has been a member of the American Petroleum Institute since 1976 and received API's 30+ Years of Service Recognition Award in 2006. Dr. Ward served on the Marine Board of the National Academies for nine years. Dr. Ward is currently the Associate Director of the Texas Engineering Experiment Station's Offshore Technology Research Center.
- **West, Robin** is the current Chairman, Founder, and Chief Executive Officer of PFC Energy where he advises chief executives of leading international oil and gas companies and national oil companies on corporate strategy, portfolio management, acquisitions, divestitures, and investor relations. Before founding PFC Energy in 1984, Mr. West was the Assistant Secretary of Policy, Management and Budget at the Department of the Interior from 1981 through 1983. While there, he conceived of and implemented the Outer Continental Shelf Leasing Schedule and managed the \$14 billion per year OCS budget policy. Mr. West also served as the Deputy Assistant Secretary of Defense for International Economic Affairs during the Ford Administration. Mr. West has served on several boards and commissions including a Presidential appointment to the National Advisory Committee on Oceans and Atmosphere in 1977. Mr. West is also a member of the National Petroleum Council; Director of the Magellan Petroleum Corporation; Director of Key Energy Services, Inc and Director of Cheniere Energy. He earned his Bachelor of Arts from the University of North Carolina at Chapel Hill and a Juris Doctorate from Temple University.
- **Williams, Tom** has been in the energy business for over 28 years. He is currently the Managing Director of Nautilus International LLC. Mr. Williams served as President of Maurer Technology Inc, a leading drilling research and development and engineering technology company. From 1993 through 2000, he was Business Director at Westport Technology Center, a leading upstream oil and gas research company. Mr. Williams held senior executive positions at the Departments of the Interior and Energy during the Bush

Administration from 1989 through 1993. He owned and operated an oil and gas exploration, production and consulting company prior to joining the Department of Energy. Mr. Williams is currently on the Board of Directors of Far East Energy Corporation, a public oil and gas company with operations in China; Board of Directors of Petris Technology, Inc, TerraPlatforms LLC; The Research Partnership to Restore Energy for America; The Contributor Committee Co-Chair of DeepStar Consortium; The Society of Petroleum Engineers; The Independent Petroleum Association of America; The International Association of Drilling Contractors; the American Association of Drilling Engineers. Mr. Williams' Environmentally Friendly Drilling Project was awarded the Environmental Stewardship Award by the Interstate Oil and Gas Compact Commission in May of 2010.

Appendix 2: Brief Primer on Offshore Drilling Technology and Systems

The process for an offshore oil and gas exploratory well begins by positioning a drill rig above the intended leasing tract for exploration (see Figure A1).

Figure A1
Schematic of Offshore Drilling



Source: Minerals Management Service Database, 2010.

The rig lowers drill pipe (also known as a drill string) with a drill bit attached to its end to the seafloor where it commences to drill. The borehole created by the drill is then set with casing.

At the seafloor, conductor casing is normally set to stabilize the soft sediments at the top of the borehole to ensure that continued drilling does not precipitate a borehole collapse. Once the conductor is in place, the drill rig lowers to the seafloor a marine riser (a large pipe that surrounds the drill pipe) that connects the conductor casing to the drill rig. As drilling proceeds, a blowout preventer (BOP) is lowered to the seafloor and sits atop the wellhead.

As drilling progresses with depth, additional casings (sections of pipe) that are slightly narrower in diameter than the hole created by the drill bit are inserted into the borehole and bonded into place by "cement." This process ensures that the borehole does not collapse on itself, and it isolates the borehole from any pockets of gas or water in the strata that the borehole passes through. A series of casings of equal diameter that are connected together and run down the borehole is a "string" and a string may be hundreds to thousands of feet long with a threaded connector between each 30-foot segment of casing. Deeper into the borehole, narrower casings are inserted one into the other resulting in strings of casing that are enclosed and cemented into the previous, slightly wider-diameter string of casing. The outermost casing can be up to four feet in diameter with the innermost string of casing less than six inches in diameter in some cases. The initial and final casing diameters, the types of casing, and type of cement used are determined by the profile (depth, temperature, pressure, etc.) of the well being drilled. Once the well is in production, the hydrocarbons will come to the surface through the production casing that is run down through the middle of the narrowest casing string.

During the process of drilling, drill fluid, referred to as "mud," is pumped down the drill pipe through drill bit nozzles. The mud's primary function is maintaining "well control," but it also cools the drill bit and carries the drill cuttings away from the bottom of the borehole and returns to the surface through the space (the annulus) between the drill pipe and the walls of the casing strings. To maintain well control, the pressure created by the weight of the mud in the drill pipe and annulus must be maintained equal to or greater than the pressures encountered in the borehole. Various indicators of well pressure measures allow the mud engineer on the rig to maintain the well bore fluid pressure equal to or slightly greater than the pressures from the deepest formation. This type of pressure balance is called overbalanced.

The pockets of oil, gas, or water that are encountered in porous layers during the drilling process can suddenly push the mud through the annulus with considerable pressure—what is referred to as a "kick." When a kick occurs there are various bypass mechanisms, such as diverters and BOPs, to shunt the pressure away from the well bore (diverter) or prevent the pressure from rising to the ocean surface (BOP), thereby maintaining well control. If a kick overwhelms the control mechanisms, a blowout can occur.

A BOP consists of a series of ram and annular preventers that sits atop the wellhead and connects to one of the outermost casing strings, allowing the narrower casing strings and drill pipe to be lowered down the borehole through the center of the BOP. In the event of significant loss of well control, one or more of the preventers can be activated from the drill rig. The annular preventer is typically the first to be utilized when an influx from a formation is experienced, but is not usually used with pressures above 3,500 pounds per square inch (psi). The pipe (variable bore) rams are utilized for pressures above 3,500 psi. A pipe ram and/or annular preventer will be closed around the drill pipe shutting off the upward movement of mud and pressure through

the annulus between the drill pipe and the casing string. A blind-shear ram can be used to cut through the entire drill pipe and seal the borehole. In the event that activation from the drill rig fails, BOPs may have one or more back-up means for activating the rams. Remote operated vehicles (ROVs) can trigger closure of the rams working at the BOP. Other redundant control systems include "acoustic switch" technology which can activate the BOP with an acoustic signal from the rig through the water. Another device called a "deadman" switch automatically closes rams if the BOP loses connection electronic or hydraulic communication with the drill rig for any reason.

The BOPs are a hydraulically activated device. The hydraulics are supplied by the accumulator system located on the rig through lines that run down the riser and connect to the BOP. The BOP contains control devices called pods which are blue and yellow. The hydraulic fluid is distributed by the pod to the desired components of the BOP. The communication system to the pod may either be a pilot hydraulic system or an electro-hydraulic system. The pilot hydraulic system uses hydraulic pressure to function the pod and the electro-hydraulic system uses electrical signals to communicate with the pod. All commands for the system are sent from the control panel on the rig. The subsea BOP also contains pre-charged bottles that provide hydraulic fluid to activate the BOP's auto shear or deadman devices in the event of disconnects. The BOP is also equipped with an ROV "hot stab" panel that allows the hydraulic line(s) from the accumulator system to be isolated in order for the ROV to "stab" in a separate control line and directly pump into the BOP to function the rams via a pump mounted on the ROV. The panel for the ROV to "stab" into may be capable of activating all rams or only designated ram(s).



THE SECRETARY OF THE INTERIOR
WASHINGTON

NOV 09 2010

Ms. Mary Kendall
Acting Inspector General
Department of the Interior
Washington, DC 20240

Dear Ms. Kendall:

Thank you for your investigation and report regarding the development of the *30-Day Safety Report to the President*, and the separate decision I made to place a temporary moratorium on offshore drilling. Your report, which examines the allegation that the Department misrepresented that the moratorium was reviewed and supported by a group of scientists and industry experts, confirms that there was no wrongdoing or intent to mislead the public.

From day one we have been focused – and will remain focused – on enhancing the safety of offshore oil and gas exploration and development. The safety recommendations contained in the *May 27, 2010, 30-Day Safety Report to the President* are the foundation of reforms we have undertaken to enhance safety on the Outer Continental Shelf in recent months. Those safety recommendations, which were peer reviewed by a group of outside experts, are being implemented through new regulations, notices to lessees, and other means.

Separate and apart from the outside experts reviewing the *30-Day Safety Report to the President*, I made the policy decision that – in light of the Deepwater Horizon oil spill that was ongoing at the time, the availability of spill response resources in the event of a second spill, and a number of other factors – a temporary moratorium on deepwater drilling was necessary to protect the safety of Gulf Coast communities and the environment. I issued a second temporary moratorium on deepwater drilling on July 12, 2010. In retrospect, both decisions to place a pause on deepwater drilling were appropriate and necessary in light of the risks at that time. As you know, I have since lifted the moratorium on deepwater drilling because the Macondo well has been killed, oil spill response resources are available again, and we have made significant progress in improving the safety of offshore drilling.

Again, I appreciate your thorough review of the development of the *30-Day Safety Report to the President*.

Sincerely,

A handwritten signature in black ink that reads "Ken Salazar".

Ken Salazar

Gary, Art

From: Gary, Art
Sent: Friday, September 24, 2010 4:35 PM
To: Delaplaine, Bruce
Subject: OIG Sep 1, 2010 Letter Response
Attachments: RE: POTUS Briefing Memo Template; Fw: Docs; 30-day report; Final 30-day report; RE: Docs; RE: Version 1 of report; FINAL 30-DAY SAFETY REPORT

Bruce – as we discussed I am forwarding electronically the emails from Steve Black and Neal Kemkar that are responsive to the September 1 request letter from Harry Humbert to Steve Black. Steve forwarded them to the Solicitor's Office for review for potential privileges and FOIA exemptions.

We have concluded that all of these communications and attachments are subject to the deliberative process and presidential communications privileges. Together, these privileges attach to the documents in their entirety. The Department would assert these privileges and withhold these documents from disclosure under exemption 5 of the Freedom of Information Act, discovery in litigation, etc. In providing this information to OIG in cooperation with OIG's investigative responsibilities, we expressly do not waive any litigation privileges or exemptions from disclosure that are attached to the documents. We request that OIG treat information derived from its review as confidential and take all reasonable steps to ensure preservation of the Federal Government's litigation privileges. In accordance with the protocol we have developed with your office, if OIG proposes to disclose any portions of the emails or their attachments outside of DOI, we request the opportunity to meet with you or appropriate OIG staff to discuss the Department's interest in asserting these privileges to the particular information you would propose to disclose.

At your request, I would be happy to share my research and more detailed analysis regarding the applicability of these privileges.

Please let me know if I can assist you further in this inquiry. I will send the paper copies on Monday.

Thanks

Art

Arthur E. Gary
Deputy Solicitor
U.S. Department of the Interior
(202) 208-4423
(202) 208-5584 (Fax)

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OFFICE OF
INSPECTOR GENERAL
U.S. DEPARTMENT OF THE INTERIOR

NOV 09 2010

Memorandum

To: Secretary Salazar

From: Mary L. Kendall 
Acting Inspector General

Subject: Report of Investigation – Federal Moratorium on Deepwater Drilling
Case No. PI-PI-10-0562-I

The Office of Inspector General (OIG) completed its investigation into the allegation that senior U.S. Department of the Interior (DOI) officials, in an effort to help justify their decision to impose a 6-month moratorium on deepwater drilling in the Gulf of Mexico, misrepresented that the moratorium was reviewed and supported by a group of scientists and industry experts.

The scientists and industry experts who peer reviewed the safety recommendations contained in the 30-Day Report to the President, relative to deepwater drilling operations in the Outer Continental Shelf, expressed concern that the Executive Summary to the 30-Day Report – which contained a policy decision by the Secretary of the Interior to recommend a 6-month moratorium on deepwater exploratory drilling – was worded in a manner that implied that the experts had also peer reviewed and supported this policy decision.

All DOI officials interviewed stated that it was not their intention to imply that the moratorium had been peer reviewed by the experts, and that when the experts' concern was brought to their attention, they promptly issued an apology to the experts via conference call, letter, and personal meeting.

The OIG reviewed the final email exchange regarding the Executive Summary between DOI and the White House. In the version that DOI sent to the White House, the moratorium was discussed on the first page of the Executive Summary, while the peer review language was on the second page of the Executive Summary, immediately following a summary list of the safety recommendations contained in the body of the 30-Day Report. The version that the White House returned to DOI had revised and re-ordered the language in the Executive Summary, placing the peer review language immediately following the moratorium recommendation. This caused the distinction between the Secretary's moratorium recommendation – which had not been peer reviewed – and the safety recommendations contained in the 30-Day Report – which had been peer reviewed – to become effectively lost. Although the Executive Summary underwent some additional minor editing, it was ultimately published on May 27, 2010, with the peer review language immediately following the moratorium recommendation, resulting in the implication that the moratorium recommendation had been peer reviewed.

The OIG also reviewed the provisions of the Information Quality Act (IQA) relative to the findings from our investigation to address the question of whether or not the IQA had been violated.

The IQA directs the Office of Management and Budget (OMB) to issue Government-wide guidelines that “provide policy and procedural guidance” designed to ensure the integrity of “information . . . disseminated by Federal agencies.” The guidelines define “information” to mean “any communication or representation of knowledge such as facts or data.” The IQA policies concentrate on “reliable methods and data sources,” reproducibility, “transparency about data and methods,” and administrative methods for correcting disseminated information.

The IQA guidance requires agencies to apply the standards “flexibly, and in a manner appropriate to the nature and timeliness of the information to be disseminated.” IQA guidelines create a process for “affected persons” to challenge and obtain the correction of “disseminated information,” although the OIG is not aware of the Department’s receipt of any such challenge to the 30-Day Report.

While the 30-Day Report’s Executive Summary could have been more clearly worded, the Department has not definitively violated the IQA. For example, the recommendation for a moratorium is not contained in the safety report itself. Furthermore, the Executive Summary does not indicate that the peer reviewers approved any of the Report’s recommendations. The Department also appears to have adequately remedied the IQA concerns by communicating directly with the experts, offering a formal apology, and publicly clarifying the nature of the peer review.

If you have any questions about this report, please do not hesitate to contact me at 202-208-5745.



OFFICE OF
INSPECTOR GENERAL
U.S. DEPARTMENT OF THE INTERIOR

ACCOUNTABILITY FORM

Memorandum

To: John Dupuy
Assistant Inspector General for Investigations

From: Laura Davis
Deputy Chief of Staff

Subject: Accountability Notice

Accountability Notice:

Case name: Federal Moratorium on Deepwater Drilling
Case #: PI-PI-10-0562-1

This form documents the action taken by the bureau/office regarding the subject case. The nature of the administrative action(s) is explained under details, and a copy of the action letter is attached.

1) Personnel Actions:

- | | |
|--|--|
| <input type="checkbox"/> Verbal reprimand/Counseling | <input type="checkbox"/> Notice of warning |
| <input type="checkbox"/> Written reprimand | <input type="checkbox"/> Suspension |
| <input type="checkbox"/> Reduction in grade/pay | <input type="checkbox"/> Removal |
| <input type="checkbox"/> Other (explain): _____ | |

2) No Action Taken:

- Unsubstantiated *OIG found no violation of I&A and no intent by DOI staff to misrepresent the views of the peer review panel regarding the moratorium.*
- Other (explain) _____

3) Monetary recovery: Amount \$ N/A

4) Details: (Please summarize details of action as needed.)

N/A

Name of Case Review Approving Official: _____
Name of Proposing Official: _____
Name of Deciding Official: _____
Name(s) of other official(s) providing input: (ie. HR, Solicitor, etc.) _____

] N/A

Signature: (Authorized Bureau Official) *Laura Davis* Date: 11-23-10

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JD



Investigative Report

Federal Moratorium on Deepwater Drilling

Report Date: November 8, 2010
Date Posted to Web: November 9, 2010

This report contains information that has been redacted pursuant to 5 U.S.C. §§ 552(b)(6) of the Freedom of Information Act. Supporting documentation for this report may be obtained by sending a written request to the OIG Freedom of Information Office.

SYNOPSIS

On June 16, 2010, the U.S. Department of the Interior (DOI) Office of Inspector General (OIG) received a request from Senator David Vitter and Congressman Steve Scalise requesting that the OIG conduct an investigation into the allegation that DOI senior officials, in an effort to help justify their decision to impose a 6-month moratorium on deepwater drilling in the Gulf of Mexico, misrepresented that the moratorium was reviewed and supported by a group of scientists and industry experts.

We also received an additional request on July 20, 2010, for an investigation into the same matter by seven members of the U.S. House of Representatives' Committee on Natural Resources, including Doc Hastings (R-WA), Doug Lamborn (R-CO), John J. Duncan, Jr. (R-TN), Bill Cassidy (R-LA), Paul Broun (R-GA), Jason Chaffetz (R-UT), and John Fleming (R-LA).

The scientists and industry experts expressed concern that the Executive Summary to the 30-Day Report – which contained a policy decision by the Secretary of the Interior to recommend a 6-month moratorium on deepwater exploratory drilling – was worded in a manner that implied that the experts peer reviewed and supported this policy decision, when in fact they had neither reviewed nor supported such a policy decision and had never been asked to do so.

All DOI officials interviewed stated that it was never their intention to imply the moratorium was peer reviewed by the experts, but rather rushed editing of the Executive Summary by DOI and the White House resulted in this implication. After reviewing different drafts of the Executive Summary that were exchanged between DOI and the White House prior to its final issuance, the OIG determined that the White House edit of the original DOI draft Executive Summary led to the implication that the moratorium recommendation had been peer reviewed by the experts.

BACKGROUND

On April 20, 2010, the Deepwater Horizon deepwater drilling rig exploded in the Gulf of Mexico and caused a massive oil leak in a deepwater well being drilled by BP. In response to the explosion, the U.S. Department of the Interior (DOI) declared a moratorium on deepwater drilling, which it extended for 6 months on May 27, 2010, in conjunction with a 30-Day Report issued by DOI, titled Increased Safety Measures for Energy Development on the Outer Continental Shelf (Report).

DETAILS OF INVESTIGATION

Steve Black is the Counselor to Secretary of the Interior Ken Salazar. Black provided background information concerning the creation of the 30-Day Report. He said that in late April 2010, President Obama directed DOI Secretary Salazar to prepare a report that would review current industry practices and standards for deepwater oil drilling and make recommendations as to how those practices and standards could be improved. Black said that Secretary Salazar placed him in charge of a team responsible for producing the Report.

Black said the Report was prepared with the help of scientists and engineers from DOI and the Department of Energy. He said that he also collaborated closely with the White House in preparing the Report, specifically the staff of Carol Browner, Assistant to the President for Energy and Climate Change.

According to Black, the President asked the National Academy of Sciences (NAS) and the National Academy of Engineering (NAE), a subdivision of NAS, to conduct a separate, distinct study to determine the root causes of the accident. When meeting with NAS and NAE, Black said that he asked them to recommend several experts in offshore drilling to peer review the recommendations that would be made in the Report he was tasked to prepare. A member of NAE subsequently provided a list of seven names. Black contacted all seven experts and asked them for their voluntary assistance, which they agreed to provide. In addition to the seven NAE experts, Black said that DOI also sought peer reviewers from industry and academia to assist in the effort to produce the recommendations in the Report, including a professional engineer.

According to Black, a member of NAE facilitated the interactions of the peer reviewers, meetings with whom were held via teleconference. Black said that the peer reviewers did not draft any portions of the Report or the recommendations themselves, but rather they reviewed the recommendations and provided valuable oral and written feedback.

Black said that he held a final conference call with the peer reviewers on Tuesday, May 24, 2010, in which they discussed a draft of the Report, not the final Report. According to Black, the peer reviewers knew that it was only a draft Report and they knew that they were not being consulted concerning “policy decisions.” Black then explained that the decision to invoke the moratorium on current deepwater drilling projects was a policy decision made by Secretary Salazar and President Obama. Black further stated that there were some discussions about various parameters of a potential moratorium with the peer reviewers; the moratorium recommendation, however, as ultimately issued by DOI, was never peer reviewed by the experts.

According to Black, Secretary Salazar sent a Decision Memorandum to President Obama outlining the findings in the Report and his recommendation for a 6-month moratorium on current deepwater offshore drilling prior to meeting with the President on the evening of Wednesday, May 25, 2010. Black said that he was not a part of that meeting, but that after the meeting Secretary Salazar told him that the President wanted to “sleep on [the idea of the moratorium]” overnight before making a final decision. Accordingly, Black said that Secretary Salazar instructed him to draft two different Executive Summaries to the Report; one including the decision to invoke the moratorium and a second not including the moratorium. Black said that the next morning Secretary Salazar directed him to begin working closely with a member of Carol Browner’s staff at the White House to draft the Executive Summary to include the moratorium.

According to Black, there was “a little disconnect” about the definitions used in the Report and the final parameters of the moratorium that was ultimately issued (e.g., the Report defined deepwater drilling as 1,000 feet while the moratorium defined deepwater drilling as 500 feet).

Black said that he initially drafted the Executive Summary, which included, at the behest of

Salazar, the mention that the recommendations contained in the Report were peer reviewed by experts outside of the Government. Black said that Salazar felt it was very important to have the recommendations undergo the peer review process and he wanted this stressed in the Executive Summary.

After he drafted the Executive Summary, Black sent it to a member of Browner's staff at the White House. According to Black, Browner was concerned that the Executive Summary did not summarize the recommendations and the associated timetables well enough; therefore, Browner's staff drafted some of the text to be included in the Executive Summary themselves. After several iterations between him and Browner's staff, Black said that he received a final version of the Executive Summary from the White House "around 2 or 3am" the morning it was ultimately finalized. After receiving the final product from the White House, Black said that he reviewed the final draft; he did not have any issues with the text added by the White House.

A registered Professional Engineer was elected to the National Academy of Engineering in 2005 due to his work on offshore safety; the engineer was asked to participate in a peer review of the Report's recommendations. Following issuance of the final Report and the concomitant Executive Summary, the engineer sent a letter to Louisiana Governor Bobby Jindal and U.S. Senators Mary Landrieu and David Vitter, expressing concern that his name, along with other peer reviewers, was used by Secretary Salazar to justify the 6-month deepwater drilling moratorium. The letter was co-signed by several other peer reviewers.

