

**NATIONAL COMMISSION REPORT
ON THE BP OIL SPILL**

HEARING
BEFORE THE
COMMITTEE ON
ENERGY AND NATURAL RESOURCES
UNITED STATES SENATE
ONE HUNDRED TWELFTH CONGRESS
FIRST SESSION

TO

REVIEW THE REPORT AND RECOMMENDATIONS, INCLUDING ANY RECOMMENDATIONS FOR LEGISLATIVE ACTION, ISSUED BY THE NATIONAL COMMISSION ON THE BP DEEPWATER HORIZON OIL SPILL AND OFFSHORE DRILLING

JANUARY 26, 2011



Printed for the use of the
Committee on Energy and Natural Resources

U.S. GOVERNMENT PRINTING OFFICE

64-994 PDF

WASHINGTON : 2011

For sale by the Superintendent of Documents, U.S. Government Printing Office
Internet: bookstore.gpo.gov Phone: toll free (866) 512-1800; DC area (202) 512-1800
Fax: (202) 512-2104 Mail: Stop IDCC, Washington, DC 20402-0001

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NATIONAL COMMISSION REPORT ON THE BP OIL SPILL

WEDNESDAY, JANUARY 26, 2011

U.S. SENATE,
COMMITTEE ON ENERGY AND NATURAL RESOURCES,
Washington, DC.

The committee met, pursuant to notice, at 9:34 a.m. in room SR-325, Russell Senate Office Building, Hon. Jeff Bingaman, chairman, presiding.

OPENING STATEMENT OF HON. JEFF BINGAMAN, U.S. SENATOR FROM NEW MEXICO

The CHAIRMAN. The hearing will come to order. This is our committee's first hearing in the 112th Congress.

We appropriately begin with an issue of highest priority. That is the Deepwater Horizon tragedy. We have an important role to play in understanding what happened, ensuring that it will never happen again. The subject deserves our urgent attention.

It's now 9 months since the Deepwater Horizon offshore drilling rig exploded and sank taking the lives of 11 people. Following that explosion oil gushed into the Gulf of Mexico for almost 3 months before it could be contained, spilling an estimated 170 million gallons, the largest oil spill in our Nation's history. As I said at the time of the disaster, this is not just a Louisiana problem.

This is America's problem. Despite the passage of time this remains a serious problem. Not just for the Gulf region, but for the Nation as a whole.

While there may be disagreement about where and how to do it, no one can doubt the need to continue to produce domestic oil and gas. However much of our remaining reserves are offshore and in deep water and far below the ocean floor. The Deep Water Horizon tragedy has taught us that such development involves a highly complex interplay of technologies and human decisions that sometimes must be made quickly on the basis of uncertain and evolving information. State of the art safety systems with sufficient margin for error and clear lines of communication, responsibility and authority are essential.

Now that the oil is under control it's tempting for those of us with some distance from the events to ignore the difficult reality of offshore drilling and move on to other things. Those in the Gulf who have dealt directly with the loss of life or the environment and the economic consequences of the tragedy cannot do that. For their sake and for the national interest, the rest of us must not do that either. We must complete this work and assure that this oil and

gas development is done safely, every time, and that failure is not an option.

For all those reasons we need to be sure that we have in place systems in our government and in industry so that this type of tragedy cannot happen again. Beyond that we should lead the world in development of these systems and technologies and not settle for standards that are less rigorous than those of other nations. This is a complex and challenging matter. The committee unanimously reported legislation in the 111th Congress that would take many of the necessary steps.

Since then the Department of Interior has taken a number of important actions to address these issues. Nevertheless I continue to believe that legislative change is necessary to fully ensure safe operations going forward. I intend to introduce legislation again in this Congress, bipartisan legislation, as is the effort here in our committee. Additional information has been made available from a variety of sources since we prepared the legislation that we proposed last summer. This new information will help us make improvements to our bill.

In that regard we're very appreciative of the detailed and thoughtful work of the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling. Working under a 6-month deadline they produced an impressive body of work including key recommendations for achieving the kind of system of offshore energy development that we aspire to have. We're very grateful for the work of the Commission, their excellent staff.

We're pleased to have the Commission Co-Chairs, Senator Bob Graham, our former colleague and the Honorable William Reilly, as our witnesses today.

Before we call on them let me defer to Senator Murkowski for any comments she would want to make at this time.

[The prepared statement of Senator Bingaman follows:]

PREPARED STATEMENT OF HON. JEFF BINGAMAN, U.S. SENATOR FROM NEW MEXICO

The hearing will come to order. This is the Committee's first hearing in the 112th Congress. We appropriately begin our work with an issue of the highest priority—the Deepwater Horizon tragedy. We have an important role to play in understanding what happened and ensuring that it will never happen again. This subject deserves our urgent attention.

It is now nine months since the Deepwater Horizon offshore drilling rig exploded and sank, taking the lives of eleven people. Following that explosion, oil gushed into the Gulf of Mexico for almost three months before it could be contained, spilling an estimated 170 million gallons—the largest oil spill in the nation's history.

As I said at the time of the disaster, this is not just Louisiana's problem. This is America's problem. Despite the passage of time, this remains a serious problem not just for the Gulf region, but for the nation as a whole.

While there may be disagreement about where and how to do it, no one can doubt the need to continue to produce domestic oil and gas. However, much of our remaining reserves are offshore, in deep water, and far below the ocean floor. The Deepwater Horizon tragedy has taught us that such development involves a highly complex interplay of technologies and human decisions that sometimes must be made quickly on the basis of uncertain and evolving information. State of the art safety systems with sufficient margin for error and clear lines of communication, responsibility, and authority are essential.

Now that the oil is under control, it is tempting for those with some distance from the events to ignore the difficult reality of offshore drilling and move on to other things. Those in the Gulf who have dealt directly with the loss of life or the environmental and economic consequences of this tragedy cannot do that. For their sake, and for the national interest, the rest of us must not do that. We must complete

this work, and ensure that this oil and gas development is done safely every time, and that failure is not an option.

We hear concerns about the economic consequences of slowing down the leasing and permitting process to address safety issues. We must be sensitive to these issues and efficient in our regulation. But even if we focus only on economics, the worst outcome for the industry would be another accident or an ongoing lack of confidence in industry operations. Of course there is much more than industry economics at stake—the very lives of oil and gas workers, the livelihood of workers in other industries, and the irreplaceable coastal environment.

For all these reasons, we must ensure that we have systems in place in our government and in the industry so that this cannot happen again. Beyond that, we should lead the world in development of these systems and technology and not settle for standards that are less rigorous than those of other nations.