In the letter he faxed to Landrieu, Vitter, and Jindal, the engineer stated:

A group of those named in the Secretary of Interior's Report, "**INCREASED SAFETY MEASURES FOR ENERGY DEVELOPMENT ON THE OUTER CONTINENTAL SHELF**" dated May 27, 2010 are concerned that our names are connected with the [deepwater drilling] moratorium as proposed in the executive summary of the report. There is an implication that we have somehow agreed to or "**peer reviewed**" the main recommendation of that report. **This is not the case.** (emphasis included in original)

The material paragraphs in the Executive Summary that the engineer and the other peer-reviewers were concerned about are the following:

The Secretary further recommends an immediate halt to drilling operations on the 33 permitted wells, not including the relief wells currently being drilled by BP, that are currently being drilled using floating rigs in the Gulf of Mexico. Drilling operations should cease as soon as safely practicable for a 6-month period.

The recommendations contained in this report have been peer-reviewed by seven experts identified by the National Academy of Engineering. Those experts, who volunteered their time and expertise, are identified in Appendix 1. The government also consulted with a wide range of experts from government, academia and industry.

Black stated that it was no one's intention to imply that the peer reviewers reviewed the 6-month moratorium on deepwater drilling policy decision. He explained that the "recommendations" the Executive Summary was referring to were the formal recommendations contained in the body of the Report, not the moratorium. When asked if an objective reader of the Executive Summary might conclude that the peer reviewers reviewed the moratorium recommendation, due to the organization of the text, Black stated again that it was not the intention of DOI or the White House to imply this was the case. He explained that due to the rush to complete the Report and the Executive Summary, time did not allow for careful editing and review of the Executive Summary. He then said that the Report itself and the draft Executive Summary did undergo the surnaming process, but the final Executive Summary did not.

Following release of the Report and the Executive Summary, Black said he received a telephone call from the engineer. He said that the engineer told him the peer reviewers were concerned that the Executive Summary misrepresented that the peer reviewers had reviewed and supported the moratorium recommendation made by Secretary Salazar to the President. The engineer also told him at that time that the peer reviewers were in the process of drafting a letter to various members of Congress explaining their concerns. Black said that until the engineer told him about these concerns, Black had never considered the possibility that an objective reader of the Executive Summary may believe that the peer reviewers had reviewed the 6-month moratorium policy decision.

Black said that he informed the Secretary about the peer reviewers' concerns immediately after speaking with the engineer, even though the Secretary was very busy at that time with travel due to the oil spill crisis in the Gulf of Mexico. During this time frame, according to Black, the letter drafted by the peer reviewers had been sent to Congressional members and was subsequently released to the media.

Black stated that Secretary Salazar directed him to draft and issue a formal letter to the concerned peer reviewers apologizing for the misunderstanding and stating that the peer reviewers did not in fact peer review and support the moratorium ultimately decided upon by DOI and the White House. Specifically, the letter issued by DOI to the concerned peer reviewers on June 3, 2010, stated:

By listing you as a member of the NAE panel that peer-reviewed the 22 safety recommendations contained in the Report, we did not mean to imply that you also agreed with the decision to impose a moratorium on all new deepwater drilling. We acknowledge that you were not asked to review or comment on the proposed moratorium. The recommendation and decision were based on the Report's safety recommendations, in particular the need for new blowout preventer and other safety equipment on subsea BOP stacks used on floating drilling rigs and the need for better wild-well intervention techniques in the event of future emergencies like the BP oil spill, particularly in deepwater. We regret any misunderstanding or confusion related to the inclusion of the recommendation to impose a 6-month moratorium on all new deepwater wells in the executive summary of the final report.

Black said that sometime in mid-June, Secretary Salazar held a teleconference call with the concerned peer reviewers and apologized for any misunderstanding resulting from the text of the Executive Summary. Secretary Salazar then had a personal meeting with the concerned peer reviewers in Washington, DC, the following week and apologized once again to them for the misunderstanding. Black said that he was not present at this personal meeting between Secretary Salazar and the peer reviewers, although a member of his staff was present during both the conference call and personal meeting Secretary Salazar had with the concerned peer reviewers.

According to Black's staff member, after Secretary Salazar was tasked by the President to prepare the Report, he assisted Black in preparing the Report by helping collect and compile the background information related to deepwater offshore drilling. Black's staff member said that he did not assist in drafting any of the recommendations in the Report because he is not an engineer, and they were too technical.

Black's staff member stated that he participated in the conference calls with the peer reviewers when they were asked to peer review the recommendations, including the final conference call on Tuesday, May 24, 2010. He said that he emailed the draft Report, including the draft recommendations to the peer reviewers that morning, and that was the first time the peer reviewers had seen the entire Report. He echoed Black by stating that the peer reviewers understood that the Report was still only a draft and there was no discussion about the 6-month moratorium.

Black's staff member said that he was tasked to assist Black in editing the Executive Summary to the Report that discussed the moratorium. According to him, he and Black eventually sent a draft of the Executive Summary to the White House for edits, specifically to a member of Browner's staff. He confirmed Black's statement that the White House made several edits and eventually returned the Executive Summary back to DOI sometime "after 3 am" on the morning of May 27, 2010.

Black's staff member noted that he did review the final Executive Summary after it was returned by the White House, but it never occurred to him that, based on the final text, an objective reader may believe that the peer reviewers had reviewed and supported the 6-month moratorium rather than only reviewing the formal recommendations contained in the body of the Report. He said that he first learned of the peer reviewers' concerns, after he returned from a short vacation, when he read the letter the NAE engineer sent to Governor Jindal and Senators Landrieu and Vitter. Upon reading the letter, Black's staff member said that he was "jarred" by the tone of the letter because he believed that DOI had formed an excellent relationship with the peer reviewers during the Report writing process.

Black's staff member said that he never participated in any discussion with other DOI staff or White House staff about trying to draft the Executive Summary in a manner that would imply that the peer reviewers had reviewed the 6-month moratorium.

The NAE engineer acknowledged that after he sent the letter to the Governor and Senators, DOI issued formal letters to each of the peer reviewers of the Report apologizing for any misunderstanding or confusion. He also confirmed that Secretary Salazar conducted a

teleconference with those who reviewed the Report in order to apologize for any misunderstanding surrounding the representations made in the Executive Summary for the Report. According to the NAE engineer, Secretary Salazar stated that the Executive Summary was not meant to imply that the decision to invoke a 6-month moratorium on deepwater drilling was peer reviewed by the engineer and others, but rather the moratorium was an independent decision of Secretary Salazar and the White House.

Based upon the teleconference that Secretary Salazar conducted regarding the matter, along with the letters DOI issued to the peer reviewers, the NAE engineer said that he has accepted Secretary Salazar's explanation that the language in the Executive Summary was a mistake rather than an intentional attempt to use the peer-reviewers' names to justify a political decision. As a result, he said that he considers the matter a "non-issue" and he is focusing on trying to assist DOI in instituting a moratorium that is supported by sound science and engineering, rather than a blanket moratorium.

A principal for Petroskills, a petroleum training alliance, and was also a peer reviewer of the Report. He co-signed the letter that the NAE engineer sent to Louisiana Governor Jindal and Senators Landrieu and Vitter, expressing concern that their names were being used by Secretary Salazar to justify a deepwater drilling moratorium.

The Petroskills principal, similar to the NAE engineer, confirmed that he received the formal letter from DOI apologizing for the misunderstanding and that Secretary Salazar held both a conference call and personal meeting to do the same. Based upon these actions by Secretary Salazar, he said that he also believed that the misrepresentation was an editing "mistake" and not intentional. He said, however, that he was still concerned about the "process" the Government was following in pursuing the moratorium. He explained that he believes DOI should not make such a blanket decision without first seeking expert peer review, but rather DOI should seek such peer review and then make a moratorium decision based on that review.

Another peer reviewer, from the Center for Catastrophic Risk Management at the University of California, stated that he first heard of the moratorium recommended by DOI in the Executive Summary of the May 27, 2010 Report when Senator Landrieu asked him about it on May 29, 2010. He said the proposed moratorium had not been discussed with the peer reviewers prior to issuance of the Report.

Similar to both the NAE engineer and the Petroskills principal, this peer reviewer confirmed that DOI issued a formal letter of apology and that Secretary Salazar held a conference call and personal meeting with the concerned peer reviewers to tell them it was never the intention of DOI and the White House to imply that the peer reviewers reviewed and approved the moratorium. Following these actions by Secretary Salazar, he also said that he believes that the misrepresentation was a "mistake" and not intentional because he always tries to believe people mean well and tell the truth, unless proven otherwise. He explained that he simply does not know whether it was a mistake or intentional, but he was not interested in speculating one way or the other because he was focused on trying to persuade DOI to institute a moratorium that is supported by sound science and engineering, rather than a blanket moratorium.

This peer reviewer also expressed concern that DOI is proposing the moratorium without any input from expert peer reviewers. He questioned why DOI would not peer review such an important, far-reaching decision in light of the fact that DOI had all of the safety recommendations listed in the Report undergo peer review.

S. Elizabeth Birnbaum is the former Director of the Minerals Management Service (MMS). Birnbaum said that she did not personally work on preparing the Executive Summary containing the moratorium recommendation. According to Birnbaum, Black was the principal person responsible for preparing the 30-Day Report on deepwater drilling safety and that her participation was limited to surnaming the Report.

Birnbaum said that there were general discussions about extending a moratorium on deepwater drilling and its associated parameters, although she had no knowledge that Secretary Salazar planned on recommending the moratorium in the Executive Summary of the 30-Day Report to the President. She stated that she learned of the recommendation only when MMS Deputy Director Mary Katherine Ishee told her about it as she delivered the Report and Executive Summary to Birnbaum for surnaming. According to Birnbaum, she asked Ishee why the moratorium recommendation had been inserted in the Executive Summary; Ishee told her that Black had inserted the moratorium recommendation based upon an agreement with the White House to do so.

Birnbaum said that she has no knowledge whether the implication that the moratorium had been peer reviewed was intentional or not. Birnbaum opined that the implication was probably a product of editing and a review of the email trail related to the creation of the Executive Summary would be the best way to identify who may have edited the document that resulted in the implication.

Birnbaum also stated that she does not believe that Secretary Salazar's request for her resignation was in any way related to the issuance of the 6-month moratorium on deepwater drilling, regardless of the fact that both events occurred on May 27, 2010.

The OIG reviewed the final email exchanges regarding the Executive Summary between the DOI and the White House. The Department has claimed privilege for these documents.

The language in the Executive Summary to which the experts objected was this:

The recommendations contained in this report have been peer-reviewed by seven experts identified by the National Academy of Engineering. Those experts, who volunteered their time and expertise, are identified in Appendix 1. The Department also consulted with a wide range of experts from government, academia and industry.

A review of the emails that Black sent to the White House at 11:38 p.m. on May 26, 2010, reflects that in DOI's draft of the Executive Summary the moratorium was discussed on the first page of the Executive Summary, while the peer review language was on the second page of the Executive Summary, immediately following a summary list of the safety recommendations contained in the body of the 30-Day Report, which had been peer reviewed.

At 2:13 a.m. on May 27, 2010, Browner's staff member sent an email back to Black that contained two edited versions of the Executive Summary. Both versions sent by the staff member contained significant edits to DOI's draft Executive Summary but were very similar to each other. Both versions, however, revised and re-ordered the Executive Summary, placing the peer review language immediately following the moratorium recommendation causing the distinction between the Secretary's moratorium recommendation – which had not been peer reviewed – and the recommendations contained in the 30-Day Report – which had been peer reviewed – to become effectively lost. Although the Executive Summary underwent some additional minor editing, it was ultimately published on May 27, 2010, with the peer review language immediately following the moratorium recommendation.



OFFICE OF
INSPECTOR GENERAL
U.S. DEPARTMENT OF THE INTERIOR

MAY 11 2011

The Honorable Doc Hastings
Chairman
Committee on Natural Resources
Washington, DC 20515

Dear Mr. Chairman:

This is in response to your letter of April 25, 2011, in which you requested additional documents relating to the report entitled, "Federal Moratorium on Deepwater Drilling" issued by the Office of Inspector General (OIG) for the Department of the Interior (Department).

At the time we were prepared to issue our report, officials in the Department's Office of the Solicitor advised us that they believed several of the attachments contained potentially privileged information. My office requested that the Department specify those attachments to which the claim of privilege applies. When this information was not forthcoming, we chose to release the report without the attachments. Since receiving your letter, we were notified by Deputy Solicitor Arthur Gary that six of the attachments, Attachments 12-18, "reflect or constitute predecisional and deliberative interagency communications relating to the manner in which the 30-Day Report was finalized, and thus raise important confidentiality interests of the Executive Branch." Mr. Gary has communicated this assertion to the Committee on Science, Space, and Technology and we understand he will be making the same assertion to your Committee. We also understand that Mr. Gary will be inviting your Committee to communicate with his office directly to reach a mutually agreeable accommodation. Because the claim of privilege is the Department's to assert - not the OIG's - we believe it is for the Department to resolve with the Committee.

Therefore, we are providing two copies of our report along with the 11 attachments that the Department does not assert as potentially privileged, one copy for you to share with the minority should you choose to do so. The attachments contain information that is exempt from disclosure to the public under the Freedom of Information Act (FOIA), 5 U.S.C. § 552, and the Privacy Act, 5 U.S.C. § 552a. We respectfully request that the Committee treat all of this information accordingly.

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Finally we would like to clarify that while we reported that, "All Department officials interviewed *stated* that it was never their intention to imply the moratorium was peer reviewed by the experts, but rather rushed editing of the Executive Summary by DOI and the White House

resulted in this implication.”(emphasis added), we were unable to independently conclude whether the implications contained in the 30-Day Report were intentional or not.

If you have any questions, please do not hesitate to contact me, or your staff may contact Kris Kolesnik, Associate Inspector General for External Affairs, at 202-208-5745.

Sincerely,

A handwritten signature in black ink, appearing to read "Mary L. Kendall". The signature is fluid and cursive, with a large initial "M" and "K".

Mary L. Kendall
Acting Inspector General

Enclosures



OFFICE OF
INSPECTOR GENERAL
U.S. DEPARTMENT OF THE INTERIOR

MAY 11 2011

The Honorable Doug Lamborn
Chairman
Subcommittee for Energy and Mineral Resources
Committee on Natural Resources
Washington, DC 20515

Dear Mr. Chairman:

This is in response to your letter of April 25, 2011, in which you requested additional documents relating to the report entitled, "Federal Moratorium on Deepwater Drilling" issued by the Office of Inspector General (OIG) for the Department of the Interior (Department).

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resulted in this implication.”(emphasis added), we were unable to independently conclude whether the implications contained in the 30-Day Report were intentional or not.

If you have any questions, please do not hesitate to contact me, or your staff may contact Kris Kolesnik, Associate Inspector General for External Affairs, at 202-208-5745.

Sincerely,

A handwritten signature in cursive script, appearing to read "Mary L. Kendall".

Mary L. Kendall
Acting Inspector General

Enclosures



OFFICE OF
INSPECTOR GENERAL
U.S. DEPARTMENT OF THE INTERIOR

JUL 21 2010

The Honorable Doc Hastings
Ranking Member
Committee on Natural Resources
U.S. House of Representatives
Washington, D.C. 20515

The Honorable Doug Lamborn
Ranking Member
Subcommittee on Energy and Minerals
Committee on Natural Resources
U.S. House of Representatives
Washington, D.C. 20515

Dear Congressmen Hastings and Lamborn:

This is in response to your letter of July 20, 2010 encouraging the Office of Inspector General for the Department of the Interior (Department) to open an investigation into allegations concerning the Department's 30-day Safety Report to the President and the recommendation for a six-month deepwater drilling moratorium on the Outer Continental Shelf.

The Office of Inspector General has, in fact, been conducting an investigation into these allegations. When we have completed the investigation, we will make the results available to the public. We will ensure that you, and the other members of Congress who made a similar request, are provided a copy of the results of our investigation directly.

Sincerely,

Mary L. Kendall
Acting Inspector General

Cc: OIG Subject/Reading
 AIGI Chron
 Kris Kolesnik-AIG EA
 PI-Richard Larrabee
 Ed Woo, Desk Officer
 Congressional File
 CTS 2010-G-00192

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U.S. House of Representatives
Committee on Natural Resources
Washington, DC 20515

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July 20, 2010

JAMES H. ZOLA
CHIEF OF STAFF

Ms. Mary Kendall
Acting Inspector General
U.S. Department of the Interior
Office of Inspector General
1849 C Street NW - Mail Stop 4428
Washington, D.C. 20240

Dear Inspector General Kendall,

In testimony before the House Committee on Natural Resources, Secretary Salazar agreed to cooperate with any Inspector General investigation into the changes made to the Interior Department's 30-Day Safety Report¹ after it had been peer-reviewed. As you know, this report, which included a recommendation for a six-month deepwater drilling moratorium on the Outer Continental Shelf, was presented to the President and the American people as having been peer-reviewed by a group of prominent engineers. Specifically, the language of the report states that "the recommendations contained in this report have been peer-reviewed by seven experts identified by the National Academy of Engineering."² Following the release of the report it was discovered that this statement was patently false. The engineers have come forward to declare that the report was edited by political appointees after their review but prior to presentation to the President.

There are important questions about this incident that must be answered. Who in the Administration ignored the recommendation of scientists and made these changes? Were any laws broken? Who made the decision to misrepresent the views of the scientists? Were the changes influenced by the White House? Were the changes recommended by outside groups? Recent media reports suggest the Administration is acting on advice and recommendations made by the *Center for American Progress* including the recommendation for a moratorium on the OCS.

When testifying before the Committee, you initially asserted that the Inspector General office may not be able to investigate because the issue of the moratorium is subject to an ongoing court case. However, you later indicated that it would be possible to open an investigation. To be clear, we are not asking you to investigate the moratorium. We are asking you to investigate the changes made to the 30-Day Safety Report by political appointees that were presented to the public as a peer-reviewed scientific paper.

¹ Also known as the "Increased Safety Measures for Energy Development on the Outer Continental Shelf, May 27, 2010

² 30-Day Safety Report, Page 4

The Hon. Mary Kendall
July 20, 2010
Page 2

The decision to alter the report after the peer-review process severely undermines trust in the Department of the Interior and the federal government. In one of his early speeches, Secretary Salazar said, "I pledge to you that we will ensure the Interior Department's decisions are based on sound science and the public interest, and not on the special interests."³ Clearly, the decision to establish a six-month moratorium was not based on sound science. The outside experts who cosigned the report have raised serious concerns that the imposition of the moratorium would exacerbate any safety issues associated with deepwater drilling.

Finally, during the previous Administration, the Inspector General's office had a record of aggressively investigating exactly these types of actions. In fact, you personally testified on July 31, 2007 before the Natural Resources Committee at a hearing on "The Political Influence of the Bush Administration on Agency Science and Decision-Making." During that testimony you discussed a report that when issued stated "In the end, the cloud of MacDonald's overreaching, and the actions of those who enabled and assisted her, have caused the unnecessary expenditure of hundreds of thousands of dollars to re-issue decisions and litigation costs to defend decisions that, in at least two instances, the courts found to be arbitrary and capricious."⁴

We expect you to hold the Obama Administration to this same standard. We strongly believe the altering of this 30-Day Safety Report is an egregious example of disregarding science and merits equal examination. This overreaching by political appointees in either the Department or the White House have caused the unnecessary expenditure of significant Department funds to re-issue decisions, has adversely impacted tens of thousands of citizens through lost wages and jobs, cost business hundreds of thousands of dollars, and incurred litigation costs to defend the moratorium that the court has found to be arbitrary and capricious.

We strongly encourage you to open an investigation into the allegations and the decisions made associated with this 30-Day Safety Report. Since the Secretary has publicly pledged his full cooperation, there is little doubt that the Inspector General's office could quickly investigate the influences and actions that resulted in the changes to the engineering safety report that was presented to the President.

We look forward to hearing from you promptly regarding your decision on this matter.

Sincerely,



Doc Hastings
Ranking Member
Committee on Natural Resources

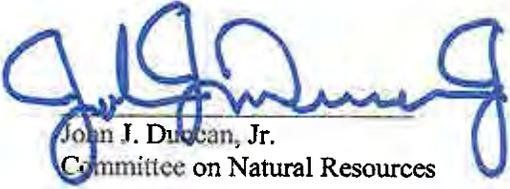


Doug Lamborn
Ranking Member
Subcommittee on Energy and Minerals

³ Secretary of the Interior Salazar Pledges Accountability & Change In Employee Listening Session, January 22, 2009

⁴ Report of Investigation: The Endangered Species Act and the Conflict between Science and Policy, December 15, 2008

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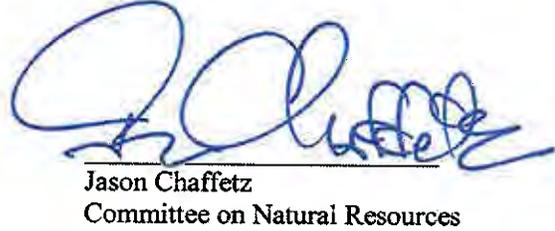
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Experts seek to clarify their views on drilling moratorium

Published: Tuesday, June 08, 2010, 7:19 PM Updated: Wednesday, June 09, 2010, 11:56 AM

David Hammer, The Times-Picayune
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Members of a panel of experts brought in to advise the Obama administration on how to address offshore drilling safety after the **Deepwater Horizon disaster** now say Interior Secretary Ken Salazar falsely implied they supported a **six-month drilling moratorium** they actually oppose.

Salazar's May 27 report to President Barack Obama said a panel of seven experts "peer reviewed" his recommendations, which included a six-month moratorium on all ongoing drilling in waters deeper than 500 feet. That prohibition took effect a few days later, but the angry panel members and some others who contributed to the Salazar report said they had only reviewed an earlier version of the Interior secretary's report that suggested a six-month moratorium only on new drilling, and then only in waters deeper than 1,000 feet.

"We broadly agree with the detailed recommendations in the report and compliment the Department of Interior for its efforts," a joint letter from the panelists to various politicians says. "However, we do not agree with the six-month blanket moratorium on floating drilling. A moratorium was added after the final review and was never agreed to by the contributors."



Pablo Martinez Monsivals/The Associated Press archive

Interior Secretary Ken Salazar

An Interior Department spokeswoman agreed that the experts had not given their blessing for a moratorium, and said the department did not mean to leave the impression they had. In fact, she said, the experts were merely asked to review 22 safety recommendations in the report.

"We didn't mean to imply that they also agreed with the moratorium on deepwater drilling," the spokeswoman, Kendra Barkoff, said. "We acknowledge that they were not asked to review or comment on the proposed moratorium and that they peer-reviewed the report on a technical basis. The moratorium on deepwater drilling is based on the need for a comprehensive review of safety in deepwater operations in light of the BP oil spill."