To achieve these goals is a complex and challenging matter. This Committee unanimously reported legislation in the 111th Congress that would take many of the necessary steps. Since then the Department of the Interior has taken a number of important actions to address these issues. Nevertheless, I continue to believe that legislative change is necessary to fully ensure safe operations going forward, and intend to introduce legislation again in this Congress.

Additional information has become available from a variety of sources since we prepared our legislation last summer that will help us make improvements to our bill. In that regard, I am very appreciative of the detailed and thoughtful work of the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling. Working under a six month deadline, they produced an impressive body of work, including key recommendations for achieving the kind of system of offshore energy development that we aspire to have.

We are grateful for the work of the Commission and their excellent staff, and are pleased to have the Commission co-chairs, Senator Bob Graham and the Honorable William Reilly, as our witnesses today.

Before we hear from them, let me turn to Senator Murkowski for any opening remarks she would like to make.

[The prepared statement of Senator Sessions follows:]

PREPARED STATEMENT OF HON. JEFF SESSIONS, U.S. SENATOR FROM ALABAMA

Thank you Mr. Chairman, The Deepwater Horizon incident is a very serious disaster and it is heartbreaking to think of the lives that were lost, the livelihoods that have been affected, and the impact on the environment.

The damage that began in the Gulf of Mexico on April 20, 2010, did not stop when the well was capped and the oil was contained. The environmental impact of this accident is unprecedented, and many of the long-term effects may remain unknown for years to come. Alabamians are still suffering despite the establishment of the Gulf Coast Claims Facility and the promises made by BP and Ken Fienberg to make everyone whole.

Unfortunately many complex problems remain and Gulf Coast residents are still living with the threat of foreclosure, bankruptcy, or being forced to pull money from their retirement accounts or children's college funds to pay the bills. In addition, small businesses along the Gulf Coast that make the majority of their income in the summer months have been crippled and are fighting to stay open.

Now, these problems are being compounded by high gas prices. According to the Energy Information Administration, current gasoline prices around the country average \$3.16 a gallon. Approximately 70% of the cost of gasoline can be attributed to the price of crude oil. As the largest component of the price of gasoline, this accounts for more than refining costs, retailing fees, and state and federal taxes combined. The Department of Interior estimates that the Outer Continental Shelf contains approximately 85.8 billion barrels of oil and of these, 44.9 billion barrels are estimated to be in the Gulf of Mexico. Tapping into these reserves would bring more oil to the global market and help lower its price. In addition, producing more oil here at home would keep American income in the U.S., create jobs, and reduce the amount of money we send to foreign countries. I believe that it is unthinkable that we have no problem relying on countries such as Brazil, Saudi Arabia, Iran, and Venezuela, for increased oil imports, while refusing to produce our own domestic reserves.

The reality is, if we do not drill in the Gulf, we will buy the oil from a foreign source. I truly believe that America must move toward greater energy independence and self-sufficiency by adopting a comprehensive energy plan built on the principles of fuel diversity and responsible domestic exploration. I recognize we cannot accom-

plish this overnight. Currently, the United States consumes on average 18.8 million barrels of oil a day. The greater our dependence on foreign energy, the greater the threat to America's national and economic security.

Offshore drilling is an important industry to my state and to our nation. According to the American Petroleum Institute, the offshore industry is responsible for nearly 200,000 jobs in the Gulf of Mexico and a Mobile Chamber of Commerce survey found that the industry employs over 1,000 individuals from Alabama. Offshore drilling in the Gulf of Mexico supplies 30 percent of America's domestic energy production and 80 percent of the Gulf's oil comes from operations at depths of water greater than 1,000 feet. Since the spill occurred, the exploration and production of these resources has virtually stopped. Following the Administration's announcement of their supposed lifting of the moratorium, only two permits for deepwater drilling have been issued, which is down 88 percent according to the Gulf Permit Index.

As Mr. Graham has pointed out in his prior comments, offshore drilling provides the second largest single source of revenue to the federal government after income taxes. The oil and gas industry provides the U.S. Treasury over \$20 million each day and contributes \$1 trillion to the U.S. economy.

Ultimately, we need to address this incident—but must proceed cautiously to avoid passing legislation that may present unintended consequences to our economy and energy security. We must conduct a comprehensive review of our current oil and gas policies to prevent another crisis similar to what happened in the Gulf. We must feel confident that we can move forward with domestic energy production safely and effectively. Our nation depends on energy exploration on the Outer Continental Shelf, and we must do all we can to make certain that oil and gas production is conducted under the strongest environmental protections.

Thank you for your work and efforts in assembling this report, and I look forward to your testimony.

**STATEMENT OF HON. LISA MURKOWSKI, U.S. SENATOR
FROM ALASKA**

Senator MURKOWSKI. Thank you, Mr. Chairman. I do appreciate that you have convened the hearing this morning. I was optimistic that we would be able to welcome our new committee members here, but we're still waiting for those assignments to be made. I think we all recognize how much we get out of these hearings, they are very worthwhile.

I do understand your desire to have this hearing on a timely basis. But I also observe that this issue is very difficult and complex.

Further, I believe that once our committee is fully organized we'll need to ensure that every member of the committee has an opportunity to not only hear, but ask questions and express their views on these matters. Every one of our constituents uses energy. They rely on us to help ensure it is affordable, secure and increasingly clean.

I think we recognize that this past year was challenging on many fronts. I don't think anyone on this committee would ever want to relive the events of last spring and summer.

We lost 11 men.

We lost the oil rig they worked on.

The oil was released into the Gulf of Mexico for 87 days.

I have said before that this terrible tragedy brought back the worst memories of the Valdez spill in Alaska 20 years earlier. Last year's spill was stopped in mid-July. But it remains appropriate for us to help those impacted by seeking to prevent future disasters.

The report that we are here to consider today will certainly play a role in that effort. I respect and appreciate the Commission's

work. Also note the presence of the two Chairmen here. I look forward to your presentation today.

I'll also point out that as this hearing's background memo notes there are four other prominent reports on the Deepwater Horizon incident.

We have one from the Joint Department of Interior/Homeland Security investigation.

We have a 30-day report from the Department of Interior's Safety Oversight Board.

We have the National Academy of Engineering report which isn't due out until March.

Then there's finally the BP's internal report which came out last fall.

As expected I don't think that these reports are perfectly congruent. It leaves a great deal of work for us to do in analyzing where there is agreement among these conclusions and where there might be need for more inquiry. I hope that we will at least informally agree on a threefold pledge regarding our offshore policy.

That is, first, that no victim of a spill should ever go uncompensated.

That taxpayers should never be on the hook for a company's damages.

Third that these priorities are managed in a way that not only preserves, but also promotes a competitive, domestic offshore industry.

I think that should be agreeable and achievable for all of us.

One of the true ironies in the tragedies in the Gulf disaster was that it both opened and reopened such horrific wounds for the fishermen and others who saw their livelihoods compromised by its sudden impact. These effects were brought first by the oil spill and later by the Administration's moratorium on offshore drilling which has cost thousands of jobs and had a chilling effect on our Nation's energy policy. We have to begin confronting those choices today.

More specifically we have to decisively recognize the risks and the rewards of offshore energy exploration. There's simply no better way to take measure of those risks and rewards than by visiting the Gulf of Mexico, witnessing the balance between the many users of the ocean and their respect for one another. In my experience the fishing, tourism and energy industries are perfectly capable of co-existing, just as they did for many decades before last year's incident. The economies of states like Alaska and Louisiana indisputably depend on all three. The loss of any one will lead to instability and hardship.

Americans require seafood. We love our vacations at the beach. We depend on oil to live our lives. It's a delicate balance, but a co-existence that we have sustained.

So I view our job here, Mr. Chairman, as finding a way to return to a point where our regulators and industry are working to keep all three of these sectors in a secure and sustainable livelihood. We absolutely need to look at ways to improve our offshore system and make those operations safer. The uncertainty that we have had to face over the past year has been staggering. I hope that today's hearing will provide some ideas and some clarity as we chart an expeditious path forward.

With that, I look forward to the presentation from the gentlemen before us and welcome them.

The CHAIRMAN. Thank you very much. I now ask Senator Graham, Mr. Reilly, to go ahead with their presentations in whichever order they'd like. We, again, thank you very much for the hard work you've put into this effort and your staff and congratulate you on the excellent report you've presented to us.

But if you could each take somewhere in the range of 10 minutes and give us your recommendations. Then we will undoubtedly have questions.

Senator Graham.

STATEMENT OF BOB GRAHAM, CO-CHAIR, NATIONAL COMMISSION ON THE BP DEEPWATER HORIZON OIL SPILL AND OFFSHORE DRILLING, MIAMI LAKES, FL

Senator GRAHAM. Thank you very much, Mr. Chairman. It shows what being away from here for 6 years will do to you. We very much appreciate the invitation that you've extended and the opportunity to present our report.

I also wish to extend our best wishes to the other members of the committee. I understand that Ranking Member, Senator Murkowski has had a family crisis recently and we hope that everything goes well for your—

Senator MURKOWSKI. It all came out fine. Thank you.

Senator GRAHAM. My long time friend and colleague, Bill Reilly and I will divide our report with Bill talking about the basic safety issues and recommendations. I will talk about containment, response and restoration.

In May of last year President Obama created our Commission and asked it to determine first the causes of the Deep Water Horizon disaster.

Second, to evaluate the response to that disaster.

Third, to advise the Nation about how future energy exploration should take place in a responsible manner.

On January the 11th, we released our report, a copy of which I believe has been made available to all members of the committee, and we are very pleased that this report was completed on time, within our 6 months allowance, under budget and is a unanimous report of the seven members of the Commission. Those are aspects that we're very proud of and recognize that that's not always the case.

Although our membership came in for some initial criticism as lacking in independence and lacking in technical expertise, I believe we've demonstrated that our work was completely independent. That we have not shied away from criticism where we thought that criticism was deserved whether it was at the White House, the Congress or the industry itself. Our competency will be judged by our report, its findings and its recommendations.

We began our effort 6 months ago with a trip to the Gulf with an extraordinary staff led by Executive Director, Richard Lazarus. We used hearings, interviews, face to face meetings, to hear from as many voices as possible with a dedication to following the facts wherever they might lead. The Commissioners, the staff of scientists, lawyers, engineers and policy analysis worked hard and

under very demanding deadlines to make our inquiries broad, deep and effective.

When the President created this Commission, his Executive Order charged us with finding the root causes of the accident and recommending measures that would ensure that such a disaster would never happen again or if it did occur that the measures to mitigate against damage of the magnitude caused by Deep Water Horizon spill would not recur. In his statement, Bill Reilly will discuss these new safety measures. I am going to discuss response and containment and then restoration.

The response to the Deep Water Horizon spill both at the government and industry level fell short. Although many responders acted quickly and in some cases heroically, the Commission concluded that neither BP nor the Federal Government was prepared to conduct an effective response to a spill of this magnitude and complexity. There was a failure to plan in advance, a failure to coordinate effectively with State and local governments and lack of information concerning what response measures would be effective.

In addition, neither the industry nor the Federal Government had invested in research, development and demonstration to improve the technology for response or for controlling the flow of oil from the damaged Macondo. Much of the technology was the same technology that we saw used in response to the Exxon Valdez spill 20 years earlier in Alaska. There had been virtually no enhancement of our technological capability to deal with a major oil spill.

Equally troubling at the outset of the spill neither government nor industry had sufficient expertise to determine the rate of the flow of oil. This lack of accurate knowledge impeded the efforts to determine the appropriate control technology and to do it on a timely basis. All these factors together made for a long and costly response effort that, at least in the early stages, did not meet the standards which Federal law requires. The Nation watched on television as day after day they saw the flow of oil from the broken pipe.

In our report the Commission makes a number of recommendations to improve response and containment.

Among those recommendations that the Department of Interior, consulting with other agencies, should develop a more rigorous set of requirements for industry response plans.

That the EPA and the Coast Guard should involve State and local governments as significant players in spill response planning.

That Congress should provide adequate and sustained funding for oil spill research. We will not waste another 20 years without improving the technology to do so.

That industry should fund a private organization to develop, adopt and enforce standards of excellence to assure continuous improvement in equipment for large scale response, containment and rescue.

The Commission's recommendations are far reaching in this area. There is a role for Congress, for the executive branch and industry in significantly improving our capabilities. There is also a role for Congress in conducting oversight to assure that all of these actions are taken.

Now I'd like to turn to how this disaster might play a positive role in restoring the Gulf of Mexico, one of the Nation's most valuable ecosystems. As a result of the Deep Water Horizon spill over 170 million gallons of oil were spilled into the Gulf with some portions still remaining on the ocean floor and possibly settling on that floor. The Macondo disaster placed further stress on coastal resources already degraded by many decades by a variety of economic and development activities, including energy production.

On April 19, 2010, the day before the Deep Water Horizon disaster, the Gulf was, as it remains, a highly productive ecological and industrial region that nonetheless had seen years or decades of degradation. Americans rely on the coast for many things including energy, seafood, tourism. Making the day before April 19, 2010, the target for restoration would set our goal at an unnecessarily low aspiration. Rather we should use this as an occasion for this environmental disaster to aim higher.