The experts' criticism of the moratorium and effort to distance themselves from it come as **oil production companies prepare to move mobile deepwater rigs out of the Gulf of Mexico**, threatening thousands of jobs in Louisiana that support those drilling operations with supply boats and shoreside services.

"A blanket moratorium is not the answer. It will not measurably reduce risk further and it will have a lasting impact on the nation's economy which may be greater than that of the oil spill," the letter says. "We do not believe punishing the innocent is the right thing to do."

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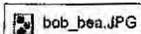
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One of the panelists who signed the letter, University of



bob_bea.JPG
Bob Bea is an engineering professor at the University of California at Berkeley.

California at Berkeley engineering professor Bob Bea, said in an e-mail message that a moratorium should be reserved for "unconventional, very hazardous operations" and shouldn't apply to the "majority of conventional offshore operations, (which) meet fundamental requirements for acceptable risks."

"Moratorium was not a part of the ... report we consulted-advised-reviewed," Bea wrote. "Word from DOI (Interior Department) was it was a W(hite) H(ouse) request."

The National Academy of Engineering provided seven reviewers for Salazar's safety report, and the academy's Ken Arnold, an oil and gas industry consultant, wrote a scathing cover letter Tuesday that concludes: "The Secretary should be free to recommend whatever he thinks is correct, but he should not be free to use our names to justify his political decisions."

Five of the seven reviewers signed the complaint letter: Bea; Benton Baugh, president of Radoll Inc.; Ford Brett, managing director of Petroskills; Martin Chenevert, director of drilling research for the Department of Petroleum and Geophysical Engineering at University of Texas; and Hans Juvkam-Wold, petroleum engineering professor emeritus at Texas A&M University.

Eight other industry experts were interviewed for the creation of Salazar's report. Two of them also signed the letter: E.G. "Skip" Ward, associate director of the Offshore Technology Research Center at Texas A&M University, and Tom Williams, a former undersecretary of the Interior.

"We were very upset," Ward said. "We would have understood if (Salazar's report) said, 'These are good recommendations from the panel, but we have decided to declare a six-month moratorium instead.' But instead, they're kind of using our input for cover to do something that didn't have much to do with our recommendations."

The panelists said even Salazar's report clearly shows the deepwater safety record is generally strong, making the moratorium all the more puzzling.

Ward said he was optimistic to hear that the Interior Department put several new safety measures into a directive to oil companies Tuesday. Arnold said it could mean the federal government is serious about moving more quickly than six months to implement new safety requirements and lift the crippling moratorium.

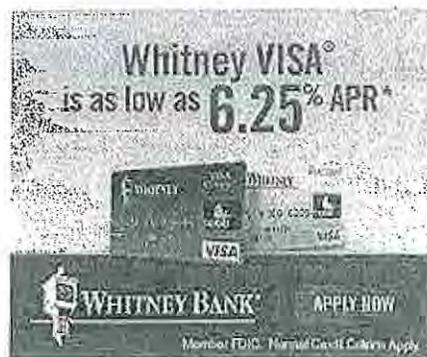
But Tuesday's directive was accompanied by an Interior Department news release that emphasized that the six-month moratorium on deepwater drilling remains in place, and that meeting the new safety requirements will only allow shallow-water drilling and deepwater production activities to resume.

Arnold said he had at least hoped that deepwater production drilling could continue under the new safety guidelines, but believes it is still prohibited under the moratorium. He said he reluctantly agreed that some moratorium on exploratory drilling was necessary, but he's not sure any amount of new regulations will address what went wrong on the Deepwater Horizon.

"For six hours they were getting information that things were not right on that rig and they were continuing to rationalize that things were OK," Arnold said. "It was a group-think kind of thing, and there were a bunch of things that were on the borderline. ... When you keep adding up the mistakes, you end up in a situation where a big problem sneaks up on you. We're not going to solve that with all of these new equipment requirements."

David Hammer can be reached at dhammer@timespicayune.com or 504.826.3322.

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Deepwater-Gate: Administration Modifies Peer-Reviewed Report After it was Reviewed by Scientists

Fri, Jun 11, 2010

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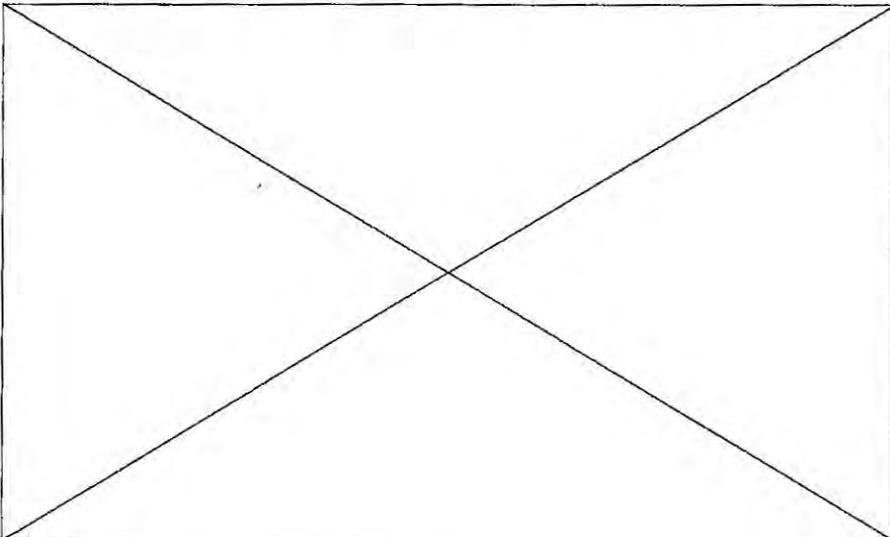


This startling news comes to us from the Institute for Energy Research:



In the days following the Gulf oil spill, President Obama requested that the Secretary of the Interior conduct a 30-day review of the offshore drilling program in the United States and issue a report with recommendations. This report was to be “peer reviewed” by a team of seven engineers recommended by the National Academy of Engineering.

The team of engineers reviewed, approved and signed off on a version of the 30-day review that was presented to them by the Administration. However, after they signed their names to this document, a significant change was made – a change that led to the 6-month suspension of deepwater exploratory drilling. Click HERE and HERE to view the section of the report that was modified after the scientists signed off on the report.



What They're Saying About Deepwater-Gate:

"The eight panel members said they disagree with the moratorium on all exploratory drilling." In justifying its broad moratorium on deepwater drilling, the Obama administration emphasized that the measure was recommended by an Interior Department report prepared in consultation with scientists and industry experts. The May 27 report to President Barack Obama said the experts "peer reviewed" its recommendations, including the six-month moratorium and 22 safety measures. But eight of the 15 members of the review panel are charging that the administration misrepresented their position by suggesting they supported a blanket moratorium that they actually oppose. Their criticism, and the administration's response, are evidence that the six-month stoppage is based on politics rather than on science. (New Orleans Times-Picayune, [6.11.10](#))

"The seven experts explained that the report draft they had reviewed did not include a six-month drilling moratorium. That was added only after they signed off." The Obama Administration is under political pressure to reverse its ill-considered deep water drilling moratorium, and the latest blowback comes from seven angry experts from the National Academy of Engineering who say their views were distorted to justify the ban. In the wake of the oil spill, President Obama asked Interior Secretary Ken Salazar to produce a report on new drilling safety recommendations. Then on May 27 Mr. Obama announced a six-month deep water drilling ban, justifying it on the basis of Mr. Salazar's report, a top recommendation of which was the moratorium. To lend an air of technical authority, the report noted: "The recommendations contained in this report have been peer-reviewed by seven experts identified by the National Academy of Engineering." That would be false, sir. (Wall Street Journal, [6.10.10](#))

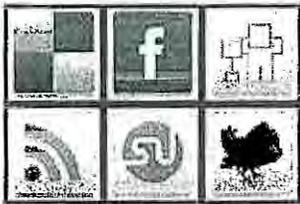
"A blanket moratorium is not the answer. It will not measurably reduce risk further and it will have a lasting impact on the nation's economy..." Members of a panel of experts brought in to advise the Obama administration on how to address offshore drilling safety after the Deepwater Horizon disaster now say Interior Secretary Ken Salazar falsely implied they supported a six-month drilling moratorium they actually oppose. Salazar's May 27 report to President Barack Obama said a panel of seven experts "peer reviewed" his recommendations, which included a six-month moratorium on all ongoing drilling in waters deeper than 500 feet. That prohibition took effect a few days later, but the angry panel members and some others who contributed to the Salazar report said they had reviewed only an earlier version of the secretary's report that suggested a six-month moratorium only on new drilling, and then only in waters deeper than 1,000 feet. (New Orleans Times-Picayune, [6.9.10](#))

"[T]he experts say they never agreed to the administration's six-month moratorium on exploratory drilling on the outer continental shelf..." A group of technical experts who advised the Obama administration on how to bolster the safety of offshore drilling operations say they oppose the administration's moratorium on deepwater drilling. Halting the work risks "harming thousand of workers" who "were and are active responsibly and are providing a product the nation demands," they said. The eight experts – all longtime petroleum engineers, some affiliated with major universities – are listed in a report published by the Interior Department last month as having "peer reviewed" Interior Secretary Ken Salazar's recommendations on improving the safety of drilling on the outer continental shelf in the wake of the April 20 oil rig explosion in the Gulf of Mexico. The experts said the language about the moratorium did not appear in the draft they had reviewed. (Wall Street Journal, [6.9.10](#))

Eight of 15 experts named in a May 27 Interior Department report on drilling safety sent a letter to Landrieu, Sen. David Vitter, R-La., and Louisiana Gov. Bobby Jindal insisting they did not endorse the document's recommendation for a ban on drilling. The scientists said that recommendation was added after they reviewed the report. The experts, including Robert Bea of the University of California at Berkeley and Martin Chenevert with the University of Texas, said Salazar was using their names to justify political decisions. "We broadly agree with the detailed recommendations in the report and compliment the Department of Interior for its efforts," the group said. "However, we do not agree with the six-month blanket moratorium on floating drilling." (Houston Chronicle, [6.9.10](#))

“...Interior Secretary Ken Salazar falsely implied they supported a six-month drilling moratorium they actually oppose.” Salazar’s May 27 report to President Barack Obama said a panel of seven experts “peer reviewed” his recommendations, which included a six-month moratorium on all ongoing drilling in waters deeper than 500 feet. That prohibition took effect a few days later, but the angry panel members and some others who contributed to the Salazar report said they had only reviewed an earlier version of the Interior secretary’s report... “We broadly agree with the detailed recommendations in the report and compliment the Department of Interior for its efforts,” a joint letter from the panelists to various politicians says. “However, we do not agree with the six-month blanket moratorium on floating drilling. A moratorium was added after the final review and was never agreed to by the contributors.” An Interior Department spokeswoman agreed that the experts had not given their blessing for a moratorium, and said the department did not mean to leave the impression they had. (New Orleans Times-Picayune, [6.8.10](#))

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Scientists against oil drilling moratorium meet with Salazar, new MMS head

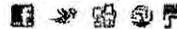
Published: Monday, June 21, 2010, 7:55 PM Updated: Monday, June 21, 2010, 8:06 PM



David Hammer, The Times-Picayune

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In an unannounced meeting Monday morning, scientists who felt **their views were improperly used to justify a federal moratorium on deepwater oil drilling** spent an hour trying to convince Interior Secretary Ken Salazar to soften the ban.



Matthew Hinton / The Times-Picayune

A rusty coast of oil lines the shore of one of the Chandeleur Islands in May, two weeks after the Deepwater Horizon oil rig explosion.

They failed to win any immediate concessions, although Salazar said he remained committed to finding "ways to make the moratorium better" and agreed to a follow-up meeting in two weeks, said Ken Arnold of the **National Academy of Engineering**.

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The group of experts complained earlier this month that Salazar had consulted them on a **May 27 report** on drilling safety and then falsely implied that the scientists had agreed to a "blanket

moratorium" that they actually opposed. They said the moratorium went too far and warned that it "will have a lasting impact on the nation's economy which may be greater than that of the oil spill."

The Department of the Interior later said it didn't intend to imply that the experts had supported the moratorium. But the dispute has become more than a simple misunderstanding. **The experts' claims are a central part of a federal lawsuit in New Orleans that seeks to block the moratorium.**

Salazar was joined in the meeting Monday by Michael Bromwich, working his first day as the new head of the Bureau of Ocean Energy, the successor agency to the beleaguered Minerals Management Service.

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"Secretary Salazar and Michael Bromwich had a productive meeting today to discuss ongoing reforms with the members of the NAE panel and they look forward to continuing to work with them," said Kendra Barkoff, an Interior Department spokeswoman.

While pushing for an end to the moratorium, the experts called on Salazar and Bromwich to immediately implement the safety recommendations already outlined in Salazar's May 27 report, including the eight measures imposed recently on shallow-water drilling permits.

The experts also added their voices to those of Louisiana's political leaders, who have been asking for drilling to continue in the safe zones of rock and salt, stopping somewhere short of the reservoirs of oil that could cause a spill if another accident were to occur.

They contend that would allow important and time-consuming work to continue while eliminating the danger of oil and natural gas getting into the well hole, which is what happened April 20 under the Deepwater Horizon rig. A bulge of gas shot up miles of pipes to the rig on the sea's surface, exploded in balls of flames, killed 11 workers and destroyed the rig, leaving oil gushing out of the seafloor.

But it's also important to note that the Deepwater Horizon hit a dangerous pocket of gas above the zone of oil a little more than a month before the fateful blowout. While such unexpected "kicks" of gas put rigs at risk whenever they drill into the earth below the sea, there's no danger of oil spilling until the drill reaches an actual oil reservoir.

Arnold said Salazar balked at any further drilling in deepwater as long as there's uncertainty about how another spill would be contained, should one occur. So far, the efforts by the government, BP and a host of private contractors to contain the 62-day-old BP spill have achieved limited success.

"We said, 'Once BP finishes with them, they're all available,'" Arnold said of the skimmers and other equipment. "Some of the things that didn't work in this case might work in the next case. We should mothball what we have."

But Salazar wants the experts to come back with more ideas on how to improve response, Arnold said.

The impact of the deepwater moratorium is expected to be massive, leading to an estimated 10,000 layoffs in Louisiana alone and the relocation of thousands of other jobs overseas. But for now, oil companies are playing a waiting game, weighing the costs and benefits of idling rigs for six months in the Gulf of Mexico or moving them to places like West Africa and Brazil.

The International Association of Drilling Contractors, which represents most of the major rig owners, put forward four arguments against the ban Monday.

First, IADC president Lee Hunt said, drilling operations tend to be riskiest when they start and when they stop, so a ban only increases the danger.

Second, he said the newest rigs with the most up-to-date technology will be the first to leave U.S. oilfields and the last to return, again leaving a riskier situation when drilling resumes.

Third, the most skilled oilfield workers will also leave if the ban persists, likely leaving the industry with a less competent workforce in the Gulf region.

And fourth, Hunt said that by running production wells in the Gulf without tapping new oil finds, U.S. reserves will be drained more quickly, increasing America's reliance on foreign oil. He is concerned that will compromise national energy security while also increasing the risk of spills, which Hunt said are more common from tankers making deliveries than from well blowouts.

Some of the experts who met with Salazar and Bromwich are academics, but others, like Arnold, are firmly part of the offshore energy industry. Arnold was joined at the meeting in Washington by Massachusetts Institute of Technology engineer Arnold Stancell; Benton Baugh, president of Radoil Inc.; and Tom Williams, a former official in the Energy and Interior departments. They were joined on the telephone by Ford Brett, managing director of PetroSkills, a petroleum training program; Martin Chenevert, director of drilling research at the University of Texas; Hans

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Juvkam-Wold, professor emeritus of petroleum engineering at Texas A&M University; and Per Holand, an expert in well blowout prevention at the Norwegian-based consulting firm ExproSoft. [Next comments »](#)

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The only member of Salazar's original panel who didn't participate in Monday's meeting was University of California at Berkeley engineering professor Bob Bea, who was in New Orleans. But Bea was one of the eight who signed the initial letter complaining that their role in reviewing the Salazar report had been mischaracterized.

David Hammer can be reached at dhammer@timespicayune.com or 504.826.3322.

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Not only have they wiped-out a major portion of our ability to feed ourselves, they've taken a major step into destroying the only other thing we had outside of tourism, which will also suffer from this.

The elected officials of this state need to stand-up and start Immediate Investigations into this so-called "accident." It's our land! For God's sake fight for it!

As far as I'm concerned this is a wanton act of terrorism committed by BP and elements within our government. That this wasn't an accident at all, but a contrived act of terror against the people of this country. The evidence screams that this is the case.

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U.S. DEPARTMENT OF THE INTERIOR

MAY 11 2011

The Honorable Doc Hastings
Chairman
Committee on Natural Resources
Washington, DC 20515

Dear Mr. Chairman:

This is in response to your letter of April 25, 2011, in which you requested additional documents relating to the report entitled, "Federal Moratorium on Deepwater Drilling" issued by the Office of Inspector General (OIG) for the Department of the Interior (Department).

At the time we were prepared to issue our report, officials in the Department's Office of the Solicitor advised us that they believed several of the attachments contained potentially privileged information. My office requested that the Department specify those attachments to which the claim of privilege applies. When this information was not forthcoming, we chose to release the report without the attachments. Since receiving your letter, we were notified by Deputy Solicitor Arthur Gary that six of the attachments, Attachments 12-18, "reflect or constitute predecisional and deliberative interagency communications relating to the manner in which the 30-Day Report was finalized, and thus raise important confidentiality interests of the Executive Branch." Mr. Gary has communicated this assertion to the Committee on Science, Space, and Technology and we understand he will be making the same assertion to your Committee. We also understand that Mr. Gary will be inviting your Committee to communicate with his office directly to reach a mutually agreeable accommodation. Because the claim of privilege is the Department's to assert - not the OIG's - we believe it is for the Department to resolve with the Committee.

Therefore, we are providing two copies of our report along with the 11 attachments that the Department does not assert as potentially privileged, one copy for you to share with the minority should you choose to do so. The attachments contain information that is exempt from disclosure to the public under the Freedom of Information Act (FOIA), 5 U.S.C. § 552, and the Privacy Act, 5 U.S.C. § 552a. We respectfully request that the Committee treat all of this information accordingly.

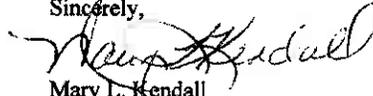
The attachments contain information that is exempt from disclosure to the public under the Freedom of Information Act (FOIA), 5 U.S.C. § 552, and the Privacy Act, 5 U.S.C. § 552a. We respectfully request that the Committee treat all of this information accordingly.

Finally we would like to clarify that while we reported that, "All Department officials interviewed *stated* that it was never their intention to imply the moratorium was peer reviewed by the experts, but rather rushed editing of the Executive Summary by DOI and the White House

resulted in this implication.”(emphasis added), we were unable to independently conclude whether the implications contained in the 30-Day Report were intentional or not.

If you have any questions, please do not hesitate to contact me, or your staff may contact Kris Kolesnik, Associate Inspector General for External Affairs, at 202-208-5745.

Sincerely,

A handwritten signature in black ink, appearing to read "Mary L. Kendall". The signature is fluid and cursive, with the first name "Mary" being the most prominent.

Mary L. Kendall
Acting Inspector General

Enclosures



OFFICE OF
INSPECTOR GENERAL
U.S. DEPARTMENT OF THE INTERIOR

REPORT OF INVESTIGATION

| | |
|---|--|
| Case Title Federal Moratorium on Deepwater Drilling | Case Number PI-PI-10-0562-I |
| Reporting Office Program Integrity Division | Report Date November 8, 2010 |
| Report Subject Closing Report of Investigation | |

SYNOPSIS

On June 16, 2010, the U.S. Department of the Interior (DOI) Office of Inspector General (OIG) received a request from Senator David Vitter and Congressman Steve Scalise requesting that the OIG conduct an investigation into the allegation that DOI senior officials, in an effort to help justify their decision to impose a 6-month moratorium on deepwater drilling in the Gulf of Mexico, misrepresented that the moratorium was reviewed and supported by a group of scientists and industry experts (**Attachment 1**).

We also received an additional request on July 20, 2010, for an investigation into the same matter by seven members of the U.S. House of Representatives' Committee on Natural Resources, including Doc Hastings (R-WA), Doug Lamborn (R-CO), John J. Duncan, Jr. (R-TN), Bill Cassidy (R-LA), Paul Broun (R-GA), Jason Chaffetz (R-UT), and John Fleming (R-LA) (**Attachment 2**).

The scientists and industry experts expressed concern that the Executive Summary to the 30-Day Report – which contained a policy decision by the Secretary of the Interior to recommend a 6-month moratorium on deepwater exploratory drilling – was worded in a manner that implied that the experts peer reviewed and supported this policy decision, when in fact they had neither reviewed nor supported such a policy decision and had never been asked to do so.

All DOI officials interviewed stated that it was never their intention to imply the moratorium was peer reviewed by the experts, but rather rushed editing of the Executive Summary by DOI and the White House resulted in this implication. After reviewing different drafts of the Executive Summary that were exchanged between DOI and the White House prior to its final issuance, the OIG determined that the White House edit of the original DOI draft Executive Summary led to the implication that the moratorium recommendation had been peer reviewed by the experts.

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| Reporting Official/Title Richard J. Larrabee/Senior Special Agent | Signature |
| Approving Official/Title Harry Humbert/Director, Program Integrity Division | Signature |
| Authentication Number: 8A4D1C1285C8A9533357153AFE45431C | |

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OI-002 (04/10 rev. 2)

BACKGROUND

On April 20, 2010, the Deepwater Horizon deepwater drilling rig exploded in the Gulf of Mexico and caused a massive oil leak in a deepwater well being drilled by BP. In response to the explosion, the U.S. Department of the Interior (DOI) declared a moratorium on deepwater drilling, which it extended for 6 months on May 27, 2010, in conjunction with a 30-Day Report issued by DOI, titled Increased Safety Measures for Energy Development on the Outer Continental Shelf (Report) (**Attachment 3**).

DETAILS OF INVESTIGATION

Steve Black is the Counselor to Secretary of the Interior Ken Salazar (**Attachment 4**). Black provided background information concerning the creation of the 30-Day Report. He said that in late April 2010, President Obama directed DOI Secretary Salazar to prepare a report that would review current industry practices and standards for deepwater oil drilling and make recommendations as to how those practices and standards could be improved. Black said that Secretary Salazar placed him in charge of a team responsible for producing the Report.