The Commission chose to aim higher by recommending that the Federal Government, working closely with the Gulf States, make a renewed and national commitment to the Gulf of Mexico and its natural resources. Currently no funding source exists to support comprehensive, regional restoration efforts. Estimates of the cost of Gulf restoration vary widely. But according to testimony before our Commission, fully restoring the Gulf will require between \$15 and \$20 billion or a minimum of \$500 million a year for 30 years.

The litigation process related to the Gulf Deepwater Horizon spill is likely to generate at least some of those needed funds. But Congressional action will be required to assure that the funds reach the Gulf. The Commission recommends that 80 percent of any Clean Water Act penalties and fines be directed to Gulf restoration.

The Commission also recommends that Congress create an effective State/Federal authority to administer Gulf ecosystem restoration policy. If funding is to be most effectively directed at long term system restoration, a decisionmaking body should see that binding priorities are set and funding criteria adhered to. The structure of the Alaska Exxon Valdez Oil Spill Trustee Council should inform the structure of a Gulf Coast Council. As in Alaska, Congress should assure that the priorities and decisions the Council are informed by input from Citizen Advisory Councils that represent the diverse stakeholders and that restoration decisions are rooted in the best science.

Mr. Chairman, I conclude my remarks by making a general point that is simple and obvious, but often over—forgotten when we talk about drilling in the Outer Continental Shelf. These resources, the Gulf of Mexico, the Federal areas of the Gulf of Mexico, belong to all of us. They belong to the American people. Since the 1950s when the decision was made to lease Federal tracts in the Gulf for oil and gas exploration we have had a national responsibility to see that that exploration was done in a manner that was safe, environmentally protective and beneficial to the Nation.

As my colleague will outline that responsibility has become greater as the industry has moved into deeper and deeper and inherently more risky areas of the Gulf. Drilling offshore will never be reduced to zero risk. But as a Nation we can take some concrete

steps that will dramatically reduce the chances of another Macondo.

The Commission believes these steps are necessary, steps necessary as we fulfill our role as a prudent landlord of this property that belongs to the people of the United States. If dramatic steps are not taken we fear that at some point in the coming years another failure will occur and that we will wonder why the Congress, the Administration and the industry stood idle. The people of the Gulf who have suffered so much and all Americans deserve to know that their government and the industry are going to do.

Mr. Chairman, I appreciate the opportunity to present these remarks. I will ask that our written statement and the full report be entered into the record. I look forward to responding to your questions.

[The joint prepared statement of Hon. Bob Graham and Hon. William Reilly follows:]

JOINT PREPARED STATEMENT OF HON. BOB GRAHAM AND HON. WILLIAM REILLY, CO-CHAIRS, NATIONAL COMMISSION ON THE BP DEEPWATER HORIZON, OIL SPILL AND OFFSHORE DRILLING

I. INTRODUCTION

Chairman Bingaman, Ranking Member Murkowski, and members of the Committee, thank you for the opportunity to testify today on behalf of the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling.

The explosion that tore through the Deepwater Horizon drilling rig last April 20, as the rig's crew completed drilling the exploratory Macondo well deep under the waters of the Gulf of Mexico, began a human, economic, and environmental disaster.

Eleven crew members died, and others were seriously injured, as fire engulfed and ultimately destroyed the rig. And, although the nation would not know the full scope of the disaster for weeks, the first of more than four million barrels of oil began gushing uncontrolled into the Gulf—threatening livelihoods, the health of Gulf coast residents and of those responding to the spill, precious habitats, and even a unique way of life. A treasured American landscape, already battered and degraded from years of mismanagement, faced yet another blow as the oil spread and washed ashore. Five years after Hurricane Katrina, the nation was again transfixed, seemingly helpless, as this new tragedy unfolded in the Gulf. The costs from this one industrial accident are not yet fully counted, but it is already clear that the impacts on the region's natural systems and people were enormous, and that economic losses total tens of billions of dollars.

On May 22, 2010, President Barack Obama announced the creation of the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling (the "Commission"): an independent, nonpartisan entity, directed to provide thorough analysis and impartial judgment. The President charged the Commission to determine the causes of the disaster, and to improve the country's ability to respond to spills, and to recommend reforms to make offshore energy production safer. And the President said we were to follow the facts wherever they led.

This Commission report (the "Report"), which we ask be made part of the hearing record in its entirety, is the result of an intense six-month effort to fulfill the President's charge. As a result of our investigation, we conclude:

- The explosive loss of the Macondo well could have been prevented.
- The immediate causes of the Macondo well blowout can be traced to a series of identifiable mistakes made by BP, Halliburton, and Transocean that reveal such systematic failures in risk management that they place in doubt the safety culture of the entire industry.
- Deepwater energy exploration and production, particularly at the frontiers of experience, involve risks for which neither industry nor government has been adequately prepared, but for which they can and must be prepared in the future.
- To assure human safety and environmental protection, regulatory oversight of leasing, energy exploration, and production require reforms even beyond those significant reforms already initiated since the Deepwater Horizon disaster. Fundamental reform will be needed in both the structure of those in charge of regu-

latory oversight and their internal decision-making process to ensure their political autonomy, technical expertise, and their full consideration of environmental protection concerns.

- Because regulatory oversight alone will not be sufficient to ensure adequate safety, the oil and gas industry will need to take its own, unilateral steps to increase dramatically safety throughout the industry, including self-policing mechanisms that supplement governmental enforcement.
- The technology, laws and regulations, and practices for containing, responding to, and cleaning up spills lag behind the real risks associated with deepwater drilling into large, high-pressure reservoirs of oil and gas located far offshore and thousands of feet below the ocean’s surface. Government must close the existing gap and industry must support rather than resist that effort.
- Scientific understanding of environmental conditions in sensitive environments in deep Gulf waters, along the region’s coastal habitats, and in areas proposed for more drilling, such as the Arctic, is inadequate. The same is true of the human and natural impacts of oil spills.

We reach these conclusions, and make necessary recommendations, in a constructive spirit: we aim to promote changes that will make American offshore energy exploration and production far safer, today and in the future.

II. THE ROOT CAUSES OF THE EXPLOSION

The Commission examined in great detail what went wrong on the rig itself. Our investigative staff uncovered a wealth of specific information that greatly enhances our understanding of the factors that led to the explosion. The results of that investigation are described in detail in Chapter 4 of the Report. The separate report of the chief counsel, to be published soon, will offer the fullest account yet of what happened on the rig and why. There are recurring themes of missed warning signals, failure to share information, and a general lack of appreciation for the risks involved. In the view of the Commission, these findings highlight the importance of organizational culture and a consistent commitment to safety by industry, from the highest management levels on down.

To summarize, the Macondo blowout happened because a number of separate risk factors, oversights, and outright mistakes combined to overwhelm the safeguards—promised by both government and by private industry—to prevent just such an event from happening. But most of the mistakes and oversights at Macondo can be traced back to a single overarching failure—a failure of management by BP, Halliburton and Transocean. Set out below are what Commission investigative staff determined were “key facts.”

Key Facts.—The investigation team identified several key human errors, engineering mistakes and management failures including:

- A flawed design for the cement slurry used to seal the bottom of the well, which was developed without adequate engineering review or operator supervision;
- A “negative pressure test,” conducted to evaluate the cement seal at the bottom of the well, identified a cementing failure but was incorrectly judged a success because of insufficiently rigorous test procedures and inadequate training of key personnel;
- Flawed procedures for securing the well that called for unnecessarily removing drilling mud from the wellbore. If left in place, that drilling mud would have helped prevent hydrocarbons from entering the well and causing the blowout;
- Apparent inattention to key initial signals of the impending blowout; and
- An ineffective response to the blowout once it began, including but not limited to a failure of the rig’s blowout preventer to close off the well.

Key Findings.—The “key facts” led investigators to make the following “key findings”:

- Errors and misjudgments by at least three companies—BP, Halliburton and Transocean—contributed to the disaster.
- Management failures included:
 - Inadequate training of key personnel.
 - Inadequate management of numerous late-stage well design decisions.
 - Poor communication within and between the companies involved.
 - Inadequate risk evaluation and risk mitigation measures.
- The disaster could have been prevented. Notably, workers on the rig incorrectly interpreted clear warning signs of a hydrocarbon influx during the negative

pressure test. If recognized, those warning signs would have allowed them to shut in the well before the blowout began.

- Government regulations did not address several key causes of the blowout, and regulators lacked the resources or technical expertise to address others.
- Whether purposeful or not, many of the risk-enhancing decisions that BP, Halliburton, and Transocean made saved those companies significant time (and money).

The Commission's investigation concludes that these failures were preventable. Errors and misjudgments by at least three companies—BP, Halliburton and Transocean—contributed to the disaster. Federal regulations did not address many of the key issues. For example, no regulation specified basic procedures for the negative pressure test used to evaluate the cement seal or minimum criteria for test success. The chapter also notes that, “. . . whether purposeful or not, many of the decisions that BP, Halliburton, and Transocean made that increased the risk of the Macondo blowout clearly saved those companies significant time (and money).”

Attached to this testimony is a table that sets out decisions that increased risk at Macondo, while potentially saving time.*

III. REGULATORY OVERSIGHT AND THE NEED FOR REFORM

Regulatory Oversight

The responsibilities assigned to the Minerals Management Services (MMS) in an effort to regulate the offshore oil and gas industry have created conflicts of interest and have been subject to pressure from political and industry interests. MMS was not only responsible for offshore leasing and resource management; it also collected and disbursed revenues from offshore leasing, conducted environmental reviews, reviewed plans and issued permits, conducted audits and inspections, and enforced safety and environmental regulations.

Over the course of many years, political pressure generated by a demand for lease revenues and industry pressure to expand access and expedite permit approvals and other regulatory processes often combined to push MMS to elevate revenue and permitting goals over safety and environmental goals. As a result, the safety of U.S. offshore workers has suffered. The United States has the highest reported rate of fatalities per hours worked in offshore oil and gas drilling among its international peers (the U.K., Norway, Canada, and Australia) but has the lowest reporting of injuries. This striking contrast suggests a significant under-reporting of injuries in the United States.

These problems were compounded by an outdated organizational structure, a chronic shortage of resources, a lack of sufficient technological expertise, and the inherent difficulty of coordinating effectively with all of the other government agencies that have had statutory responsibility for some aspect of offshore oil and gas activities. Besides MMS, the Departments of Transportation, Commerce, Defense, and Homeland Security, and the Environmental Protection Agency (EPA) were involved in some aspect of the industry and its many-faceted facilities and operations, from workers on production platforms to pipelines, helicopters, drilling rigs, and supply vessels.

Reorganization Needed

To remedy this conflict of interest, Congress should create an independent agency with enforcement authority to oversee all aspects of offshore drilling safety (operational and occupational) as well as the structural and operational integrity of all offshore energy production facilities, including both oil and gas production and renewable energy production. The roles and responsibilities of BOEMRE should be separated into three entities with clearly defined statutory authorities.

(1) The Offshore Safety Authority would have primary statutory responsibility for overseeing the structural and operational integrity of all offshore energy-related facilities and activities, including both oil and gas offshore drilling and renewable energy facilities. Congress should enact an organic act to establish its authorities and responsibilities, consolidating the various responsibilities now under the OCSLA, the Pipeline Safety Act, and Coast Guard authorizations. This should include responsibility for all workers in energy related offshore activities.

(2) The Leasing and Environmental Science Office would be charged with fostering environmentally responsible and efficient development of the Outer Continental Shelf, and would act as the leasing and resource manager for conven-

*All attachments have been retained in committee files.

tional renewable energy and other mineral resources on the OCS. The Office would also be responsible for conducting reviews under the National Environmental Policy Act (NEPA).

(3) The Office of Natural Resources Revenue would be responsible for revenue collection and auditing.

Congress should review and consider amending where necessary the governing statutes for all agencies involved in offshore activities to be consistent with the responsibilities functionally assigned to those agencies. The safety-related responsibilities of the new offshore safety agency should be included in a separate statute.

Since the Commission issued its final report on January 11th, Secretary of the Interior Ken Salazar has already announced changes in the organization within Interior that reflect many of the Commission's recommendations. Other Commission recommendations will require congressional action, especially those recommendations that seek to promote the independence of the Offshore Safety Authority from politics. For instance, the Commission recommends that the head of the Safety Authority be appointed to a fixed term that cuts across any one Presidential Administration, a change that can be accomplished most effectively only by statute.

Regulation to Better Manage Risk

The Commission also recommends a more comprehensive overhaul of both the leasing program and the regulatory policies and institutions used to oversee the safety and environmental protection of offshore activities. The goals must be to reduce and manage risk more effectively, using strategies that can keep pace with a technologically complex and rapidly evolving industry, particularly in high-risk and frontier areas, and to secure the resources needed to execute the leasing function and provide adequate regulatory oversight. To accomplish these goals the Commission offers the following three recommendations:

- The DOI should promulgate prescriptive safety and pollution-prevention standards that are developed and selected in consultation with international regulatory peers and that are at least as rigorous as the leasing terms and regulatory requirements of peer oil-producing nations.
- The Department of the Interior (DOI) should develop a proactive, risk-based performance approach specific to individual facilities, operations, and environments, similar to the "safety case" approach in the North Sea which requires drilling rigs to be certified and have safety management obligations separate and apart from the operator
- Working with the International Regulators' Forum and other organizations, Congress and the DOI should identify those drilling, production, and emergency-response standards that best protect offshore workers and the environment, and initiate new standards and revisions to fill gaps and correct deficiencies. These standards should be applied throughout the Gulf of Mexico, in the Arctic, and globally wherever the international industry operates. Standards should be updated at least every five years, as under the formal review process of the International Organization for Standardization (ISO). (See below for expansion on the development of international regulations.)