Black said the Report was prepared with the help of scientists and engineers from DOI and the Department of Energy. He said that he also collaborated closely with the White House in preparing the Report, specifically the staff of Carol Browner, Assistant to the President for Energy and Climate Change.

According to Black, the President asked the National Academy of Sciences (NAS) and the National Academy of Engineers (NAE), a subdivision of NAS, to conduct a separate, distinct study to determine the root causes of the accident. When meeting with NAS and NAE, Black said that he asked them to recommend several experts in offshore drilling to peer review the recommendations that would be made in the Report he was tasked to prepare. Peter Blair of NAE subsequently provided a list of seven names. Black contacted all seven experts and asked them for their voluntary assistance, which they agreed to provide. In addition to the seven NAE experts, Black said that DOI also sought peer reviewers from industry and academia to assist in the effort to produce the recommendations in the Report, including Kenneth Arnold, a professional engineer.

According to Black, Peter Blair of NAE facilitated the interactions of the peer reviewers, meetings with whom were held via teleconference. Black said that the peer reviewers did not draft any portions of the Report or the recommendations themselves, but rather they reviewed the recommendations and provided valuable oral and written feedback.

Black said that he held a final conference call with the peer reviewers on Tuesday, May 24, 2010, in which they discussed a draft of the Report, not the final Report. According to Black, the peer reviewers knew that it was only a draft Report and they knew that they were not being consulted concerning "policy decisions." Black then explained that the decision to invoke the moratorium on current deepwater drilling projects was a policy decision made by Secretary Salazar and President Obama. Black further stated that there were some discussions about various parameters of a potential moratorium with the peer reviewers; the moratorium recommendation, however, as ultimately issued by DOI, was never peer reviewed by the experts.

According to Black, Secretary Salazar sent a Decision Memorandum to President Obama outlining the findings in the Report and his recommendation for a 6-month moratorium on current deepwater

offshore drilling prior to meeting with the President on the evening of Wednesday, May 25, 2010. Black said that he was not a part of that meeting, but that after the meeting, Secretary Salazar told him that the President wanted to “sleep on [the idea of the moratorium]” overnight before making a final decision. Accordingly, Black said that Secretary Salazar instructed him and Black’s special assistant Neil Kemkar to draft two different Executive Summaries to the Report; one including the decision to invoke the moratorium and a second not including the moratorium. Black said that the next morning Secretary Salazar directed him to begin working closely with Joseph Aldy of Carol Browner’s staff at the White House to draft the Executive Summary to include the moratorium.

According to Black, there was “a little disconnect” about the definitions used in the Report and the final parameters of the moratorium that was ultimately issued (e.g., the Report defined deepwater drilling as 1,000 feet while the moratorium defined deepwater drilling as 500 feet).

Black said that he initially drafted the Executive Summary, which included, at the behest of Salazar, the mention that the recommendations contained in the Report were peer reviewed by experts outside of the Government. Black said that Salazar felt it was very important to have the recommendations undergo the peer review process, and he wanted this stressed in the Executive Summary.

After he drafted the Executive Summary, Black sent it to Aldy of Browner’s staff at the White House. According to Black, Browner was concerned that the Executive Summary did not summarize the recommendations and the associated timetables well enough; therefore, Browner’s staff drafted some of the text to be included in the Executive Summary themselves. After several iterations between him and Browner’s staff, Black said that he received a final version of the Executive Summary from the White House “around 2 or 3am” the morning it was ultimately finalized. After receiving the final product from the White House, Black said that he reviewed the final draft; he did not have any issues with the text added by the White House.

Kenneth Arnold is a registered Professional Engineer in the State of Texas and was elected to the National Academy of Engineering in 2005 due to his work on offshore safety; he was asked to participate in a peer review of the Report’s recommendations (**Attachment 5**). Following issuance of the final Report and the concomitant Executive Summary, Arnold sent a letter to Louisiana Governor Bobby Jindal and U.S. Senators Mary Landrieu and David Vitter, expressing concern that his name, along with other peer reviewers, was used by Secretary Salazar to justify the 6-month deepwater drilling moratorium (**Attachment 6**). The letter was co-signed by several other peer reviewers.

In the letter he faxed to Landrieu, Vitter, and Jindal, Arnold stated:

A group of those named in the Secretary of Interior’s Report, “**INCREASED SAFETY MEASURES FOR ENERGY DEVELOPMENT ON THE OUTER CONTINENTAL SHELF**” dated May 27, 2010 are concerned that our names are connected with the [deepwater drilling] moratorium as proposed in the executive summary of the report. There is an implication that we have somehow agreed to or “**peer reviewed**” the main recommendation of that report. **This is not the case.** (emphasis included in original)

The material paragraphs in the Executive Summary that Arnold and the other peer-reviewers were concerned about are the following:

The Secretary further recommends an immediate halt to drilling operations on the 33 permitted wells, not including the relief wells currently being drilled by BP, that are currently being drilled using floating rigs in the Gulf of Mexico. Drilling operations should cease as soon as safely practicable for a 6-month period.

The recommendations contained in this report have been peer-reviewed by seven experts identified by the National Academy of Engineering. Those experts, who volunteered their time and expertise, are identified in Appendix 1. The government also consulted with a wide range of experts from government, academia and industry.

Black stated that it was no one's intention to imply that the peer reviewers reviewed the 6-month moratorium on deepwater drilling policy decision (See Attachment 4). He explained that the "recommendations" the Executive Summary was referring to were the formal recommendations contained in the body of the Report, not the moratorium. When asked if an objective reader of the Executive Summary might conclude that the peer reviewers reviewed the moratorium recommendation, due to the organization of the text, Black stated again that it was not the intention of DOI or the White House to imply this was the case. He explained that due to the rush to complete the Report and the Executive Summary, time did not allow for careful editing and review of the Executive Summary. He then said that the Report itself and the draft Executive Summary did undergo the surnaming process, but the final Executive Summary did not.

Following release of the Report and the Executive Summary, Black said he received a telephone call from Arnold. He said that Arnold told him the peer reviewers were concerned that the Executive Summary misrepresented that the peer reviewers had reviewed and supported the moratorium recommendation made by Secretary Salazar to the President. Arnold also told him at that time that the peer reviewers were in the process of drafting a letter to various members of Congress explaining their concerns (See Attachment 6). Black said that until Arnold told him about these concerns, Black had never considered the possibility that an objective reader of the Executive Summary may believe that the peer reviewers had reviewed the 6-month moratorium policy decision.

Black said that he informed the Secretary about the peer reviewers' concerns immediately after speaking with Arnold, even though the Secretary was very busy at that time with travel due to the oil spill crisis in the Gulf of Mexico. During this time frame, according to Black, the letter drafted by the peer reviewers had been sent to Congressional members and was subsequently released to the media.

Black stated that Secretary Salazar directed him to draft and issue a formal letter to the concerned peer reviewers apologizing for the misunderstanding and stating that the peer reviewers did not in fact peer review and support the moratorium ultimately decided upon by DOI and the White House (**Attachment 7**). Specifically, the letter issued by DOI to the concerned peer reviewers on June 3, 2010, stated:

By listing you as a member of the NAE panel that peer-reviewed the 22 safety recommendations contained in the Report, we did not mean to imply that you also agreed with the decision to impose a moratorium on all new deepwater drilling. We acknowledge that you were not asked to review or comment on the proposed moratorium. The recommendation and decision were based on the Report's safety recommendations, in particular the need for new blowout preventer and other safety equipment on subsea BOP stacks used on floating drilling rigs and the need for better

wild-well intervention techniques in the event of future emergencies like the BP oil spill, particularly in deepwater. We regret any misunderstanding or confusion related to the inclusion of the recommendation to impose a 6-month moratorium on all new deepwater wells in the executive summary of the final report.

Black said that sometime in mid-June, Secretary Salazar held a teleconference call with the concerned peer reviewers and apologized for any misunderstanding resulting from the text of the Executive Summary. Secretary Salazar then had a personal meeting with the concerned peer reviewers in Washington, DC, the following week and apologized once again to them for the misunderstanding. Black said that he was not present at this personal meeting between Secretary Salazar and the peer reviewers, although his Special Assistant, Neal Kemkar was present during both the conference call and personal meeting Secretary Salazar had with the concerned peer reviewers.

According to Kemkar, after Secretary Salazar was tasked by the President to prepare the Report, Kemkar assisted Black in preparing the Report by helping collect and compile the background information related to deepwater offshore drilling (**Attachment 8**). Kemkar said that he did not assist in drafting any of the recommendations in the Report because he is not an engineer, and they were too technical.

Kemkar stated that he participated in the conference calls with the peer reviewers when they were asked to peer review the recommendations, including the final conference call on Tuesday, May 24, 2010. Kemkar said that he emailed the draft Report, including the draft recommendations to the peer reviewers that morning, and that was the first time the peer reviewers had seen the entire Report. Kemkar echoed Black by stating that the peer reviewers understood that the Report was still only a draft and there was no discussion about the 6-month moratorium.

Kemkar said that he was tasked to assist Black in editing the Executive Summary to the Report that discussed the moratorium. According to Kemkar, he and Black eventually sent a draft of the Executive Summary to the White House for edits, specifically to Aldy of Browner's staff. Kemkar confirmed Black's statement that the White House made several edits and eventually returned the Executive Summary back to DOI sometime "after 3 am" on the morning of May 27, 2010.

Kemkar noted that he did review the final Executive Summary after it was returned by the White House, but it never occurred to him that, based on the final text, an objective reader may believe that the peer reviewers had reviewed and supported the 6-month moratorium rather than only reviewing the formal recommendations contained in the body of the Report. Kemkar said that he first learned of the peer reviewers' concerns, after he returned from a short vacation, when he read the letter Arnold had sent to Governor Jindal and Senators Landrieu and Vitter. Upon reading the letter, Kemkar said that he was "jarred" by the tone of the letter because he believed that DOI had formed an excellent relationship with the peer reviewers during the Report writing process.

Kemkar said that he never participated in any discussion with other DOI staff or White House staff about trying to draft the Executive Summary in a manner that would imply that the peer reviewers had reviewed the 6-month moratorium.

Arnold acknowledged that after he sent the letter to the Governor and Senators, DOI issued formal letters to each of the peer reviewers of the Report apologizing for any misunderstanding or confusion (See Attachment 5). He also confirmed that Secretary Salazar conducted a teleconference with those

who reviewed the Report in order to apologize for any misunderstanding surrounding the representations made in the Executive Summary for the Report. According to Arnold, Secretary Salazar stated that the Executive Summary was not meant to imply that the decision to invoke a 6-month moratorium on deepwater drilling was peer reviewed by Arnold and others, but rather the moratorium was an independent decision of Secretary Salazar and the White House.

Based upon the teleconference that Secretary Salazar conducted regarding the matter, along with the letters DOI issued to the peer reviewers, Arnold said that he has accepted Secretary Salazar's explanation that the language in the Executive Summary was a mistake rather than an intentional attempt to use the peer-reviewers' names to justify a political decision. As a result, Arnold said that he considers the matter a "non-issue" and he is focusing on trying to assist DOI in instituting a moratorium that is supported by sound science and engineering, rather than a blanket moratorium.

Ford Brett is the Managing Director for Petroskills, a petroleum training alliance, and was also a peer reviewer of the Report (**Attachment 9**). Brett co-signed the letter that Arnold sent to Louisiana Governor Jindal and Senators Landrieu and Vitter, expressing concern that their names were being used by Secretary Salazar to justify a deepwater drilling moratorium.

Brett, similar to Arnold, confirmed that he received the formal letter from DOI apologizing for the misunderstanding and that Secretary Salazar held both a conference call and personal meeting to do the same. Based upon these actions by Secretary Salazar, Brett said that he also believed that the misrepresentation was an editing "mistake" and not intentional. Brett said, however, that he was still concerned about the "process" the Government was following in pursuing the moratorium. He explained that he believes DOI should not make such a blanket decision without first seeking expert peer review, but rather DOI should seek such peer review and then make a moratorium decision based on that review.

Robert Bea, another peer reviewer, is the Associate Director for the Center for Catastrophic Risk Management at the University of California (**Attachment 10**). Bea stated that he first heard of the moratorium recommended by DOI in the Executive Summary of the May 27, 2010 Report when Senator Landrieu asked him about it on May 29, 2010. He said the proposed moratorium had not been discussed with the peer reviewers prior to issuance of the Report.

Similar to both Arnold and Brett, Bea confirmed that DOI issued a formal letter of apology and that Secretary Salazar held a conference call and personal meeting with the concerned peer reviewers to tell them it was never the intention of DOI and the White House to imply that the peer reviewers reviewed and approved the moratorium. Following these actions by Secretary Salazar, Bea also said that he believes that the misrepresentation was a "mistake" and not intentional because he always tries to believe people mean well and tell the truth, unless proven otherwise. He explained that he simply does not know whether it was a mistake or intentional, but he was not interested in speculating one way or the other because he was focused on trying to persuade DOI to institute a moratorium that is supported by sound science and engineering, rather than a blanket moratorium.

Bea also expressed concern that DOI is proposing the moratorium without any input from expert peer reviewers. He questioned why DOI would not peer review such an important, far-reaching decision in light of the fact that DOI had all of the safety recommendations listed in the Report undergo peer review.

S. Elizabeth Birnbaum is the former Director of the Minerals Management Service (MMS) (**Attachment 11**). Birnbaum said that she did not personally work on preparing the Executive Summary containing the moratorium recommendation. According to Birnbaum, Black was the principal person responsible for preparing the 30-Day Report on deepwater drilling safety and that her participation was limited to surnaming the Report.

Birnbaum said that there were general discussions about extending a moratorium on deepwater drilling and its associated parameters, although she had no knowledge that Secretary Salazar planned on recommending the moratorium in the Executive Summary of the 30-Day Report to the President. She stated that she learned of the recommendation only when MMS Deputy Director Mary Katherine Ishee told her about it as she delivered the Report and Executive Summary to Birnbaum for surnaming. According to Birnbaum, she asked Ishee why the moratorium recommendation had been inserted in the Executive Summary; Ishee told her that Black had inserted the moratorium recommendation based upon an agreement with the White House to do so.

Birnbaum said that she has no knowledge whether the implication that the moratorium had been peer reviewed was intentional or not. Birnbaum opined that the implication was probably a product of editing and a review of the email trail related to the creation of the Executive Summary would be the best way to identify who may have edited the document that resulted in the implication.

Birnbaum also stated that she does not believe that Secretary Salazar's request for her resignation was in any way related to the issuance of the 6-month moratorium on deepwater drilling, regardless of the fact that both events occurred on May 27, 2010.

The OIG reviewed the final email exchanges regarding the Executive Summary between DOI and the White House. The Department has claimed privilege for these documents (See Attachment 4).

The language in the Executive Summary to which the experts objected was this:

The recommendations contained in this report have been peer-reviewed by seven experts identified by the National Academy of Engineering. Those experts, who volunteered their time and expertise, are identified in Appendix 1. The Department also consulted with a wide range of experts from government, academia and industry.

A review of the emails that Black sent to Joseph Aldy at the White House at 11:38 p.m. on May 26, 2010 (**Attachments 12, 13, and 14**), reflects that in DOI's draft of the Executive Summary the moratorium was discussed on the first page of the Executive Summary, while the peer review language was on the second page of the Executive Summary, immediately following a summary list of the safety recommendations contained in the body of the 30-Day Report, which had been peer reviewed.

At 2:13 a.m. on May 27, 2010, Aldy sent an email back to Black that contained two edited versions of the Executive Summary (**Attachments 15, 16, and 17**). Both versions sent by Aldy contained significant edits to DOI's draft Executive Summary but were very similar to each other. Both versions, however, revised and re-ordered the Executive Summary, placing the peer review language immediately following the moratorium recommendation causing the distinction between the Secretary's moratorium recommendation – which had not been peer reviewed – and the recommendations contained in the 30-Day Report – which had been peer reviewed – to become effectively lost. Although the Executive Summary underwent some additional minor editing, it was

ultimately published on May 27, 2010, with the peer review language immediately following the moratorium recommendation.

ATTACHMENTS

1. Senator Vitter and Congressman Scalise letter to the OIG, dated June 16, 2010.
2. U.S. House of Representatives' Committee on Natural Resources letter to the OIG, dated July 20, 2010.
3. Report – Increased Safety Measures for Energy Development on the Outer Continental Shelf, issued by the United States Department of the Interior, dated May 27, 2010.
4. IAR – interview of Steve Black on July 14, 2010.
5. IAR – interview of Kenneth Arnold on July 2, 2010.
6. Letter to Louisiana Governor Bobby Jindal and Senators Mary Landrieu and David Vitter, undated.
7. Letter issued by DOI to several peer reviewers, dated June 3, 2010.
8. IAR – interview of Neal Kemkar on July 15, 2010.
9. IAR – interview of Ford Brett on July 6, 2010.
10. IAR – interview of Robert Bea on July 6, 2010.
11. IAR – interview of S. Elizabeth Birnbaum on September 15, 2010.
12. IAR – Black-Kemkar email review on September 26, 2010.
13. Email from Black to Aldy, dated 11:38 p.m. on May 26, 2010.
14. DOI draft 30-Day Report attached to Attachment 12.
15. Email from Aldy to Black, dated 2:13 a.m. on May 27, 2010.
16. White House edited 30-Day Report, version 1, attached to Attachment 14.
17. White House edited 30-Day Report, version 2, attached to Attachment 14.



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REPORT OF INVESTIGATION

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| Case Title Federal Moratorium on Deepwater Drilling | Case Number PI-PI-10-0562-I |
| Reporting Office Program Integrity Division | Report Date November 8, 2010 |
| Report Subject Closing Report of Investigation | |

SYNOPSIS

On June 16, 2010, the U.S. Department of the Interior (DOI) Office of Inspector General (OIG) received a request from Senator David Vitter and Congressman Steve Scalise requesting that the OIG conduct an investigation into the allegation that DOI senior officials, in an effort to help justify their decision to impose a 6-month moratorium on deepwater drilling in the Gulf of Mexico, misrepresented that the moratorium was reviewed and supported by a group of scientists and industry experts (**Attachment 1**).

We also received an additional request on July 20, 2010, for an investigation into the same matter by seven members of the U.S. House of Representatives' Committee on Natural Resources, including Doc Hastings (R-WA), Doug Lamborn (R-CO), John J. Duncan, Jr. (R-TN), Bill Cassidy (R-LA), Paul Broun (R-GA), Jason Chaffetz (R-UT), and John Fleming (R-LA) (**Attachment 2**).

The scientists and industry experts expressed concern that the Executive Summary to the 30-Day Report – which contained a policy decision by the Secretary of the Interior to recommend a 6-month moratorium on deepwater exploratory drilling – was worded in a manner that implied that the experts peer reviewed and supported this policy decision, when in fact they had neither reviewed nor supported such a policy decision and had never been asked to do so.

All DOI officials interviewed stated that it was never their intention to imply the moratorium was peer reviewed by the experts, but rather rushed editing of the Executive Summary by DOI and the White House resulted in this implication. After reviewing different drafts of the Executive Summary that were exchanged between DOI and the White House prior to its final issuance, the OIG determined that the White House edit of the original DOI draft Executive Summary led to the implication that the moratorium recommendation had been peer reviewed by the experts.

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| Reporting Official/Title Richard J. Larrabee/Senior Special Agent | Signature |
| Approving Official/Title Harry Humbert/Director, Program Integrity Division | Signature |
| Authentication Number: 8A4D1C1285C8A9533357153AFE45431C | |

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OI-002 (04/10 rev. 2)



THE SECRETARY OF THE INTERIOR
WASHINGTON

MAY 27 2010

The President
The White House
Washington, D.C. 20500

Dear Mr. President:

On April 30, 2010, you asked me to prepare a report evaluating additional offshore oil and gas safety measures that the Department of the Interior might impose, even as on-going investigations work to identify the root causes of the BP Oil Spill disaster. You asked that I provide this report on an expedited basis so the American people can be assured that offshore oil and gas development activities can be conducted safely and that another event like the BP Oil Spill never occurs again.

In developing the recommendations included in this report, my Department consulted with a wide range of experts from industry, government, and academia. In addition, draft recommendations were reviewed by seven experts identified by the National Academies of Engineering. Although I am certain that on-going investigations of the disaster including, in particular the work of the Presidential Commission that you announced last week, will help inform, refine, and supplement these recommendations, I believe that the report provides a sound basis for making initial decisions regarding offshore oil and gas activities.

The report recommends a number of specific measures that can be taken on both a short and longer term basis to enhance the safety of offshore oil and gas activities. It notes that drilling activities conducted in the deepwater environment create increased risks and challenges. In that regard, the report focuses on two key aspects of drilling safety: (1) well design and construction and well control procedures, and (2) the blowout preventer equipment and backup control systems.

In addition to approving the important recommendations in this report, I also recommend that you impose a moratorium on all oil and gas drilling activity from floating rigs for 6 months. A moratorium would enable the Department to develop additional details regarding several of the recommendations, while also providing the Presidential Commission with an opportunity to comment upon, and potentially adjust, the recommendations as part of its comprehensive review.

I look forward to receiving your instructions in this important matter.

Respectfully,

A handwritten signature in black ink that reads "Ken Salazar".

Ken Salazar

DEPARTMENT OF THE INTERIOR

**INCREASED SAFETY MEASURES FOR ENERGY DEVELOPMENT
ON THE OUTER CONTINENTAL SHELF**

MAY 27, 2010

INCREASED SAFETY MEASURES FOR ENERGY DEVELOPMENT ON THE OUTER CONTINENTAL SHELF

EXECUTIVE SUMMARY

Overview

On April 20, 2010, an explosion and fire erupted on an offshore drilling rig in the Gulf of Mexico called the *Deepwater Horizon*, which had just completed an exploratory well 52 miles from shore in 4,992 feet of water. Eleven members of the crew are missing and presumed dead. The remainder of the crew abandoned the rig and was rescued by a nearby supply vessel, the *Damon Bankston*. The fire destroyed the rig, which sank on April 22, 2010. The resulting oil spill has been declared "a spill of national significance" and could become one of the oil industry's gravest disasters. Crude oil continues to flow from a broken pipe on the seafloor, has spread across thousands of square miles, and is damaging local economies, sensitive coastlines and wildlife throughout the Gulf region. On April 30, 2010, the President directed the Secretary of the Interior to conduct a thorough review of this event and to report, within 30 days, on "what, if any, additional precautions and technologies should be required to improve the safety of oil and gas exploration and production operations on the outer continental shelf." This report responds to the President's directive.

Recommendations

The Secretary recommends a series of steps immediately to improve the safety of offshore oil and gas drilling operations in Federal waters and a moratorium on certain permitting and drilling activities until the safety measures can be implemented and further analyses completed.

The report recommends a number of specific measures designed to ensure sufficient redundancy in the blowout preventers (BOPs), to promote the integrity of the well and enhance well control, and to facilitate a culture of safety through operational and personnel management (see Table ES-1). Recommended actions include prescriptive near-term requirements, longer-term performance-based safety measures, and one or more Department-led working groups to evaluate longer-term safety issues. The recommendations take into account that drilling activities conducted in the deepwater environment create increased risks and challenges.

Key recommendations on BOPs and related safety equipment used on floating drilling operations include:

- *Mandatory inspection of each BOP to be used on floating drilling operations to ensure that the BOP: meets manufacturer design specifications, taking into account any modifications that have been made; is compatible with the specific drilling equipment on the rig it is to be used on, including that the shear ram is compatible with the drill pipe to be used; has not been compromised or damaged from previous service; is designed to operate at the planned operating depth. Certification of these requirements will be made publicly available.*

- *Requirement of new safety features on BOPs and related backup and safety equipment including: a requirement that BOPs have two sets of blind shear rams spaced at least four feet apart to prevent BOP failure if a drill pipe or drill tool is across on set of rams during an emergency; requirements for emergency back-up control systems; and requirements for remote operating vehicle capabilities. The Department will develop new surface and subsea testing requirements to verify reliability of these capabilities.*
- *Overhaul of the testing, inspection and reporting requirements for BOP and related backup and safety equipment to ensure proper functioning, including new means of improving transparency and providing public access to the results of inspections and routine reporting.*

Key recommendations on well control systems include:

- *Development of enhanced deepwater well-control procedures.*
- *Verification of a set of new safeguards that must be in place prior to displacement of kill-weight drilling fluid from the wellbore.*
- *New design, installation, testing, operations, and training requirements relating to casing, cement or other elements that comprise an exploratory well.*
- *A comprehensive study of methods for more rapid and effective response to deepwater blowouts.*

Key recommendations on a systems-based approach to safety:

- *Immediate, enhanced enforcement of current regulations through verification within 30 days of compliance with the April 30, 2010, National Safety Alert.*
- *Enhanced requirements to improve organizational and safety management for companies operating offshore drilling rigs.*
- *New rules requiring that offshore operators have in place a comprehensive, systems-based approach to safety and environmental management.*

The Secretary also recommends temporarily halting certain permitting and drilling activities. First, the Secretary recommends a six-month moratorium on permits for new wells being drilled using floating rigs. The moratorium would allow for implementation of the measures proposed in this report and for consideration of the findings from ongoing investigations, including the bipartisan National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling.

The Secretary further recommends an immediate halt to drilling operations on the 33 permitted wells, not including the relief wells currently being drilled by BP, that are currently being drilled using floating rigs in the Gulf of Mexico. Drilling operations should cease as soon as safely

practicable for a 6-month period.

The recommendations contained in this report have been peer-reviewed by seven experts identified by the National Academy of Engineering. Those experts, who volunteered their time and expertise, are identified in Appendix 1. The Department also consulted with a wide range of experts from government, academia and industry.

Relationship to Ongoing Investigations

This 30-day review has been conducted without the benefit of the findings from the ongoing investigations into the root causes of the explosions and fire on the Deepwater Horizon and the resulting oil spill (collectively "BP Oil Spill") including if there were any violations of existing safety or construction law, gross negligence, or willful misconduct. In the coming months, those investigations will likely suggest refinements to some of this report's recommendations, as well as additional safety measures. Nevertheless, the information currently available points to a number of specific interim recommendations regarding equipment, systems, procedures, and practices needed for safe operation of offshore drilling activities.

Furthermore, because the purpose of this review is to recommend immediate measures to improve the safety of offshore drilling activities, nothing in this report should be used to influence or prejudice any ongoing investigations, or impact any current or future litigation.

Table ES-1. Recommendations for Increased Safety Measures

| Recommendations | Key Components (with implementation plan) |
|--|---|
| Blowout Preventer (BOP) Equipment and Emergency Systems | <ul style="list-style-type: none"> • Order re-certification of subsea BOP stacks (immediately) • Order BOP equipment compatibility verification (immediately) • Establish formal equipment certification requirements (rulemaking) |
| New Safety Equipment Requirements and Operating Procedures | <ul style="list-style-type: none"> • Develop new BOP and remote operated vehicle (ROV) testing requirements (immediately) • Develop new inspection procedures and reporting requirements (immediately) • Develop secondary control system requirements (emergency rulemaking) • Establish new blind shear ram redundancy requirements (emergency rulemaking) • Develop new ROV operating capabilities (rulemaking) |
| Well-Control Guidelines and Fluid Displacement Procedures | <ul style="list-style-type: none"> • Establish new fluid displacement procedures (immediately) • Establish new deepwater well-control procedure requirements (emergency rulemaking) |
| Well Design and Construction – Casing and Cementing | <ul style="list-style-type: none"> • Establish new casing and cementing design requirements – two independent tested barriers (immediately) • Establish new casing installation procedures (immediately) • Develop formal personnel training requirements for casing and cementing operations (rulemaking) • Develop additional requirements for casing installation (rulemaking) • Enforce tighter primary cementing practices (rulemaking) • Develop additional requirements for evaluation of cement integrity (immediately) • Study Wild-Well intervention techniques and capabilities (immediately) |
| Increased Enforcement of Existing Safety Regulations and Procedures | <ul style="list-style-type: none"> • Order compliance verification for existing regulations and April 30, 2010, National Safety Alert (immediately) • Adopt safety case requirements for floating drilling operations on the Outer Continental Shelf (emergency rulemaking) • Adopt final rule to require operators to adopt a robust safety and environmental management system for offshore drilling operations (rulemaking) • Study additional safety training and certification requirements (rulemaking) |

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I. INTRODUCTION

On April 20, 2010, the crew of the Transocean drilling rig *Deepwater Horizon* was preparing to temporarily abandon BP's discovery well at the Macondo prospect 52 miles from shore in 4,992 feet of water in the Gulf of Mexico. An explosion and subsequent fire on the rig caused 11 fatalities and several injuries. The rig sank two days later, resulting in an uncontrolled release of oil that has been declared a spill of national significance. The Nation faces a potentially massive and unprecedented environmental disaster, which has already resulted in the tragic loss of life and personal injuries as well as significant harm to wildlife, coastal ecosystems, and other natural resources. The disaster is commanding the Department of the Interior's resources as we work to ensure that the spill is stopped and the well permanently plugged; that our natural resources along the Gulf Coast are protected and restored; and that we get to the bottom of what happened and hold those responsible accountable.

On April 30, 2010, the President ordered the Secretary of the Interior to evaluate what, if any, additional precautions and technologies should be required to improve the safety of oil and gas exploration and production operations on the Outer Continental Shelf (OCS). In addition to this review of the OCS regulatory structure, the President recently created the bipartisan National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling. The President established the National Commission to examine the relevant facts and circumstances concerning the root causes of the BP Oil Spill, to develop options for guarding against, and mitigating the impact of, oil spills associated with offshore drilling, and to submit a final public report to him with its findings and options for consideration within six months of the date of the Commission's first meeting.

In addition, the Departments of the Interior and Homeland Security are undertaking a joint investigation into the causes of the BP Oil Spill, including holding public hearings, calling witnesses, and taking any other steps necessary to determine the cause of the spill. Several committees in Congress have held and will continue to hold hearings on the events associated with the BP Oil Spill. Respecting the ongoing investigations, this report does not speculate as to the possible causes of the BP Oil Spill. This report is intended to identify an initial set of safety measures that can and will be implemented as soon as practicable to improve the safety of offshore oil and gas development.

To provide context for the safety recommendations, this report presents a history of OCS production, spills, and blowouts, a review of the existing U.S. regulatory and enforcement structure, a survey of other countries' regulatory approaches, and a summary of existing Minerals Management Service (MMS)-sponsored studies on technologies that could reduce the risk of blowouts.

In compiling the recommendations presented in this report, the Department has drawn from expertise within the Federal Government, academia, professional engineers, industry, and other governments' regulatory programs. In particular, seven members of the National Academy of Engineering peer reviewed the recommendations in this report. The Department received ideas from the Department of Energy National Laboratories on ways to improve offshore safety. Appendix 1 lists expert consultations for this report.

This report examines all aspects of drilling operations, including equipment, procedures, personnel management, and inspections and verification in an effort to identify safety and environmental protection measures that would reduce the risk of a catastrophic event. (A brief primer on offshore drilling technology and systems is included in Appendix 2). In particular, this report examines several issues highlighted by the BP Oil Spill regarding operational and personnel safety while conducting drilling operations in deepwater environments.

While technological progress has enabled the pursuit of deeper oil and gas deposits in deeper water, the risks associated with operating in water depths in excess of 1,000 feet are significantly more complex than in shallow water. This report describes safety and environmental issues involved in offshore drilling, including the unique challenges associated with drilling operations in deepwater.

The recommendations address well-control and well abandonment operations; specific requirements for devices, such as blowout preventers (BOPs) and their testing; industry practices; worker training; inspection protocol and operator oversight; and the responsibility of the Department for safety and enforcement.

In developing the recommendations contained in this report, the Department has been guided by the principle that feasible measures that materially and undeniably reduce the risk of a loss-of-well-control event should be pursued. Therefore, some recommended measures—particularly those the Department intends to implement immediately—are necessarily prescriptive. At the same time, the Department is examining innovative ways to promote a culture of safety for offshore operations by addressing the human element of operations. The Department is committed to moving to finalize a rulemaking that would require operators to adopt a systems-based approach to safety and environmental management. This rule would require operators to incorporate global best practices regarding environmental and safety management on offshore platforms into their operating plans and procedures. In finalizing this rulemaking, the Department will analyze carefully the current circumstances in the Gulf of Mexico and lessons learned from the ongoing investigation into the causes of the BP Oil Spill.

To realize an improved margin of safety associated with the recommended equipment standards and operating procedures, the report proposes new inspection and verification measures, which the Department will implement. Several of these efforts will also allow the public to access information about the inspection and verification structures, to promote confidence that: (1) the Federal Government undertakes appropriate actions to review, audit, and confirm industry performance; and (2) industry follows the best possible practices and the new set of regulatory requirements.

A comprehensive set of reforms encompassing all aspects of oil and gas development on the OCS simply could not be fully developed in the 30-day timeframe of this report. With respect to some safety measures, the Department will undertake further study—with appropriate input from independent experts, academia, industry, and other stakeholders—to develop new regulations and other appropriate steps to promote drilling safety. These Department-led strike teams will also help to inform the work of the President's new bipartisan National Commission. Finally, this report does not address several important issues associated with the safety of offshore

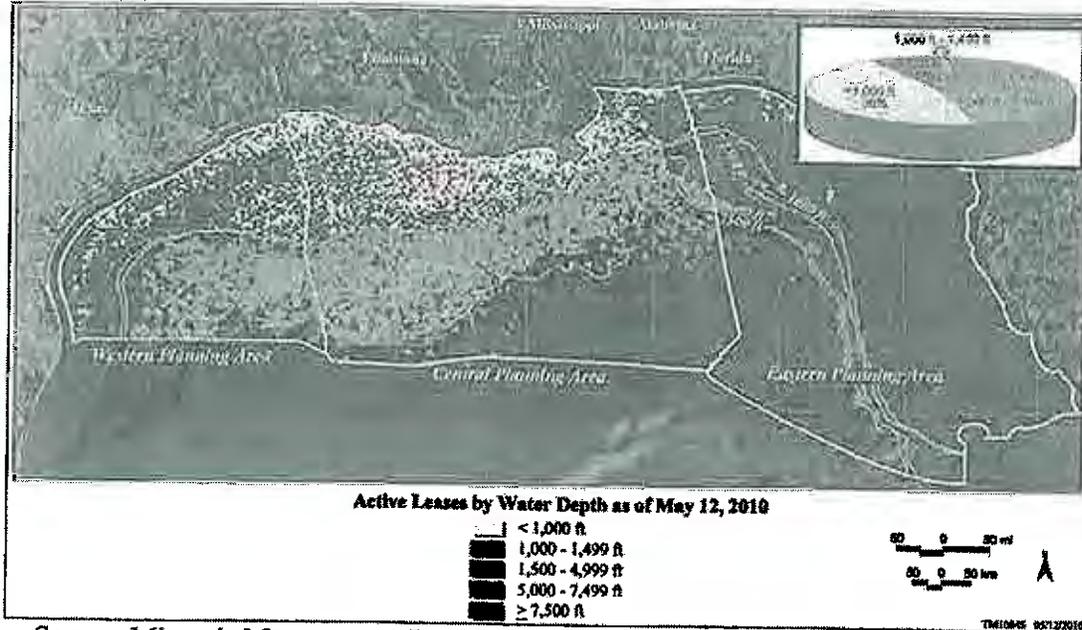
drilling that implicate shared responsibilities with other departments and agencies. For example, the Department will work in close cooperation with the Department of Homeland Security, including the United States Coast Guard, the Environmental Protection Agency, and other agencies to evaluate and improve oil spill response capabilities and industry responsibilities.

II. OFFSHORE OIL AND GAS PRODUCTION

A. Federal OCS Oil and Gas Activities

The Gulf of Mexico provides 97 percent of Federal OCS production. The Gulf of Mexico has nearly 7,000 active leases (see Figure 1), 64 percent of which are in deepwater. The Pacific OCS has 49 active leases off the coast of Southern California, 43 of which are producing. There have been no Pacific OCS lease sales since 1984. Alaska has 675 active leases and production from a single joint State-Federal field. The Atlantic does not have any active leases or production.

Figure 1
Gulf of Mexico OCS Active Leases



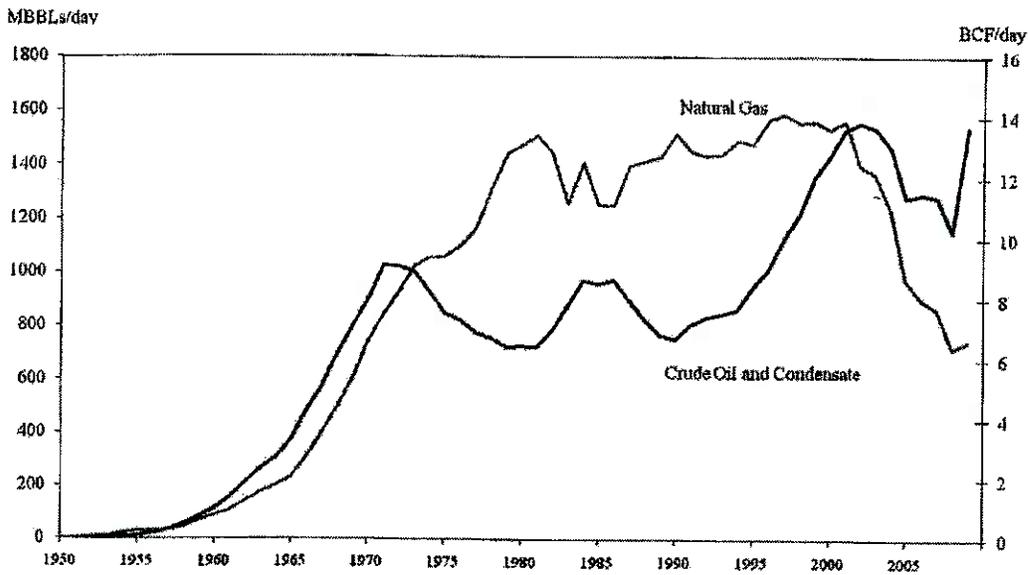
Source: Minerals Management Service Database, 2010.

Since 1947, more than 50,000 wells have been drilled in the Federal Gulf of Mexico, and there are now approximately 3,600 structures in the Gulf. In 2009, production from these structures accounted for 31 percent of total domestic oil production and 11 percent of total domestic, marketed natural gas production. Oil production in 2009 represented the second highest annual production for the Gulf of Mexico OCS (see Figure 2). Minerals Management Service Database, 2010.

Since the first major deepwater leasing boom in 1995 and 1996, a sustained and robust expansion of deepwater drilling activity has occurred, largely enabled by major advances in drilling

technology. In 2001, U.S. deepwater offshore oil production surpassed shallow water offshore oil production for the first time. By 2009, 80 percent of offshore oil production and 45 percent of natural gas production occurred in water depths in excess of 1,000 feet, and industry had drilled nearly 4,000 wells to those depths. In 2007, a record 15 rigs were drilling for oil and gas in water depths of 5,000 feet or more in the Gulf of Mexico. Operators have drilled about 700 wells in water depths of 5,000 feet or greater in the OCS. While fewer wells are drilled in the OCS today, they tend to be more sophisticated with higher per-well production levels than those in the past.

Figure 2
Gulf of Mexico OCS Oil and Gas Production



Source: Minerals Management Service Database, 2010.

Since 1953, the Federal Government has received approximately \$200 billion in lease bonuses, fees, and royalty payments from OCS oil and gas operators. Last year, the Federal OCS leasing revenue was \$6 billion. The OCS oil and gas industry provides relatively high-paying jobs in drilling and production activities, as well as employment in supporting industries. Offshore operations provide direct employment estimated at 150,000 jobs. Minerals Management Service Database, 2010.

B. OCS Petroleum Spills

Since the 1969 Santa Barbara, California, oil spill, there have been relatively few major oil spills from offshore oil and gas operations in the U.S. and around the world. Yet several notable blowouts have occurred, including one in June 1979, when the Ixtoc I exploratory well located about 50 miles off the Yucatan Peninsula blew out and was not brought under control until March 1980, releasing over three million barrels of oil off the coast of the Mexican state of Campeche. In 2009, the Australian Montara well in the Timor Sea blew out and was not brought under control for more than 10 weeks, releasing oil into the open ocean and forming a thin sheen covering up to 10,000 square miles. Nevertheless, the relatively infrequent occurrence of a major oil spill from an offshore drilling operation has led many to view these operations as safe.

From 1964 to 2009, operators in the Federal OCS produced about 17.5 billion barrels of oil (crude oil and condensate). Over this same time, the total estimated petroleum volume spilled from OCS activities was approximately 532,000 barrels, or 30.3 barrels spilled per million barrels produced. The spill rates from OCS platform and rig activities improved each decade from the 1960s through the 1990s, although the past decade reversed this trend (see Table 1). The oil spilled from OCS rigs and platforms over the past 30 years totaled about 27,000 barrels, illustrating how a catastrophic spill like the current BP Oil Spill can vastly exceed the impacts of typical spills on the OCS.

Table 1
Crude Oil Spills from Platform and Rigs from Federal OCS Activities, 1960-2009

| Time Period | OCS Oil Production (Thousand Barrels) | Number of Spills | Barrels Spilled (Thousand Barrels) | Thousand Barrels Produced per Barrel Spilled |
|-------------|---------------------------------------|------------------|------------------------------------|--|
| 1960-1969 | 1,460,000 | 13 | 99 | 15 |
| 1970-1979 | 3,455,000 | 32 | 106 | 33 |
| 1980-1989 | 3,387,000 | 38 | 7 | 473 |
| 1990-1999 | 4,051,000 | 15 | 2 | 1,592 |
| 2000-2009 | 5,450,000 | 72 | 18 | 296 |

Note: Only covers spills of 50 barrels or more.

Source: Minerals Management Service Database, 2010.

Blowouts represent a type of loss of well control event that can result in large discharges of oil into the natural environment. Since 1970, the number of blowouts per number of wells drilled has varied significantly from year to year. From 1964 through 1970, a total of approximately 178,000 barrels of oil was spilled on the Federal OCS as a result of blowout events (see Table 2). Of this total, about 13,000 barrels resulted from blowouts related to external forces, such as hurricanes and ship collisions. An additional 30,000 barrels were released when a production fire resulted in the loss of well control of 12 wells on a production platform. The remaining 135,000 barrels that were released during blowouts occurred during drilling, well completion, or workover operations.

Table 2

Blowout Events Exceeding 1,000 Barrels on the Federal Outer Continental Shelf, 1964-2009

| Year | Description of Event |
|------|---|
| 1964 | Two blowouts associated with a hurricane event that destroyed four platforms. Total of 10,280 barrels crude oil spilled. |
| 1965 | One blowout associated with drilling. 1,688 barrels condensate spilled. |
| 1969 | One blowout that occurred when a supply vessel collided with a drilling rig during a storm and sheared the wellhead. 2,500 barrels crude oil spilled. |
| 1969 | One blowout (Santa Barbara, California) was associated with drilling. 80,000 barrels spilled. |
| 1970 | One blowout was caused by a fire in the production area that resulted in the loss of control of 12 wells on the platform. 30,000 barrels crude oil spilled. |
| 1970 | One blowout associated with wireline work during workover operations. 53,000 barrels spilled. |

Source: Minerals Management Service Database, 2010.

After these blowouts, in the period from 1971 through 2009, a total of approximately 1,800 barrels was spilled on the Federal OCS as a result of blowout events. Of that amount, 425 barrels were blowouts resulting from hurricane damage. An additional 450 barrels occurred at an oil pump during production operations. Since 1956, 15 blowouts resulted in at least one fatality; three of these events occurred after 1986.

While the rate of blowouts per well drilled has not increased, even as more activity has moved into deeper water, the experience with the BP Oil Spill illustrates the significant challenges in containing a blowout in deepwater, as compared to containing a blowout in shallower water.

III. EXISTING WELL CONTROL STUDIES

The Department has conducted research related to offshore oil and gas exploration, development, and production for two purposes: (1) to augment the overall knowledge base in the field, and (2) to identify information supporting new or modified requirements in a regulation or recommended practices. The Department maintains interagency agreements and working arrangements for research with other Federal agencies who share responsibility for regulatory oversight of OCS operations, including the Departments of Commerce, Energy, and Transportation.

Through the Technical Assessment & Research (TA&R) Program, the Department studies the operational safety, technology, and the pollution prevention and spill response capabilities associated with offshore operations. The TA&R Program serves "to promote new technology and safety through the funding of collective research with industry, academia, and other

government agencies and disseminate findings through a variety of public forums.” *Minerals Management Service Engineering and Research Branch 2008-2012 Strategic Plan*. This program has funded or co-funded numerous studies investigating the use of well control techniques and equipment, including those associated with drilling fluid of a specified weight and circulation, cement with a specific bond and integrity, casing with a specific design, pressure control safety valves, and BOPs (see Table 3 for a list of well control studies funded by the Department since 1990). These studies have led to offshore drilling safety improvements around the world.