BOEMRE currently relies heavily on prescriptive regulations incorporating a number of industry technical standards. Prescriptive regulations must be the basis of an effective regulatory system, but given the many variables in deepwater drilling, prescriptive rules can never cover all cases. The federal agency responsible for offshore activity must have a regulatory approach that integrates more sophisticated risk assessment and risk management practices into its oversight of energy developers operating offshore. The focus should shift from prescriptive regulations covering only the operator to a foundation of augmented prescriptive regulations, including those relating to well design and integrity, supplemented by a proactive, risk-based performance approach that is specific to individual facilities (production platforms and drilling rigs), operations, and environments. Both the operator and the drilling rig owners would have a legal duty to assess and manage the risks of a specific activity by engaging all contractors and subcontractors in a coordinated safety management system.

To ensure that Interior has the ability to provide adequate leasing capabilities and regulatory oversight for the increasingly complex energy-related activities being undertaken on the OCS, budgets for these new offices as well as existing agencies should come directly from fees paid by the offshore industry, akin to how fees charged to the telecommunications industry pay for the expenses of the Federal Communications Commission, the Nuclear Regulatory Commission, the Office of Pipeline Safety which are essentially fully funded by such regulated industry payments. Through this mechanism, Congress, through legislation, and DOI, through

lease provisions, could expressly oblige lessees to fund the regulation necessary to allow for private industry access to the energy resources on the OCS, including renewables.

IV. ENVIRONMENTAL REVIEW

As part of its inquiry into the existing regulatory structure for offshore drilling, the Commission reviewed existing mechanisms for protecting the environment. In its work on this question, the Commission focused on two issues: (1) the application of National Environmental Policy Act (NEPA) requirements to the offshore leasing process and (2) the need for better science and greater interagency consultation to improve decision-making related to management of offshore resources.

NEPA

Based on the Commission's review of leasing and permitting processes in the Gulf of Mexico before the Deepwater Horizon incident, the Commission concluded that the breakdown of the environmental review process for OCS activities was systemic and that Interior's historical approach to the application of NEPA requirements for offshore oil and gas activities needs significant revision. In particular, the application of tiering, use of categorical exclusions, the practice of area-wide leasing, and failure to develop formal NEPA guidance all contributed to this breakdown. The Commission recommends that the Council on Environmental Quality and the Department of the Interior revise and strengthen the NEPA policies, practices, and procedures to improve the level of environmental analysis, transparency, and consistency at all stages of the OCS planning, leasing, exploration, and development process.

Improved Interagency Consultation and Environmental Science

Under OCSLA, it is up to the Secretary of the Interior to choose the proper balance between environmental protection and resource development. In making leasing decisions, the Secretary is required to solicit and consider suggestions from any interested agency, but he or she is not required to respond to the comments or accord them any particular weight. Similar issues arise at the individual lease sale stage and at the development and production plan stage. As a result, NOAA—the nation's ocean agency with the most expertise in marine science and the management of living marine resources—effectively has the same limited role as the general public in the decisions on selecting where and when to lease portions of the OCS. The Commission recommends a more robust and formal interagency consultation process in which NOAA, in particular, is provided a heightened role, but ultimate decision-making authority is retained at DOI. The Commission further recommends the creation of an Office of Environmental Science, led by a Chief Environmental Scientist, with specified responsibilities in conducting all NEPA reviews, coordinating other environmental reviews, and whose expert judgment on environmental protection concerns would be accorded significant weight in leasing decision-making.

V. REFORMING INDUSTRY SAFETY PRACTICES

Changing Business As Usual

Without effective government oversight, the offshore oil and gas industry will not adequately reduce the risk of accidents, nor prepare effectively to respond in emergencies. However, government oversight alone cannot reduce those risks to the fullest extent possible. Government oversight must be accompanied by the oil and gas industry's internal reinvention: sweeping reforms that accomplish no less than a fundamental transformation of its safety culture.

Even the most inherently risky industry can be made much safer, given the right incentives and disciplined systems, sustained by committed leadership and effective training. The critical common element is an unwavering commitment to safety at the top of an organization: the CEO and board of directors.

Industry Self-Policing as a Supplement to Government Regulation

One of the key responsibilities of government is to regulate—to direct the behavior of individuals and institutions according to rules. Many businesses and business groups are involved in internal standard setting, evaluation, and other activities that constitute self-policing or self-regulation. But even in industries with strong self-policing, government also needs to be strongly present, providing oversight and/or additional regulatory control—responsibilities that cannot be abdicated if public safety, health, and welfare are to be protected.

Industry-standard setting and self-policing organizations are widespread in the United States and in most industrialized nations—typically for operations marked

by technical complexity, such as the chemical, nuclear power, civil aviation, and oil and gas industries, where government oversight is also present. These processes co-exist where there are relatively limited numbers of people with the requisite expertise and experience, making it hard for government to be able to rely solely on its own personnel (especially when government cannot compete with private-sector salaries for those experts). Support for standard setting and self-policing also arises in industries whose reputations depend on the performance of each company, and where significant revenues are at stake. However, industry self-policing is not a substitute for government but serves as an important supplement to government oversight.

After Three Mile Island, the nuclear power industry established the Institute of Nuclear Power Operations (INPO), a nonprofit organization with the ambitious mission “to promote the highest levels of safety and reliability—to promote excellence—in the operation of commercial nuclear power plants.” The oil and gas industry, like the nuclear power industry, has both the substantial economic resources and the necessary economic incentive to make it happen. INPO was formed because doing so was in the industry’s self-interest. As the Deepwater Horizon disaster made unambiguously clear, the entire industry’s reputation, and perhaps its viability, ultimately turn on its lowest-performing members. If any one company is involved in an accident with widespread and potentially enormous costs, like those that followed the Macondo blowout, everyone in the industry—companies and employees—suffers, as do regional economies and the nation as a whole. No one, in industry or in government, can afford a repeat of the Macondo explosion and spill.

Like the nuclear power industry in 1979, the nation’s oil and gas industry needs now to embrace the potential for an industry safety institute to supplement government oversight of industry operations. To be credible, any industry-created safety institute would need to have complete command of technical expertise available through industry sources—and complete freedom from any suggestion that its operations are compromised by multiple other interests and agendas. As a consensus-based organization, the American Petroleum Institute (API) is culturally ill-suited to drive a safety revolution in the industry. For this reason, it is essential that the safety enterprise operate apart from the API. API’s longstanding role as an industry lobbyist and policy advocate—with an established record of opposing reform and modernization of safety regulations—renders it inappropriate to serve a self-policing function.