Table 3
TA&R Funded Well Control Research, 1990-2010

| Study No. | Title of Study | Completion Date |
|------------|---|-----------------|
| <u>8</u> | Blowout Prevention Procedures for Deepwater Drilling | 1978 to 2003 |
| <u>150</u> | Floating Vessel Blowout Control | December 1991 |
| <u>151</u> | Investigation of Simulated Oil Well Blowout Fires | 1989 to 1993 |
| <u>170</u> | Improved Means of Offshore Platform Fire Resistance | 1991 and 1994 |
| <u>220</u> | Study of Human Factors in Offshore Operations | 1995 to 1997 |
| <u>253</u> | Blowout Preventer Study | December 1996 |
| <u>264</u> | Development of Improved Drill String Safety Valve Design and Specifications | 1996 and 1998 |
| <u>319</u> | Reliability of Subsea Blowout Preventer Systems for Deepwater Applications—Phase II | November 1999 |
| <u>382</u> | Experimental Validation of Well Control Procedures in Deepwater | December 2005 |
| <u>383</u> | Performance of Deepwater BOP Equipment During Well Control Events | July 2001 |
| <u>403</u> | Repeatability and Effectiveness of Subsurface-Controlled Safety Valves | March 2003 |
| <u>408</u> | Development of a Blowout Intervention Method and Dynamic Kill Simulated for Blowouts in Ultra-Deepwater | December 2004 |
| <u>431</u> | Evaluation of Secondary Intervention Methods in Well Control | March 2003 |
| <u>440</u> | Development and Assessment of Well Control Procedures for Extended Reach and Multilateral Wells | December 2004 |
| <u>455</u> | Review of Shear Ram Capabilities | December 2004 |
| <u>463</u> | Evaluation of Sheer Ram Capabilities | September 2004 |

| | | |
|------------|--|--|
| <u>519</u> | Drilling and Completion Gaps for High Temperature and High Pressure In Deep Water | June 2006 |
| <u>540</u> | Risk Assessment of Surface vs. Subsurface BOP's on Mobile Offshore Drilling Units | August 2006 |
| <u>541</u> | Application of Dual Gradient Technology to Top Hole Drilling | November 2006 |
| <u>566</u> | Using Equipment, Particularly BOP and Wellhead Components in Excess of the Rated Working Pressure | October 2006 |
| <u>582</u> | A Probabilistic Approach to Risk Assessment of Managed Pressure Drilling in Offshore Drilling Applications | October 2008 |
| <u>631</u> | Risk Profile of Dual Gradient Drilling | Estimated completion in September 2010 |
| <u>640</u> | Risk Analysis of Using a Surface Blow Out Preventer | April 2010 |

Note: This report includes hyperlinks to the reports via the study numbers.

Source: Minerals Management Service Database, 2010.

These studies have examined, among other things, blind shear ram capabilities, back-up BOP systems, and drilling and cementing design and operations, which have informed the setting of Department regulations. For example, the 1999 *Reliability of Subsea BOP systems for Deepwater Applications* (study number 319) recommended modifying testing regulations to ensure that the testing of variable pipe rams appropriately account for the diameters of all the sizes of pipe in use in a given drilling project. The Department used this recommendation in revising its 2003 final drilling regulations.

The 2002 *Review of Shear Ram Capabilities* (study number 455) identified issues associated with the cutting power of shear rams, which are intended to cut through drill pipe when the well must be secured in an emergency situation. The Department adopted the report's recommendation that the BOP must be capable of shearing pipe planned for use in current drilling programs under 30 CFR 250.416(e). This regulation requires the submittal of information demonstrating that shear rams on the proposed BOP stack can cut drill pipe under maximum anticipated surface pressure.

The 2004 *Evaluation of Sheer Ram Capabilities* (study number 463) expanded on the analysis in study number 455 through an evaluation of BOP shear rams under the most demanding conditions. In this study, 214 pipe samples were tested against various ram models, and 16 (7.5 percent) were unsuccessful in shearing the pipe below a certain pressure (3,000 pounds per square inch). All 16 of these cases involved a particular combination of shear ram and pipe, which was found unsuitable for actual drilling operations. The results of this study confirmed the regulatory decision to require operators to submit documentation that shows the shear rams are capable of shearing the pipe in the hole under maximum anticipated surface pressures.

The 2003 *Evaluation of Secondary Intervention Methods in Well Control* (study number 431) reviewed the design and capabilities of various secondary BOP intervention systems used in practice. Secondary intervention represents an alternate means to operate BOP functions in the event of total loss of the primary control system or a means to assist personnel during situations involving imminent equipment failure or well-control problems. This study discusses the possible use of acoustic systems in the Gulf of Mexico. According to the report, there remain significant doubts about the ability of an acoustic control system to provide a reliable emergency back-up to the primary control system during an actual well flow event.

IV. LEGAL FRAMEWORK, INSPECTIONS, AND ENFORCEMENT

A. Statutory Authority

In 1953, the Congress passed the Outer Continental Shelf Lands Act (OCSLA) that defines the OCS as any submerged land outside state jurisdiction and established Federal jurisdiction over these waters and all resources they contain. The OCSLA also set Federal responsibilities for managing and maintaining the OCS subject to environmental constraints and safety concerns. The legislation authorized the Department to lease areas of the OCS for development and to regulate offshore operations and development. Since then, the OCSLA has been amended to address changing issues, including the 1978 requirement for the Department to develop 5-year leasing program schedules after consideration of environmental, social, and economic effects of natural gas and oil activity on OCS resources, location-specific risks, energy needs, laws, and stakeholder interests. This amendment also requires the Department to seek a balance between potential damage to the environment and coastal areas and potential energy supply. The first 5-year leasing program started in 1980 and the current 5-year plan ends in 2012.

Congress has also enacted laws to promote production in frontier areas like the Gulf of Mexico deepwater. For example, the 1995 Deepwater Royalty Relief Act encouraged oil and gas development in the Gulf of Mexico in water depths greater than 200 meters (656 feet) through royalty relief. Royalty relief incentives were also offered to encourage production from wells drilled for deep natural gas (greater than 15,000 feet or 4,572 meters total depth) on new leases located in shallow waters (less than 200 meters). The Energy Policy Act of 2005 included additional incentives for oil and gas development in offshore areas to stimulate production in deepwater and expanded the OCSLA to include the areas offshore Alaska for royalty suspension.

Oil and gas leasing and operations are subject to environmental reviews under the National Environmental Policy Act (NEPA). On May 14, 2010, Secretary of the Interior Ken Salazar and the Council on Environmental Quality Chair Nancy Sutley announced a full review of NEPA compliance for oil and gas activities on the OCS, and accordingly, NEPA will not be covered in this report.

B. Regulations

Under the OCSLA, the Secretary of the Interior, through the MMS, manages and regulates leasing, exploration, development, and production of resources on the OCS. Current regulations are a combination of prescriptive and performance-based measures.

Prescriptive regulations specify rules or courses of action that must be explicitly followed in order to comply with regulation. A prescriptive approach sets clear rules for industry to follow. Performance-based regulations, in contrast, specify objectives for industry to achieve but allow flexibility in the technology and approaches used to meet these objectives. This approach allows improved technologies and methodologies to be incorporated into industry practices without major revisions to regulations and puts the onus on industry to develop systems for continuous improvement of safety and environmental protection practices. Internationally, many countries (e.g., United Kingdom, Norway, and Australia) are moving toward more performance-based regulations. The Department also incorporates by reference recommended practices and standards from industry associations and technical standard setting groups such as the American National Standards Institute, API standards and recommended practice documents, and National Association of Corrosion Engineers documents. The Department also issues Notice to Lessees (NTLs) to clarify and provide direction on regulatory requirements.

The regulations in 30 CFR 250 govern important drilling operations on the OCS. Subpart D covers all aspects of the drilling operation including permitting, casing requirements, cementing requirements, diverter systems, BOP systems, drilling fluids requirements, equipment testing, and reporting. The minimum requirements for BOPs are stated in detail, including system components, surface and subsea BOP stacks, associated systems and equipment, choke manifolds, kelly valves, drill-string safety valves, maintenance and inspections, pressure tests and additional testing, and recordkeeping. Subpart Q covers decommissioning, which includes temporary abandonment of wells. These regulations are mainly prescriptive in nature, and convey the minimum requirements for safe operations.

While regulations governing OCS exploration, development, and production activities have been largely prescriptive, the Department has been considering more performance-based approaches. For example, the 2002 Subpart O (30 CFR 250.1500) training rule is a performance-based regulation. In addition, the Department has incorporated by reference nearly 100 consensus standards into current offshore operating regulations. In this way, the Department imposes a responsibility on operators to ensure safe operations through compliance with prescribed standards as well as compliance with performance-based, overarching measures. As such, it is the responsibility of operators to meet the requirements of 30 CFR 250.401:

What must I do to keep wells under control? You must take necessary precautions to keep wells under control at all times. You must: (a) Use the best available and safest drilling technology to monitor and evaluate well conditions and to minimize the potential for the well to flow or kick and...(e) Use and maintain equipment and materials necessary to ensure the safety and protection of personnel, equipment, natural resources, and the environment.

Review of Applications for Permit to Drill (APDs)

Upon receipt of an APD, the Department reviews the approval documents for the Exploration or Development Plans for conditions that apply to the APD or the well's proposed location. The Department also assesses whether the applicant has oil spill financial responsibility coverage.

The Department conducts an engineering review of the APD, to check the proposed drilling rig's maximum operating limits for drilling depth and water depth to ensure appropriateness for the proposed well program. The review consists of, but is not limited to, the proposed procedure, well location and directional program, geological and geophysical hazards, subsurface environment for pore pressure and fracture gradient, wellbore design and schematic, design calculations for pressure containment during drilling and completion, cement volumes, and testing pressures for the well control equipment, casing and casing shoe. This review is performed for shallow and deepwater drilling operations, and a hurricane risk assessment is performed during hurricane season. The Department reviews APDs to determine how the proposed operation satisfies the regulations in meeting its objective of safely reaching a targeted depth. This review includes an assessment of:

- well casing setting depths determined by formation strength, predicted formation fluid pressure, drilling mud weight limits, any anticipated subsurface hazards;
- effectiveness of well casing strength for pressure containment at its specified depth;
- effectiveness of cementing the well casing after successfully securing and isolating the hydrocarbon zones or any encountered subsurface hazards; and
- maintaining well control by adjusting drilling mud properties and the use of well control equipment such as diverters and BOPs.

The Department reviews the operator's plans and APDs to verify the use of best available and safest technology (BAST), and inspections verify the use of approved equipment and maintenance thereof.

Upon completing the engineering review, the Department may approve the APD with conditions if warranted, return it to the operator for modifications, or deny it. If the applicant makes changes to the drilling application, the Department must grant approval before the applicant performs its work.

C. Inspections

The Department maintains a comprehensive inspection program to promote the safety of offshore oil and gas operations on the OCS. This program places inspectors offshore on drilling rigs and production platforms to enforce operator compliance with Federal safety and environmental protection requirements. When a drilling rig enters Federal waters to drill a well, Federal inspectors will meet the rig where it is moored to provide training to the rig operators about the Federal regulatory structure. At this time, inspectors will conduct a drilling inspection of the equipment. It is Departmental policy for inspectors to inspect the rig once on location every 30 days.

For production platforms, it is practice for initial inspections to take place during the fabrication of the platform at a shipyard. Federal inspectors and engineers review the flow diagrams and

charts to determine if the specific facility meets regulatory requirements. A complete production inspection of the facility occurs typically about 30 to 45 days after a production platform is installed.

After operations begin, the Department conducts additional announced and unannounced inspections. Inspectors typically give the operator a few days notice for announced inspections. Inspectors also fly to platforms or rigs unannounced, and in such cases, inspectors contact the operator as they approach the facility. These unannounced inspections foster a climate of safe operations, maintain an inspector presence, and allow regulators to focus on operators with a poor performance record. They are also conducted after a critical safety feature has previously been found defective during previous inspections or by operator reporting.

During a drilling inspection an inspector typically conducts the following:

- a general safety walk through of the facility looking for general housekeeping hazards related to slips/trips/falls/railings/open gratings;
- verification of the location of gas detectors/hydrogen sulfide detectors/mud volume detectors;
- verification that the mud trip tank is operational and properly marked (graduated), that appropriate quantities of a mud weighting material are onboard (barite), and that the drilling mud currently in use has been periodically tested and is of the proper density as indicated in the APD (viewing mud logger's report);
- verification that proper well control data relative to the well depth and type of tubulars (drill pipe, casing) in the well is clearly marked and posted on the rig floor and that there are remote BOP and Diverter control panels on the facility;
- verification that equipment is properly grounded and that drill string safety valves with proper wrenches for the diameter of drill pipe or casing currently in the well are located on the drill floor in an open position and within easy access to rig personnel;
- verification that the crown block safety device is installed and operational and that fresh air intakes are properly located on the rig;
- verification that diesel engines have required shut down devices, that breathing air is properly labeled, that engine exhaust is insulated;
- verification that crane load charts on platform rigs have been recorded, that all equipment has proper catch basins/drains/curbs/gutters/drip pans, that the facility is properly marked as to location, that the facility is properly lighted;
- if drilling is being conducted on a production facility, verification that there is an operational Emergency Shut Down device on the rig floor;

- verification of the status/switch position of the BOP pumps that the stand-by pump operates in an automatic fashion, that the accumulator bottles are in service;
- review the BOP tests records;
- checks the Subpart O well control status of contractor and lessee employees;
- checks for certain Potential Incidents of Noncompliance, which allow the inspector to check for general competency related to drilling operations; and
- inspectors may test, randomly or as a result of a safety concern, an offshore employee's competency with various safety devices.

The records check and documentation components of a drilling inspection apply to equipment, procedures, and operations that were conducted prior to the inspector boarding the facility, including but not limited to casing, cement, diverter, and BOP pressure testing results, casing setting depths, cement volumes, proper wait on cement time, formation pressure integrity tests, formation evaluation tests, required well control drills, hydrogen sulfide training certifications, and gas detector and hydrogen sulfide detector calibration records. Furthermore, the inspector confirms that proper paperwork is available in regard to any granted departures approved during the drilling of the well which were not previously approved in the APD.

During 2009, industry drilled a total of 331 wells in the Gulf of Mexico, and the MMS Gulf of Mexico Region conducted the following types and numbers of inspections:

- 561 drilling inspections;
- 3,678 production inspections;
- 268 well workover and well completion inspections;
- 6,804 meter inspections;
- 82 abandonment inspections;
- 4,837 pipelines inspections; and
- 3,342 personal safety inspections, on behalf of the U.S. Coast Guard.

E. Enforcement

The Secretary of the Interior, the Secretary of the Army, and the U.S. Coast Guard have the authority to pursue civil and criminal enforcement actions against persons who violate the OCSLA, the regulations created to implement the OCSLA, and the terms of any lease, license, or permit issued under OCSLA. The Department maintains a National Potential Incident of Noncompliance (PIN) List to help inspectors carry out enforcement actions: it contains a checklist of requirements for specific installations or procedures and prescribed enforcement

actions consisting of written warnings, shut-in of a component, including wells, equipment, or pipelines, or shut-in of an entire platform if noncompliance with the National PINC is detected. If the violation does not impose an immediate danger to personnel or equipment, a warning Incident of Noncompliance (INC) is issued. An INC must be corrected within 14 days from the time specified on the INC, and the operator may not continue the activity in question until it has corrected the INC.

The OCSLA (43 U.S.C. § 1334(a)(2)) and regulations at 30 CFR 250.181-188 authorize the Secretary to cancel a lease or permit if, after opportunity and notice for a hearing, it is determined that: (1) continued activity would probably cause serious harm or damage to life, property, the environment, minerals, or national security or defense; (2) the threat of harm or damage will not disappear or decrease to an acceptable extent within a reasonable time; (3) the advantages of cancellation outweigh the advantages of continued activity; and (4) a suspension has been in effect for at least five years or the termination of suspension and lease cancellation are at the request of the lessee.

Regulations appearing in 30 CFR 250.135-136 provide for a disqualification process for operators exhibiting chronic poor compliance. This procedure allows operators to be placed on probation and requires that they submit Performance Improvement Plans. This gives the operator an opportunity to improve their performance. Should it not improve during a specified time, the operator may be disqualified from operating a given facility, including up to any and all facilities. Ultimately, an operator can go through Departmental debarment procedures that would prevent it from transacting any business with the Federal Government.

Under 43 U.S.C. § 1350(b) of the OCSLA, as amended, and regulations appearing at 30 CFR 250.200-206, civil penalties can be assessed for failure to comply with responsibilities under the law, a lease, a license, a permit, or any regulation or order issued pursuant to the Act. In addition to the enforcement actions specified above, civil penalty of up to \$35,000 per violation per day may be assessed if: (1) the operator fails to correct the violation in the amount of time specified on the INC; or (2) the violation resulted in a threat of serious, irreparable, or immediate harm or damage to life, property, minerals, or the environment. On a drilling rig, for example, 160 items are checked for potential violations. If significant enough, the violation may call for the particular well component or the entire complex to be shut in. In 2009, drilling operations of 20 facilities were shut-in.

V. REGULATORY AUTHORITY AND REQUIREMENTS IN OTHER NATIONS

There have been and continue to be a number of approaches for regulating offshore drilling activity. Some countries have adopted a prescriptive approach directing offshore oil and gas activities through detailed regulations and requirements, while other regulatory bodies have adopted a performance-based approach. Some regulators have adopted a hybrid approach by being prescriptive in areas deemed critical, while also establishing broad performance parameters where they deem industry needs the latitude to meet particular objectives.

There is a major difference among offshore oil and gas regulators in the number of technical standards referenced within their regulations, and the effect of referenced standards. For

example, in the United Kingdom, the standards are not compulsory, while in the United States, referenced standards have the same status as regulations. A standard is a formal document that establishes or defines a method or practice; these may also be called recommended practices. Some of the standards developing organizations, referenced in the regulations, include API, American Society of Mechanical Engineers, and American National Standards Institute. The following summarizes the regulatory structures in Norway, the United Kingdom, Australia, and Canada.

Norway

Over the past 40 years, Norway has moved from a prescriptive to a performance-based approach for regulating offshore oil and gas. Like the United States today with joint regulatory oversight of mobile drilling rigs by the Department and the U.S. Coast Guard, Norway originally regulated mobile units through its maritime authority and fixed installations by the Norwegian Petroleum Directorate (NPD).

Over time, the NPD has developed new approaches, including "compliance responsibility" that required companies to verify that their business was run acceptably and in line with the rules. The NPD eliminated the concept of inspection and replaced it with the concept of "supervision." They also replaced the term "approvals" with "consents." Supervision spans audits, verification, investigations, and most significantly, interaction with industry in the form of studies, professional seminars, and the development of regulations. These changes transformed the earlier approvals system that had the effect of the NPD being a virtual guarantor that company activities were acceptable into one centered on the concept of consent.

Since this major change in 1985, the trend has been away from prescription towards a regulatory approach based more on performance and risk management. Also, a series of reforms has resulted in regulations that are aligned with the changes in regulatory approach. Norway's regulatory requirements are general and primarily specify the conditions or functions that must be achieved to be compliant. Within this framework, companies have the freedom to choose practical solutions along with the responsibility to ensure compliance. To avoid misunderstandings about requirements for complying with the regulations, non-binding recommendations and guidelines have also been issued that reference reputable Norwegian and/or international industrial standards for structures, equipment, or procedures. These recommendations and guidelines rely primarily on Det Norske Veritas *Offshore Standards* that provide technical requirements and acceptance criteria and *Recommended Practices* for proven technology and sound engineering practice.

This approach also means that the regulator must keep abreast of and participate in developing and revising industry standards to ensure that they remain relevant and reflect best practice. Supervision by the regulator involves checking whether the administrative management systems at the companies ensure acceptable operation. This auditing must be conducted by personnel who have special technical and management expertise and experience.

The NPD acknowledges that the requirements for successfully delivering performance-based regulations demands extensive participation from industry, employees, and the regulator in terms

of expertise, management and flexibility. To achieve a safe and environmentally responsible offshore work environment, strategic, and operational plans must be drawn up, selected development measures implemented, progress monitored and corrective action taken when problems arise.

The Petroleum Safety Authority Norway (PSA) was established as an independent government regulator in 2004. It took over the safety department of the NPD and continued its role. Its authority was also extended to cover supervision of safety, emergency preparedness, and the working environment for petroleum-related plants and associated pipeline systems on land. Norway is working toward harmonizing their regulations for offshore and land-based petroleum operations under the PSA.

United Kingdom

The UK safety regulation is predominantly performance-based. Indeed, the safety case concept for offshore oil and gas operation began after the 1988 explosion and resulting fire of a North Sea oil production platform called Piper Alpha, which killed 167 men. The subsequent investigation led to the issuance of the Public Inquiry into the Piper Alpha Disaster (the Lord Cullen report) and the reorganization of the UK offshore safety laws from prescriptive to a safety case approach. UK standards describe objectives, and operators can select the methods and equipment used to achieve these objectives and meet their statutory obligations. Complementing the safety case regulations are approved codes of practice and guidance documents.

The UK regulates offshore oil and gas through the Health and Safety Executive (HSE). The core activities of HSE are safety case assessment, verification, inspection, investigation, and enforcement. The approval process for the HSE is case-specific, and each case must be accepted and approved before offshore installation operates. A government inspectorate is in place as an assurance mechanism. The HSE oversight includes over 300 installations including, production platforms, Floating Production Storage and Offloading units, and mobile offshore drilling units. Other legislation is applied offshore on an activity basis. In 1992, the Offshore Installation (Safety Case) Regulations were introduced into the UK sector. These require all fixed and mobile offshore installations operating in UK waters to have a safety case which must be reviewed and approved by the Health and Safety Executive.

Australia

The organization responsible for regulating Australia's oil and gas industry is The National Offshore Petroleum Safety Authority, an independent statutory agency designated under the Commonwealth *Offshore Petroleum and Greenhouse Gas Storage Act 2006*. This organization implements a performance-based regulatory approach. The regulator is responsible for providing assurance that the operators address risks identified by a safety case. The organization includes a joint government inspectorate, and requires third party validations for regulatory assurance. Each manned facility is inspected at least once every year. The inspections are planned and usually take several days. The subject of planned inspections includes both control and management of major equipment and occupational health and safety.

The primary features of the Australian regulatory system are:

- **Duties of care:** Specific categories of persons (operators, employers, etc.) who are involved in offshore petroleum activities at facilities are required to "take all reasonably practicable steps" to protect the health and safety of the facility workforce and of any other persons who may be affected.
- **Consultation provisions:** Mechanisms are set out that will enable effective consultation between each facility operator, relevant employers, and the workforce regarding occupational health and safety.
- **Powers of inspectors:** Inspectors are granted powers to enter offshore facilities or other relevant premises, conduct inspections, interview people, seize evidence and otherwise take action to ensure compliance by parties with legal obligations.
- **Standards and best practices** are based on a safety case approach, similar to that specified in the UK regulatory system.

Canada

The Canada-Nova Scotia Offshore Petroleum Board (C-NSOPB) and the Canada Newfoundland & Labrador Offshore Petroleum Board (C-NLOPB) are responsible for the regulation of petroleum activities in the Nova Scotia, Newfoundland, and Labrador offshore areas. Their principle responsibilities include ensuring health and safety for offshore workers, protection of the environment, conservation of offshore petroleum resources, compliance with legislative provisions regarding employment and industrial benefits, issuance of licenses for offshore exploration and development, and resource evaluation. Both boards are independent joint agencies of the Government of Canada and their respective provinces. Each work activity proposed in the offshore area related to exploration, drilling, production, conservation, processing, or transportation of petroleum requires the authorization of the responsible board. Assurance mechanisms include board inspections, audits and investigations programs, and industry self inspections. Operators are required to submit reports detailing the status of their work programs on an ongoing basis, along with other documentation to demonstrate compliance with regulatory requirements. The C-NSOPB oversees one operational natural gas project comprised of five production platforms and one 26-inch pipeline. The C-NLOPB oversees three oil projects comprised of Floating Production Storage and Offloading units and one integrated drilling/production accommodation installation.

VI. RECOMMENDATIONS FOR IMMEDIATE ACTION TO IMPROVE OFFSHORE DRILLING SAFETY

The BP Oil Spill demonstrates the possibility of a catastrophic event (or multiple catastrophic failures) and, therefore, the need to ensure that oil and gas development on the Outer Continental Shelf can be conducted safely and that another event like the BP Oil Spill never occurs again.

This 30-day review has of necessity been conducted without the results of the ongoing investigations into the precise causes of the event. A series of other investigations will determine

those causes in the coming months. Nevertheless, this report makes a set of interim recommendations based upon what is known about the equipment, systems, and practices necessary for safe operation. For example, the BP Oil Spill has underscored that as drilling activity moves increasingly into very deep water environments, it is important to reevaluate whether the best practices for safe drilling operations developed over the years need to be bolstered to account for the unique challenges of drilling in deepwater. In addition, the presumed failure of the BOP points to a need to examine standards specifically related to BOP safety.

With that context in mind, the recommendations are designed to address specific policies, practices, and procedures, which the Department has identified as important for workplace and environmental safety, even before completion of the investigation into the event. Many of the near-term recommendations are prescriptive in nature, reflecting the importance of addressing immediate needs while the Department conducts a more comprehensive examination of the entire regulatory program and determines whether additional performance-based standards are necessary.

Implementation of these recommendations is expected to improve safety of offshore drilling operations. In the coming months, these measures will be refined and supplemented based on recommendations from other reviews and investigations, including from continuing work at the Department as described below, from the Joint Investigation and from the independent bipartisan commission established by the President.

Each recommendation below is accompanied by a brief discussion of the context of the recommendations and an explanation of how it will enhance the safety of future OCS drilling activities. Each is also identified with regard to priority of expected implementation. Certain measures are intended for immediate implementation (within the next 30 days), through issuance of either a NTL, internal Departmental guidance, or in the case of a safety and environmental rule, through publication of the final rulemaking.

Other recommendations will be addressed through emergency rulemaking, where appropriate. It is the intent of the Department to issue expeditiously interim final rules to implement these recommendations. Such rules will become effective immediately upon issuance, but will also be opened for public review and comment and may be adjusted after comments are received through the appropriate process.

Finally, several recommendations require further study and, therefore, will be addressed through notice and comment rulemaking. The Department will immediately establish strike teams within the Department to further develop these measures. These strike teams will address the highly technical and complex issues raised and will seek input as appropriate from academia, industry, and other technical experts and stakeholders. The teams will present their recommendations for additional environmental protection and safety measures within six months. Recommendations will be implemented as expeditiously as possible through formal rulemaking. The recommendations from these strike teams may also inform the efforts of the President's new bipartisan National Commission.

A primer on offshore drilling technology and systems describes many of the terms used in the below recommendations (see Appendix 2).

The specific recommendations of the Department follow:

I. Blowout Preventer Equipment and Emergency Systems

BOPs and Emergency Systems: BOPs are used to control the release of oil and gas in the event of loss of well control. Current drilling regulations impose specific requirements addressing BOP systems, including requirements for annular preventers and the primary systems that control those preventers, as well as pipe and blind-shear rams.

Although the regulations do not require specific secondary control systems (back-up systems) including subsea BOP safety systems, which are designed to shut-in the wellbore automatically during emergency events the Department only approves permits for which they are secondary control systems. These safety systems include autoshear and deadman systems. Emergency events could include the loss of communication and power between the surface and the BOP stack or an unplanned disconnect of the marine riser from the BOP stack. In addition, all Gulf of Mexico drilling rigs are currently equipped to use a remote operated vehicle (ROV) to provide secondary control of the subsea BOP stack, and most provide other tertiary control systems as well. The ROV intervention capability is limited on some subsea BOP stacks while others have the ability to control multiple functions.

A. Certification of Subsea BOP Stack

Recommendation 1 – Order Immediate Re-certification of All BOP Equipment Used in New Floating Drilling Operations

Prior to spudding any new well from a floating vessel, the operator will be required to obtain a written and signed certification from an independent third party attesting that, on or after the date of this report, a detailed physical inspection and design review of the BOP has been conducted in accordance with the Original Equipment Manufacturer specifications and that: (i) the BOP will operate as originally designed, and (ii) any modifications or upgrades to the BOP stack conducted after delivery have not compromised the design or operation of the BOP. This certification must be submitted to the Department and made publicly available. Prior to deploying the BOP, the operator must also verify that any modifications or upgrades to the BOP are approved by the Department and that documentation showing that the BOP has been maintained and inspected according to the requirements in 30 CFR 250.446(a) and other applicable standards and is on file with the Department and available for inspection.

Recommendation 2 – Order BOP Equipment Compatibility Verification for Each Floating Vessel and for Each New Well

For each new well, the Department will require, as part of a structured risk management process, the operator to obtain an independent third party verification that:

- The BOP stack is designed for the specific drilling equipment on the rig and for the specific well design including certification that the shear ram is appropriate for the drilling project.
- The BOP stack has not been compromised or damaged from previous service.
- The BOP stack will operate in the water depth in which it will be deployed.

Recommendation 3 – Develop Formal Equipment Certification Requirements

The Department will investigate new certification requirements for BOP equipment and other components of the BOP stack such as control panels, communication pods, accumulator systems, and choke and kill lines. In addition, the Department will develop a system to make BOP certifications publicly available in order to increase transparency and accountability.

B. New Safety Equipment Requirements and Operating Procedures

Recommendation 4 – New Blind Shear Ram Redundancy Requirement

The BOPs used in all floating drilling operations will be required to have two sets of blind shear rams spaced at least four feet apart (to prevent system failure if drill pipe joint or drill tool is across one set of rams during an emergency).

Recommendation 5 – Secondary Control System Requirements and Guidelines

The Department will establish clear requirements for secondary BOP control systems on all subsea BOPs and for systems that address well-control emergencies. These requirements will include:

- ROV intervention capabilities for secondary control of all subsea BOP stacks, including the ability to close all shear and pipe rams, close the choke and kill valves and unlatch the lower marine riser package (LMRP).
- Requirements for an emergency back-up BOP control system, e.g., autoshear, deadman, emergency disconnect system, and/or an acoustic activation system that is powered by a separate and independent accumulator bank with sufficient capacity to open and close one annular-type preventer and all ram-type preventers, including the blind shear ram.
- Guidelines for arming and disarming the secondary BOP control system.
- Requirements for documentation of BOP maintenance and repair (including any modifications to the BOP stack and control systems).

Recommendation 6 –New ROV Operating Capabilities

The Department will develop requirements for ROV operating capabilities including the following:

- Standardized intervention ports for all subsea BOP stacks to ensure compatibility with any available ROV.
- Visible mechanical indicator or redundant telemetry channel for BOP rams to give positive indication of proper functioning (e.g., a position indicator).
- ROV testing requirements, including subsea function testing with external hydraulic supply.
- An ROV interface with dual valves below the lowest ram on the BOP stack to allow well-killing operations.

C. New Testing Guidelines and Inspection Procedures

Recommendation 7 – Develop New Testing Requirements

The Department will develop surface and subsea testing of ROV and BOP stack capabilities. These will include:

- Surface and subsea function and pressure testing requirements to ensure full operability of all functions (emergency disconnect of the LMRP and loss of communication with the surface control pods (e.g., electric and hydraulic power)).
- Third party verification that blind-shear rams will function and are capable of shearing the drill pipe that is in use on the rig.
- ROV performance standards, including surface and subsea function testing of ROV intervention ports and ROV pumps, to ensure that the ROV can close all shear and pipe rams, close the choke and kill valves, and unlatch the LMRP.
- Protocols for function testing autoshear, deadman, emergency disconnect systems, and acoustic activation systems.
- Mandatory inspection and testing of BOP stack if any components are used in an emergency (e.g., use of pipe or casing shear rams or circulating out a well kick). This testing must involve a full pressure test of the BOP after the situation is fully controlled, with the BOP on the wellhead.

Recommendation 8 – Develop New Inspection Procedures and Reporting Requirements

- The Department will evaluate and revise the manner in which it conducts its drilling inspections. Revised drilling inspections will include the witnessing of actual tests of BOP equipment, including the new requirements and guidance that address the surface and subsea testing of ROV and BOP stack capabilities. The Department will also develop methods to increase transparency and public availability of the results of inspections as well as routine reporting. The Department will work with Congress to obtain the necessary resources to implement these recommendations.
- Within 15 days of the date of this report, all operators of floating drilling equipment will report to the Department the following: (i) BOP and well control system configuration; (ii) BOP and well control system test results, including any anomalies in testing or operation of critical BOP components; (iii) BOP and loss of well control events; and (iv) BOP and well control system downtime for the last three years of drilling operations.
- The electronic log from the BOP control system must be transmitted online to a secure location onshore and made available for inspection by the Department.

II. Procedures to Ensure Adequate Physical Barriers and Well Control Systems are in Place to Prevent Oil and Gas from Escaping into the Environment

Minimizing Risk of Uncontrolled Flow: A well creates a conduit for subsurface formations to potentially flow uncontrolled to the surface. There are multiple methods that can be utilized to minimize the risk of the occurrence of uncontrolled flow. Those methods include the installation of rigid physical barriers such as cement plugs or mechanical plugs, well casing design and securing of the casing, and well control equipment. An appropriate well safety program must account for many factors unique to the drill location and dictates the installation of plugs and casing at strategic points to maintain well control and to enable drilling to the desired depth. Current Department regulations require that well-control equipment be in place at all times during the drilling operation to mitigate against failure of a plug or casing. Other, more specific standards may be appropriate to improve physical barriers and well-control systems. Well-control procedures must be revisited for deepwater operations because of the complexity of the equipment design in deepwater and the location of the BOP stack on the seafloor. Enhanced training for rig personnel will complement new well-control requirements.

A. Well-Control Guidelines and Fluid Displacement Procedures

Recommendation 1 – Establish Deepwater Well-Control Procedure Guidelines

As expeditiously as possible, the Department will establish new requirements for deepwater well-control procedures no later than 120 days of the date of this report.

Recommendation 2 – New Fluid Displacement Procedures

Prior to displacement of kill-weight drilling fluid from the wellbore, the operator must independently verify that:

- The BOPs are closed during displacement to underbalanced fluid columns to prevent gas entry into the riser should a seal failure occur during displacement.
- Two independent barriers, including one mechanical barrier, are in place for each flow path (i.e., casing and annulus), except that a single barrier is allowable between the top of the wellhead housing and the top of the BOP.
- If the shoe track (the cement plug and check valves that remain inside the bottom of casing after cementing) is to be used as one of these barriers, it is negatively pressure tested prior to the setting of the subsequent casing barrier. A negative pressure test must also be performed prior to setting the surface plug.
- Negative pressure tests are made to a differential pressure equal to or greater than the anticipated pressure after displacement. Each casing barrier is positively tested to a pressure that exceeds the highest estimated integrity of the casing shoes below the barrier.
- Displacement of the riser and casing to fluid columns that are underbalanced to the formation pressure in the wellbore is conducted in separate operations. In both cases, BOPs must be closed on the drill string and circulation established through the choke line to isolate the riser, which is not a rated barrier. During displacement, volumes in and out must be accurately monitored.
- Drill pipe components positioned in the shear rams during displacement must be capable of being sheared by the blind-shear rams in the BOP stack.

B. Well Design and Construction

1. Requirements for Both Casing and Cementing

Recommendation 3 – New Casing and Cement Design Requirements: Two Independent Tested Barriers

Before spudding any new floating drilling operation, all well casing and cement designs must be certified by a Professional Engineer, who verifies that there will be at least two independent tested barriers, including one mechanical barrier, across each flow path during well completion and abandonment activities and that the casing design is appropriate for the purpose for which it is intended under reasonably expected wellbore conditions.

Recommendation 4 – Study Formal Personnel Training Requirements for Casing and Cementing Operations

The Department will immediately establish a technical workgroup to evaluate new training and certification requirements for rig personnel specifically related to casing and cementing operations.

2. Casing Requirements

Recommendation 5 – New Casing Installation Procedures

The Department will ensure the requirement of the following BAST practices:

- Casing hanger latching mechanisms or lock down mechanisms must be engaged at the time the casing is installed in the subsea wellhead.
- For the final casing string, the operator must verify the installation of dual mechanical barriers (e.g., dual floats or one float and a mechanical plug) in addition to cement, to prevent flow in the event of a failure in the cement.

Recommendation 6 – Develop Additional Requirements or Guidelines for Casing Installation

The Department will establish specific requirements for the following procedures and practices:

- Positive and negative test procedures and use of test results for evaluation of casing integrity.
- Use of float valves and other mechanical plugs in the final casing string or liner.

3. Cementing Requirements

Recommendation 7 – Enforce Tighter Primary Cementing Practices

- The Department will institute a rulemaking address previously identified gaps in primary cementing practices).
- The Department, with input from independent experts will determine specific cementing requirements.

Recommendation 8 – Develop Additional Requirements or Guidelines for Evaluation of Cement Integrity

The Department will immediately evaluate whether and under what circumstances the use of cement bond logs is feasible and practical and will increase safety.

Discussion of Recommendations 3-8

Recommendations 3-8 are intended to result in better well control. Requiring a Professional Engineer to review and certify the well design will add another level of review to the current well design requirements. The Department's review new training requirements for casing and cementing operations helps focus industry and rig personnel on the importance of proper casing and cementing operations. Additional operational requirements for casing installation and cementing operations will add new assurances that adequate barriers are in place before continuing on to new drilling activities. Incorporation of the new cementing standard will bring all of industry up to state-of-art cementing practices—this means less chance of a well blowout due to a poor cement job.

C. Wild-Well Intervention

Recommendation 9 – Increase Federal Government Wild-Well Intervention Capabilities

Blown out, or "wild" wells, involve the uncontrolled release of crude oil or natural gas from an oil well where pressure control systems have failed. The Federal Government must develop a plan to increase its capabilities for direct wild-well intervention to be better prepared for future emergencies, particularly in deepwater. Development of the plan should consider existing methods to stop a blowout and handle escaping wellbore fluids, including but not limited to coffer dams, highly-capable ROVs, portable hydraulic line hook-ups, and pressure-reading tools, as well as appropriate sources of funding for such capabilities.

Recommendation 10 – Study Innovative Wild-Well Intervention, Response Techniques, and Response Planning

The Department will investigate new methods to stop a blowout and handle escaping wellbore fluids. A technical workgroup will take a fresh look at how to deal with a deepwater blowout. In particular, the workgroup will evaluate new, faster ways of stopping blowouts in deepwater. The technical workgroup will also address operators' responsibility, on a regional or industry-wide basis, to develop and procure a response package for deepwater events, to include diagnostic and measurement equipment, pre-fabricated systems for deepwater oil capture, logistical and communications support, and plans and concepts of operations that can be deployed in the event of an unanticipated blowout, as well as assess and certify potential options (e.g., deepwater dispersant injection).

III. Organizational and Safety Management

A. Increased Enforcement of Existing Safety Regulations and Procedures

Enforcing Existing Regulations: Immediately following the BP Oil Spill, the MMS and the U.S. Coast Guard issued a joint Safety Alert to compel operators and drilling contractors to inspect their drilling equipment (both surface and subsea), review their procedures to ensure the safety of personnel and protection of the environment, and review all emergency shutdown and dynamic positioning procedures. Inspections began immediately to verify that all active

deepwater drilling activities complied with these recommendations and all other regulations. Following the completion of the drilling inspections, inspections of all deepwater production facilities began immediately to ensure compliance by those facilities with the regulations. Reconfirmation of adherence to this Safety Alert and all existing regulations will heighten safety awareness.

Recommendation 1 – Compliance Verification for Existing Regulations and April 30, 2010, National Safety Alert

Within 30 days of the date of this report, the Department, in conjunction with the Department of Homeland Security, verify compliance by operators with existing regulations and National Safety Alert (issued April 30, 2010), which issued the following safety recommendations to operators and drilling contractors:

- Examine all well-control equipment (both surface and subsea) currently being used to ensure that it has been properly maintained and is capable of shutting in the well during emergency operations. Ensure that the ROV hot-stabs are function-tested and are capable of actuating the BOP.
- Review all rig drilling/casing/completion practices to ensure that well-control contingencies are not compromised at any point while the BOP is installed on the wellhead.
- Review all emergency shutdown and dynamic positioning procedures that interface with emergency well control operations.
- Inspect lifesaving and firefighting equipment for compliance with Federal requirements.
- Ensure that all crew members are familiar with emergency/firefighting equipment, as well as participate in an abandon ship drill. Operators are reminded that the review of emergency equipment and drills must be conducted after each crew change out.
- Exercise emergency power equipment to ensure proper operation.
- Ensure that all personnel involved in well operations are properly trained and capable of performing their tasks under both normal drilling and emergency well-control operations.

After the 30-day compliance period, the Department will provide a public report on operator verification, including any cases of non-compliance.

B. Organizational Management

Organizational Safety Case Documentation: A safety case is a comprehensive and structured set of safety documentation to ensure the safety of a specific vessel or equipment. This documentation is essentially a body of evidence that provides a basis for determining whether a system is adequately safe for a given application in a given environment. In response to the 1988

Piper Alpha disaster in the UK, the Lord Cullen investigation and report advanced the safety case concept for offshore oil and gas operations.

The use of a formal safety case for drilling operations is an important component in regulating drilling activities in many countries. The International Association of Drilling Contractors (IADC) has developed guidelines that can be applied to any drilling unit regardless of geographic location. The use of these guidelines can assist both the operator and regulatory authorities when evaluating a drilling contractor's safety management program by providing them assurance that the program encompasses a series of best industry practices designed to minimize operating risks. The Department will undertake an evaluation of requiring the application of all or part of these guidelines to OCS oil and gas operations.

Recommendation 2 – The Department Will Adopt Safety Case Requirements for Floating Drilling Operations on the OCS

The Department will assure the adoption of appropriate safety case requirements based on IADC Health, Safety and Environmental Case Guidelines for Mobile Offshore Drilling Units (2009), which will include well construction safety assessment prior to approval of APD. This safety case must establish risk assessment and mitigation processes to manage a drilling contractor's controls related to the health, safety, and environmental aspects of their operations. In addition to the safety case, a separate bridging document will be required to connect the safety case to existing well design and construction documents. Such a proposed Well Construction Interfacing Document will include all of the elements in a conventional bridging document plus alignment of the drilling contractor's management of change (MOC) and risk assessment to the lease operator's MOC and well execution risk assessments. The use of the IADC's Health, Safety, and Environmental Case Guidelines for Mobile Offshore Drilling Units will help operators and drilling contractors demonstrate their ability to operate safely and handle the risks associated with drilling on the OCS.

C. Personnel Accountability Procedures for Operational Safety (Risk, Injury, and Spill Prevention)

Recommendation 3 – Finalize a Rule that Would Require Operators to Develop a Robust Safety and Environmental Management System for Offshore Drilling Operations

Department investigation findings and reports indicate that unsafe offshore drilling operations often result from human error. The Department is proceeding with the rulemaking process to finalize a regulation to require operators on the OCS to adopt a comprehensive, systems-based approach to safety and environmental management that incorporates best practices from around the globe. The Department believes that requiring operators to implement robust and comprehensive safety and environmental management plans could reduce the risk and number of injuries and spills during OCS activities. The Department will finalize a rule that is informed by current operational conditions in the Gulf and the events and related investigation surrounding the BP Oil Spill.

Recommendation 4 – Study Additional Safety Training and Certification Requirements

The Department will immediately establish a workgroup to investigate safety training requirements for floating drilling rig personnel and possible requirements for independent or more frequent certification and testing of personnel and safety systems.

- Establish an oil production safety program or institute similar to U.S. Nuclear Regulatory Commission (NRC) reactor safety program.
- Establish a formalized analytical methodology to assess performance of safety systems in the event of multiple component failure or excursions outside normal environmental ranges.
- Strengthen technical support to the Department and other regulatory authorities, including the resources necessary to obtain independent technical review of regulations and standards.
- Charter a longer-term technical review of BOP equipment and emergency backup system reliability.
- Review and adopt as appropriate best practices from other agencies with similar responsibility for safety regulation of technically complex systems (e.g., Federal Aviation Administration, NRC, Chemical Safety Board, and National Transportation Safety Board).

VII. CONCLUSION

The Department developed these recommendations with input and suggestions from experts from across the field and reviewed by members of the National Academy of Engineering. The Department has presented new requirements for well design, construction and operation and for the quality and sufficient redundancy of fail-safes, so as to promote better well control and ensure the efficacy of the BOPs. The Secretary of the Interior has directed the Department to develop measures to increase the frequency, thoroughness, and transparency of inspections, such as for testing of BOPs and associated back-up systems. The Secretary has also directed the Department to look at innovative ways of promoting a greater culture of safety through a new rule that would require all rig operators to develop enhanced operational, safety, and environmental management plans, which would include more extensive worker training to enable them to adapt and respond effectively to events when something unexpected happens on a drilling rig.