The INPO experience makes clear that any successful oil and gas industry safety institute would require in the first instance strong board-level support from CEOs and boards of directors of companies for a rigorous inspection and auditing function. Such audits would need to be aimed at assessing companies’ safety cultures and encouraging learning about implementation of enhanced practices. The inspection and auditing function would need to be conducted by safety institute staff, complemented by experts seconded from industry companies. There would also need to be a commitment to share findings about safety records and best practices within the industry, aggregate data, and analyze performance trends, shortcomings, and needs for further research and development. Accountability could be enhanced by a requirement that companies report their audit scores to their boards of directors and insurance companies.

The industry’s safety institute could facilitate a smooth transition to a regulatory regime based on systems safety engineering and improved coordination among operators and contractors—the principles of the U.K.’s “safety case” that shifts responsibility for maintaining safe operations at all times to the operators themselves. It should drive continuous improvement in standards and practices by incorporating the highest standards achieved globally. The industry also needs to benchmark safety and environmental practice rules against recognized global best practices. The Safety and Environmental Management Program Recommended Practice 75 (API RP 75) developed in 1993 by the API and incorporated by reference in the Department of the Interior’s new workplace safety rules, adopted in October 2010, is a reasonable starting point.

VI. RESPONSE AND CONTAINMENT

As part of its charge from President Obama, the Commission looked at the effectiveness of the response to the spill. There were remarkable instances of dedication and heroism by individuals involved in the rescue and cleanup. Much was done well—and thanks to a combination of good luck and hard work, the worst-case scenarios did not all come to pass. But it is impossible to argue that the industry or the government was prepared for a disaster of the magnitude of the Deepwater Horizon oil spill. Twenty years after the Exxon Valdez spill in Alaska, the same blunt

response technologies—booms, dispersants, and skimmers—were used, to limited effect. On-the-ground shortcomings in the joint public-private response to an overwhelming spill like that resulting from the blowout of the Macondo well are now evident, and demand public and private investment. So do the weaknesses in local, state, and federal coordination revealed by the emergency.

Neither BP nor the federal government was prepared to conduct an effective response to a spill of the magnitude and complexity of the Deepwater Horizon disaster. Three critical issues or gaps existed in the government's response capacity: (1) the failure to plan effectively for a large-scale, difficult-to-contain spill in the deepwater environment; (2) the difficulty of coordinating with state and local government officials to deliver an effective response; and (3) a lack of information and understanding concerning the efficacy of specific response measures, such as dispersants or berms. Moreover, the technology available for cleaning up oil spills had improved only incrementally since 1990. The technologies and methods available to cap or control a failed well in the extreme conditions thousands of feet below the sea were also inadequate. Although BP was able to develop new source-control technologies in a compressed timeframe, and the government was able to develop an effective oversight structure, the containment effort would have benefitted from prior preparation and contingency planning.

Improved Oil Spill Response Planning

The Department of the Interior should create a rigorous, transparent, and meaningful oil spill risk analysis and planning process for the development and implementation of better oil spill response. Several steps are needed for implementation:

- Interior should review and revise its regulations and guidance for industry oil spill response plans. The revised process should ensure that all critical information and spill scenarios are addressed in the plans.
- In addition to Interior, other agencies with relevant scientific and operational expertise should play a role in evaluating spill response plans to verify that operators can conduct the operations detailed in their plans. Specifically, oil spill response plans, including source-control measures, should be subject to interagency review and approval by the Coast Guard, EPA, and NOAA. Other parts of the federal government, such as Department of Energy national laboratories that possess relevant scientific expertise, could be consulted. Plans should also be made available for a public comment period prior to final approval and response plans should be made available to the public following their approval.
- Interior should incorporate the “worst-case scenario” calculations from industry oil spill response plans into NEPA documents and other environmental analyses or reviews.

Spills of National Significance

The Gulf oil spill presented an unprecedented challenge to the response capability of both government and industry. Though the National Contingency Plan permitted the government to designate the spill as one of “national significance,” this designation did not trigger any procedures other than allowing the government to name a National Incident Commander.

EPA and the Coast Guard should establish distinct plans and procedures for responding to a “Spill of National Significance.” Specifically, EPA should amend or issue new guidance on the National Contingency Plan to:

- Increase government oversight of the responsible party, based on the National Contingency Plan's requirement that the government “direct” the response where a spill poses a substantial threat to public health or welfare.
- Augment the National Response Team and Regional Response Team structures to establish additional frameworks for providing interagency scientific and policymaking expertise during a spill. Further, EPA, NOAA, and the Coast Guard should develop procedures to facilitate review and input from the scientific community—for example, by encouraging disclosure of underlying methodologies and data.
- Create a communications protocol that accounts for participation by high-level officials who may be less familiar with the National Contingency Plan structure and create a communications center within the National Incident Command—separate from the joint information center established in partnership with the responsible party—to help transmit consistent and complete information to the public.

Strengthening State and Local Involvement

The response to the Deepwater Horizon disaster showed that state and local elected officials had not been adequately involved in oil spill contingency planning,

though career responders in state government had participated extensively. Unfamiliarity with, and lack of trust in, the federal response manifested itself in competing state structures and attempts to control response operations that undercut the efficiency of the response overall.

EPA and the Coast Guard should bolster state and local involvement in oil spill contingency planning and training and create a mechanism for local involvement in spill planning and response similar to the Regional Citizens' Advisory Councils mandated by the Oil Pollution Act of 1990.

In addition, a mechanism should be created for ongoing local involvement in spill planning and response in the Gulf. In the Oil Pollution Act of 1990, Congress mandated citizens' councils for Prince William Sound and Cook Inlet. In the Gulf, such a council should broadly represent the citizens' interests in the area, such as fishing and tourism, and possibly include representation from oil and gas workers as ex-officio, non-voting members.

Research and Development for Improved Response

The technology available for cleaning up oil spills has improved only incrementally since 1990. Federal research and development programs in this area are underfunded: In fact, Congress has never appropriated even half the full amount authorized by the Oil Pollution Act of 1990 for oil spill research and development.

Specifically, Congress should provide mandatory funding (i.e. funding not subject to the annual appropriations process) at a level equal to or greater than the amount authorized by the Oil Pollution Act of 1990 to increase federal funding for oil spill response research by agencies such as Interior, the Coast Guard, EPA, and NOAA. In addition, Congress and the Administration should encourage private investment in response technology more broadly, including through public-private partnerships and a tax credit for research and development in this area.