The Department's approach to implementing these recommendations will follow a continuum from near-term prescriptive regulations, which are required to increase immediately the margin of safety in offshore oil and gas development, to longer-term actions designed to facilitate an environment where the absolute highest standard of performance is demanded of industry. This approach puts the onus on industry to perform safely, with the Government focusing on aggressive verification and enforcement. The majority of the specific recommendations

contained in this report fall within the category of near-term prescriptive actions necessary to increase offshore energy production safety immediately.

At the same time, the Secretary has directed a fundamental restructuring of the MMS to bring greater clarity to the roles and responsibilities of the Department while strengthening oversight of the companies that develop energy in our Nation's waters. This restructuring, the latest in a series of reforms to the MMS that the Secretary began in January 2009, will establish:

- **Bureau of Ocean Energy Management:** A new bureau under the supervision of the Assistant Secretary for Land and Minerals Management that will be responsible for the sustainable development of OCS conventional and renewable energy resources, including resource evaluation, planning, and other activities related to leasing.
- **Bureau of Safety and Environmental Enforcement:** A bureau under the supervision of the Assistant Secretary for Land and Minerals Management that will be responsible for ensuring comprehensive oversight, safety, and environmental protection in all offshore energy activities.
- **Office of Natural Resources Revenue:** An office under the supervision of the Assistant Secretary for Policy, Management and Budget that will be responsible for the royalty and revenue management function including the collection and distribution of revenue, auditing and compliance, and asset management.

Another critical part of the ongoing effort to reform the MMS began in September 2009 when the Secretary asked the National Marine Board, an arm of the highly respected National Academy of Sciences, to direct an independent review of MMS's inspection program for offshore facilities. That review is on-going.

The Secretary is committed to implementing the changes recommended in this report at the same time this and other reviews are ongoing and at the same time that the Department undertakes fundamental change in its OCS oversight. The Secretary established by Secretarial Order 3298 the OCS Safety Oversight Board. The OCS Safety Oversight Board is a high-level team, led by the Assistant Secretary for Land and Minerals Management, the Assistant Secretary for Policy, Management and Budget, and the Inspector General, that reviews and oversees OCS operations to support reasoned and fact-based recommendations for potential improvements.

The success of the Department's longer-term objective of creating a more dynamic and effective regulatory environment for offshore energy production overall is very much the focus of the efforts to restructure the MMS. Specifically, the persons responsible for designing the new Bureau of Safety and Environmental Enforcement have been tasked to create a structure, operational processes, and culture that supports both the longer-term recommendations contained in this report, as well as a continuously evolving set of additional policies and practices that provide the highest assurance of safety in offshore energy operations.

As the Presidential Commission completes its review and as the Department and the U.S. Coast Guard finish the root cause investigation, the Department will know more and will respond

accordingly. The measures contained in this report will increase the safety in offshore oil and gas development, but represent only the beginning of the Department's work.

Appendix 1: Expert Consultations

The Department consulted with a wide range of experts in state and Federal governments, academic institutions, and industry and advocacy organizations. In addition, draft recommendations were peer reviewed by seven experts identified by the National Academy of Engineering.

Expert Reviewers of the National Academy of Engineering

- **Bea, Robert** holds a Bachelor of Science in Civil Engineering and a Master of Science in Engineering both from the University of Florida. Dr. Bea has done post-graduate studies at Tulane University, Rice University, Texas A&M University, Bakersfield College, University of Houston, and the Technical and Scientific University of Norway. Dr. Bea received a PhD from the University of Western Australia. He is a registered Professional Civil Engineer (retired) in Louisiana, Texas, Florida, Alaska, Washington, Oregon and California. He is a registered Professional Geotechnical Engineer (retired) in California. He is a member of the American Society of Civil Engineers, the American Society of Mechanical Engineers, and the National Academy of Engineering. Dr. Bea has 55 years of experience in engineering and management of design, construction, maintenance, operation and decommissioning engineered systems, including offshore platforms, pipelines and floating facilities. Dr. Bea has worked for the U.S. Army Corp of Engineers, Shell Oil Company, the Ocean Services Division of Woodward-Clyde Consultants, PMB Engineering – Bechtel Inc., and the University of California at Berkeley where he is currently a professor. In 2009, he was honored by the Offshore Technology Hall of Fame.
- **Brett, Ford** holds a Bachelor of Science in mechanical engineering and physics from Duke University as well as a Master of Science in Engineering from Stanford University and a Masters of Business Administration from Oklahoma State University. Mr. Brett is recognized as a leader in the area of Petroleum Project Management. He has consulted more than 25 countries in the area of petroleum project and process management. Formerly, Mr. Brett worked with Amoco Production Company where he specialized in drilling projects in the Bering Sea, North Slope of Alaska, Gulf of Mexico, offshore Trinidad and Wyoming. In 1996, Mr. Brett was nominated for the National Medal of Technology, the U.S. Government's highest technology award. Mr. Brett has been granted over 25 U.S. patents.
- **Baugh, Benton** holds a Bachelor of Science in Mechanical Engineering from the University of Houston; a Master of Science in Mechanical Engineering and PhD in Mechanical Engineering from Kennedy Western University. Additionally, Dr. Baugh graduated from the Army Machinist School. Dr. Baugh has been employed by Bowen, Camco, Cameron, Vetco, Brown Oil Tools, and Baugh Consulting Engineers. Dr. Baugh is the owner and President of Radoil, Inc., which designs and manufactures oilfield and subsea products. Dr. Baugh has received over 100 U.S. patents for his tool and solution designs, consulting and management. Dr. Baugh has over 50 years of oilfield machine design, manufacturing, management, consulting, and expert witness experience.

- **Chenevert, Martin** holds a Bachelor of Science in Petroleum Engineering from Louisiana State University as well as a Master of Science in Petroleum Engineering and a Doctor of Philosophy in Petroleum Engineering, both from the University of Texas at Austin. Dr. Chenevert has over ten years of industrial experience with Exxon Production Research and Exxon USA and over 30 years of teaching experience from Oklahoma State University, the University of Houston, and the University of Texas. Dr. Chenevert has published over 120 articles on well control, wellbore stability, rock mechanics, drilling fluids, and cementing.
- **Holand, Per** graduated from Norwegian University of Science and Technology in 1982 with a Master of Science in Mechanical Engineering. He has 18 years experience from safety and reliability engineering at SINTEF, prior to joining ExproSoft on May 1, 2001. His main work focus in SINTEF and ExproSoft has been on the reliability of drilling equipment, offshore blowout experience, subsea and well reliability analyses. Dr. Holand carried out numerous subsea BOP reliability studies on behalf of clients in Norway, Brazil, the United States, and Italy. Since 1990 he has been responsible for maintaining the SINTEF Offshore Blowout Database, which serves as the key information in connection with blowout risk analyses in the North Sea area. Dr. Holand holds a PhD (1996) in safety and reliability engineering from the Norwegian University of Science and Technology in Trondheim, Norway. His PhD was later reworked and published as a book at the Gulf Publishing Company in 1997 (Title: Offshore Blowouts, Causes and Control).
- **Juvkam-Wold, Hans** holds a Bachelor of Science, Master of Science, and a Doctor of Science in Mechanical Engineering from the Massachusetts Institute of Technology. His area of expertise is buckling of tubular in horizontal drilling, well control, Arctic and offshore drilling, and dual-gradient drilling in ultra-deep water. Dr. Juvkam-Wold is a Registered Professional Engineer in Texas. Prior to his 24 years of teaching drilling experience at the University of Texas A&M, Dr. Juvkam-Wold has 20 additional years of oil industry experience: Juvkam-Wold has served as a Consultant for the National Institute of Standards & Technology; Frontier and Offshore Technology Co.; Western Irrigation Supply House; Oil & Gas Consultants Inc.; Ocean Drilling Program; Unocal E&P. He has served as the Gulf Mineral Resources Company's Representative on the industry's advisory committee on mine shaft drilling as well as manager of technical services and section supervisor of production engineering. Dr. Juvkam-Wold joined Texas A&M in 1985 with his main area of teaching and research in drilling; he is now a Professor Emeritus of Petroleum Engineering. Dr. Juvkam-Wold holds seven drill-related U.S. patents.
- **Stancell, Arnold** holds a Doctor of Science in Chemical Engineering from the Massachusetts Institute of Technology. Dr. Stancell is the retired Vice president of Mobil Oil, Exploration and Production, and Professor Emeritus, Chemical Engineering, Georgia Tech. Dr. Stancell was awarded nine U.S. patents and was inducted into the National Academy of Engineering and received the AIChE's National Award in Chemical

Engineering Practice. He is a licensed Professional Engineer in New York and Connecticut.

Other Experts Consultations

- **Arnold, Ken** holds a Bachelor of Science in Civil Engineering from Cornell University and a Master of Science in Civil Engineering from Tulane University. Mr. Arnold is currently a registered Professional Engineer in the State of Texas, is a member of the Marine Board of the National Research Council, Society of Petroleum Engineers, the Texas Society of Professional Engineers, was elected to the National Academy of Engineers in 2005 due to his work on offshore safety and is a member of the Academy of Medicine, Engineering and Science of Texas.
- **Danenberger, Elmer "Bud"** holds a Bachelor of Science degree in Petroleum and Natural Gas Engineering and a Master's degree in Environmental Pollution Control, both from Pennsylvania State University. After a 38-year career, Mr. Danenberger retired from the Department of the Interior's offshore oil and gas program in January 2010. During his career, Mr. Danenberger served as a staff engineer in the Gulf of Mexico regional office, Chief of the Technical Advisory Section at the headquarters office of the U.S. Geological Survey, District Supervisor for several MMS offices, and Chief of the Engineering and Operations Division at MMS Headquarters. For the last five years of his tenure at the Department, he served as Chief, Offshore Regulating Programs with responsibilities for safety and pollution prevention research, investigations, regulations and standards, and inspection and enforcement programs.
- **Epstein, Lois** holds a Bachelor of Science in Mechanical Engineering from Massachusetts Institute of Technology and a Master of Science in Mechanical Engineering from Stanford University. Ms. Epstein is currently a licensed engineer in Maryland. Ms. Epstein is a former Senior Engineer, Cook Inlet Keeper. Ms. Epstein is the President of LNE Engineering and Policy, which provides technical and policy consultant to non-profit organizations on oil/gas issues. Ms. Epstein was a public member of the Office of Pipeline Safety Federal Advisory Committee on Hazardous Liquid Pipelines from 1995 through 2007.
- **O'Reilly, David J.** is the retired Chairman and Chief Executive Officer of Chevron Corporation. Mr. O'Reilly is a native of Dublin, Ireland, where he earned his Bachelor's degree in Chemical Engineering from the University College, Dublin. Mr. O'Reilly started as a process engineer with Chevron Research Co in 1968 and after several decades and earning positions of increasing responsibility he was elected Senior Vice President and Chief Operating Officer of Chevron Chemical Company in 1989. Mr. O'Reilly was named Chairman and Chief Executive Office of Chevron Corporation on January 1, 2000, and he held that position until his retirement on December 31, 2009. Mr. O'Reilly is the Vice Chairman of the National Petroleum Council. He is a director of Bechtel Group, Inc., a member of The Business Council, the World Economic Forum's International Business Council, and the American Society of Corporate Executives. He also serves on the San Francisco Symphony Board of Governors.

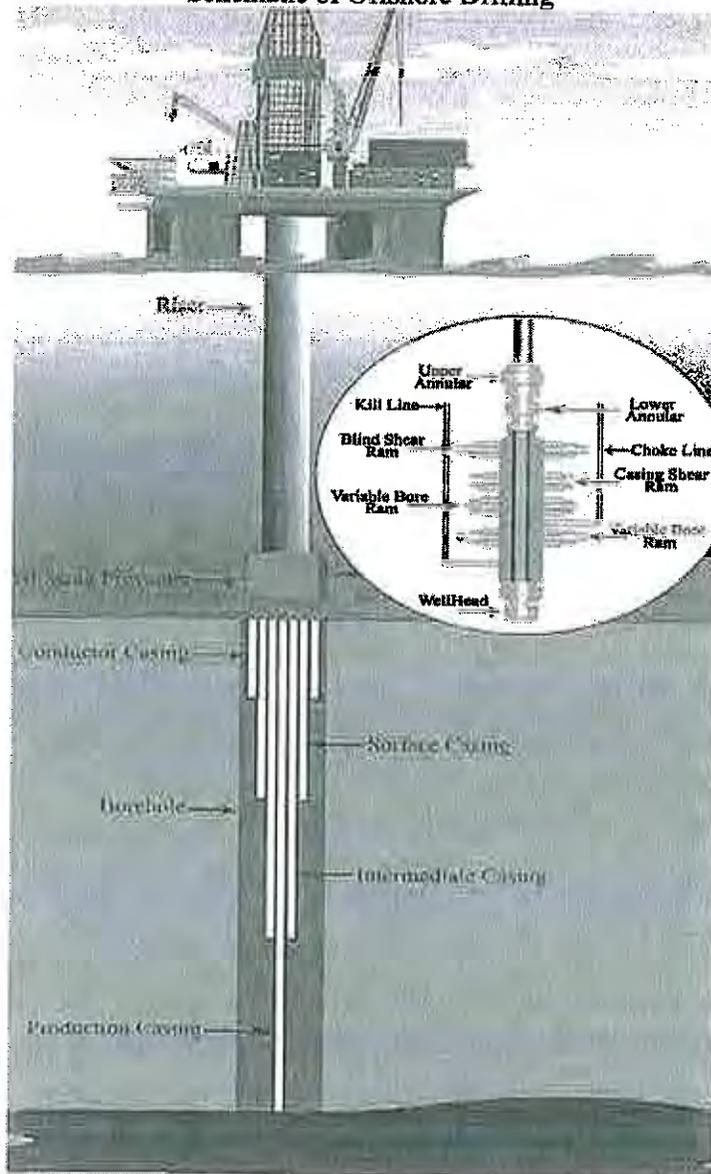
- **Regg, Jim** holds a Bachelor of Science in Petroleum and Natural Gas Engineering from Pennsylvania State University as well as a Bachelor of Art in Math/Science from Edinboro State University. Mr. Regg worked for the Minerals Management Service Field Operations for almost 20 years where his primary focus was technology assessment. Currently Mr. Regg is a Senior Petroleum Engineer for the Alaska Oil & Gas Conservation Commission where he is responsible for managing the compliance inspection program (including investigations and enforcement); well integrity and regulation development.
- **Ward, E.G. "Skip"** holds a Bachelor of Science in Mechanical Engineering from Lamar University and a Master's and Doctorate in Mechanical Engineering from the University of Houston. Dr. Ward spent 30 years with Shell Oil Co. beginning in Shell Development's E&P Research Division in 1968 as a researcher. From 1981 to 1985, he supervised the Oceanographic Engineering section. From 1985 through 1994, he managed the Offshore Engineering Research Department. In 1994, Dr. Ward became the technology manager of Shell Offshore Inc's Deepwater Division where he was responsible for a group that designed deepwater structures and developed new structural concepts and components for deepwater production systems. Dr. Ward has been a member of the American Petroleum Institute since 1976 and received API's 30+ Years of Service Recognition Award in 2006. Dr. Ward served on the Marine Board of the National Academies for nine years. Dr. Ward is currently the Associate Director of the Texas Engineering Experiment Station's Offshore Technology Research Center.
- **West, Robin** is the current Chairman, Founder, and Chief Executive Officer of PFC Energy where he advises chief executives of leading international oil and gas companies and national oil companies on corporate strategy, portfolio management, acquisitions, divestitures, and investor relations. Before founding PFC Energy in 1984, Mr. West was the Assistant Secretary of Policy, Management and Budget at the Department of the Interior from 1981 through 1983. While there, he conceived of and implemented the Outer Continental Shelf Leasing Schedule and managed the \$14 billion per year OCS budget policy. Mr. West also served as the Deputy Assistant Secretary of Defense for International Economic Affairs during the Ford Administration. Mr. West has served on several boards and commissions including a Presidential appointment to the National Advisory Committee on Oceans and Atmosphere in 1977. Mr. West is also a member of the National Petroleum Council; Director of the Magellan Petroleum Corporation; Director of Key Energy Services, Inc and Director of Cheniere Energy. He earned his Bachelor of Arts from the University of North Carolina at Chapel Hill and a Juris Doctorate from Temple University.
- **Williams, Tom** has been in the energy business for over 28 years. He is currently the Managing Director of Nautilus International LLC. Mr. Williams served as President of Maurer Technology Inc, a leading drilling research and development and engineering technology company. From 1993 through 2000, he was Business Director at Westport Technology Center, a leading upstream oil and gas research company. Mr. Williams held senior executive positions at the Departments of the Interior and Energy during the Bush

Administration from 1989 through 1993. He owned and operated an oil and gas exploration, production and consulting company prior to joining the Department of Energy. Mr. Williams is currently on the Board of Directors of Far East Energy Corporation, a public oil and gas company with operations in China; Board of Directors of Petris Technology, Inc, TerraPlatforms LLC; The Research Partnership to Restore Energy for America; The Contributor Committee Co-Chair of DeepStar Consortium; The Society of Petroleum Engineers; The Independent Petroleum Association of America; The International Association of Drilling Contractors; the American Association of Drilling Engineers. Mr. Williams' Environmentally Friendly Drilling Project was awarded the Environmental Stewardship Award by the Interstate Oil and Gas Compact Commission in May of 2010.

Appendix 2: Brief Primer on Offshore Drilling Technology and Systems

The process for an offshore oil and gas exploratory well begins by positioning a drill rig above the intended leasing tract for exploration (see Figure A1).

Figure A1
Schematic of Offshore Drilling



Source: Minerals Management Service Database, 2010.

The rig lowers drill pipe (also known as a drill string) with a drill bit attached to its end to the seafloor where it commences to drill. The borehole created by the drill is then set with casing.

At the seafloor, conductor casing is normally set to stabilize the soft sediments at the top of the borehole to ensure that continued drilling does not precipitate a borehole collapse. Once the conductor is in place, the drill rig lowers to the seafloor a marine riser (a large pipe that surrounds the drill pipe) that connects the conductor casing to the drill rig. As drilling proceeds, a blowout preventer (BOP) is lowered to the seafloor and sits atop the wellhead.

As drilling progresses with depth, additional casings (sections of pipe) that are slightly narrower in diameter than the hole created by the drill bit are inserted into the borehole and bonded into place by "cement." This process ensures that the borehole does not collapse on itself, and it isolates the borehole from any pockets of gas or water in the strata that the borehole passes through. A series of casings of equal diameter that are connected together and run down the borehole is a "string" and a string may be hundreds to thousands of feet long with a threaded connector between each 30-foot segment of casing. Deeper into the borehole, narrower casings are inserted one into the other resulting in strings of casing that are enclosed and cemented into the previous, slightly wider-diameter string of casing. The outermost casing can be up to four feet in diameter with the innermost string of casing less than six inches in diameter in some cases. The initial and final casing diameters, the types of casing, and type of cement used are determined by the profile (depth, temperature, pressure, etc.) of the well being drilled. Once the well is in production, the hydrocarbons will come to the surface through the production casing that is run down through the middle of the narrowest casing string.

During the process of drilling, drill fluid, referred to as "mud," is pumped down the drill pipe through drill bit nozzles. The mud's primary function is maintaining "well control," but it also cools the drill bit and carries the drill cuttings away from the bottom of the borehole and returns to the surface through the space (the annulus) between the drill pipe and the walls of the casing strings. To maintain well control, the pressure created by the weight of the mud in the drill pipe and annulus must be maintained equal to or greater than the pressures encountered in the borehole. Various indicators of well pressure measures allow the mud engineer on the rig to maintain the well bore fluid pressure equal to or slightly greater than the pressures from the deepest formation. This type of pressure balance is called overbalanced.

The pockets of oil, gas, or water that are encountered in porous layers during the drilling process can suddenly push the mud through the annulus with considerable pressure—what is referred to as a "kick." When a kick occurs there are various bypass mechanisms, such as diverters and BOPs, to shunt the pressure away from the well bore (diverter) or prevent the pressure from rising to the ocean surface (BOP), thereby maintaining well control. If a kick overwhelms the control mechanisms, a blowout can occur.

A BOP consists of a series of ram and annular preventers that sits atop the wellhead and connects to one of the outermost casing strings, allowing the narrower casing strings and drill pipe to be lowered down the borehole through the center of the BOP. In the event of significant loss of well control, one or more of the preventers can be activated from the drill rig. The annular preventer is typically the first to be utilized when an influx from a formation is experienced, but is not usually used with pressures above 3,500 pounds per square inch (psi). The pipe (variable bore) rams are utilized for pressures above 3,500 psi. A pipe ram and/or annular preventer will be closed around the drill pipe shutting off the upward movement of mud and pressure through

the annulus between the drill pipe and the casing string. A blind-shear ram can be used to cut through the entire drill pipe and seal the borehole. In the event that activation from the drill rig fails, BOPs may have one or more back-up means for activating the rams. Remote operated vehicles (ROVs) can trigger closure of the rams working at the BOP. Other redundant control systems include "acoustic switch" technology which can activate the BOP with an acoustic signal from the rig through the water. Another device called a "deadman" switch automatically closes rams if the BOP loses connection electronic or hydraulic communication with the drill rig for any reason.

The BOPs are a hydraulically activated device. The hydraulics are supplied by the accumulator system located on the rig through lines that run down the riser and connect to the BOP. The BOP contains control devices called pods which are blue and yellow. The hydraulic fluid is distributed by the pod to the desired components of the BOP. The communication system to the pod may either be a pilot hydraulic system or an electro-hydraulic system. The pilot hydraulic system uses hydraulic pressure to function the pod and the electro-hydraulic system uses electrical signals to communicate with the pod. All commands for the system are sent from the control panel on the rig. The subsea BOP also contains pre-charged bottles that provide hydraulic fluid to activate the BOP's auto shear or deadman devices in the event of disconnects. The BOP is also equipped with an ROV "hot stab" panel that allows the hydraulic line(s) from the accumulator system to be isolated in order for the ROV to "stab" in a separate control line and directly pump into the BOP to function the rams via a pump mounted on the ROV. The panel for the ROV to "stab" into may be capable of activating all rams or only designated ram(s).