Dispersants

Prior to the blowout, the federal government had not adequately planned for the use of dispersants to address such a large and sustained oil spill, and did not have sufficient research on the long-term effects of dispersants and dispersed oil to guide its decision-making.

EPA should update and periodically review its dispersant testing protocols for product listing or pre-approval, and modify the pre-approval process to include temporal duration, spatial reach, and volume of the spill. EPA should update its dispersant testing protocols and require more comprehensive testing prior to listing or pre-approving dispersant products. The Coast Guard and EPA should modify pre-approvals of dispersant use under the National Contingency Plan to establish procedures for further consultation based on the temporal duration, spatial reach, or volume of the spill and volume of dispersants that responders are seeking to apply. EPA and NOAA should conduct and encourage further research on dispersants.

Containment

The most obvious, immediately consequential, and plainly frustrating shortcoming of the oil spill response set in motion by the events of April 20, 2010 was the simple inability—of BP, of the federal government, or of any other potential intervener—to contain the flow of oil from the damaged Macondo well.

At the time of the blowout on April 20, the U.S. government was unprepared to oversee a deepwater source-control effort. Once the Secretary of Energy's science team, the U.S. Geological Survey, the national laboratories, and other sources of scientific expertise became involved, the government was able to substantively supervise BP's decision-making, forcing the company to fully consider contingencies and justify its chosen path.

The National Response Team should develop and maintain expertise within the Federal government to oversee source-control efforts. The National Response Team should create an interagency group—including representation from the Department of the Interior, Coast Guard, and the Department of Energy and its national laboratories—to develop and maintain expertise in source control, potentially through public-private partnerships.

Industry's Spill Preparedness

Beyond attempting to close the blowout preventer stack, no proven options for rapid source control in deepwater existed when the blowout occurred. The Department of the Interior should require offshore operators to provide detailed plans for source control as part of their oil spill response plans and applications for permits to drill.

These plans should demonstrate that an operator's containment technology is immediately deployable and effective. In applications for permits to drill, the Interior

should require operators to provide a specific source-control analysis for each well. As with oil spill response plans, source-control plans should be reviewed and approved by agencies with relevant expertise, including the Interior and the Coast Guard.

Improved Capability for Accurate Flow Rate Estimates

Early flow rate estimates were highly variable and difficult to determine accurately. However, the understated estimates of the amount of oil spilling appear to have impeded planning for and analysis of source-control efforts like the cofferdam and especially the top kill.

The National Response Team should develop and maintain expertise within the federal government to obtain accurate estimates of flow rate or spill volume early in a source-control effort. The National Response Team should create an interagency group—including representation from Interior, the Coast Guard, the national laboratories, and NOAA—to develop and maintain expertise in estimating flow rates and spill volumes. In addition, EPA should amend the National Contingency Plan to create a protocol for the government to obtain accurate estimates of flow rate or spill volume from the outset of a spill. This protocol should require the responsible party to provide all data necessary to estimate flow rate or spill volume.

More Robust Well Design and Approval Process

Among the problems that complicated the Macondo well-containment effort was a lack of reliable diagnostic tools and concerns about the well's integrity. The Department of the Interior should require offshore operators seeking its approval of proposed well design to demonstrate that:

- Well components, including blowout preventer stacks, are equipped with sensors or other tools to obtain accurate diagnostic information—for example, regarding pressures and the position of blowout preventer rams.
- Wells are designed to mitigate risks to well integrity during post-blowout containment efforts.

Industry Responsibilities for Containment and Response

Industry's responsibilities extend to efforts to contain any big spills as quickly as possible and to mitigate the harm caused by spills through effective response efforts. Both government, which must be capable of taking charge of those efforts, and industry were woefully unprepared to contain or respond to a deepwater well blowout like that at Macondo. All parties lacked adequate contingency planning, and neither had invested sufficiently in research, development, and demonstration to improve containment or response technology.

From now on, the oil and gas industry needs to combine its commitment to transform its safety culture with adequate resources for containment and response. Large-scale rescue, response, and containment capabilities need to be developed and demonstrated—including equipment, procedures, and logistics—and enabled by extensive training, including full-scale field exercises and international cooperation.

To that end, at least two industry spill containment initiatives have emerged that build on ideas and equipment that were deployed in response to the Macondo blowout and spill. The nonprofit Marine Well Containment Company was created in July 2010 by four of the major, integrated oil and gas companies. The second spill containment initiative is being coordinated by Helix Energy Solutions Group, which played a role in the Macondo well containment efforts.

Yet neither the Marine Well Containment Company's planned capabilities nor Helix's go past 10,000 feet despite the fact that current drilling technology extends beyond this depth. Also it seems that neither is structured to ensure the long-term ability to innovate and adapt over time to the next frontiers and technologies. What resources, if any, either initiative will dedicate to research and development going forward is unclear.

The primary long-term goal of a spill containment company or consortia should be to ensure that an appropriate containment system is readily available to contain quickly spills in the Gulf of Mexico with the best available technology. Any spill containment company or consortia should ensure that it remains focused on this goal, even when doing so potentially conflicts with the short-term interests of its founding companies, in the case of MWCC, or the parent company, in the case of Helix. An independent advisory board, with representatives from industry, the federal government, state and local governments, and environmental groups could help keep any spill containment initiative focused on innovative, adaptive, effective spill response over the long term.

VII. FINANCIAL RESPONSIBILITY

Oil spills cause a range of harms, including personal, economic and environmental injuries, to individuals and ecosystems. The Oil Pollution Act makes the party responsible for a spill liable for compensating those who suffered as a result of the spill—through human health and property damage, lost profits, and other personal and economic injuries—and for restoring injured natural resources. The Act also provides an opportunity to make claims for compensation from a dedicated Oil Spill Liability Trust Fund. The Oil Pollution Act, however, imposes limits on both the amount for which the responsible party is liable, and the amount of compensation available through the trust fund. In the case of the Deepwater Horizon spill, BP (a responsible party) has placed \$20 billion in escrow to compensate private individuals and businesses through the independent Gulf Coast Claims Facility. But if a less well capitalized company had caused the spill, neither a multi-billion dollar compensation fund nor the funds necessary to restore injured resources, would likely have been available.

Liability for damages from spills from offshore facilities is capped under the Oil Pollution Act at \$75 million, unless it can be shown that the responsible party was guilty of gross negligence or willful misconduct, violated a federal safety regulation, or failed to report the incident or cooperate with removal activities, in which case there is no limit on damages. Claims up to \$1 billion for certain damages can be made to, and paid out of, the Oil Spill Liability Trust Fund, which is currently supported by an 8-cent per-barrel tax on domestic and imported oil.

The Oil Pollution Act also requires responsible parties to “establish and maintain evidence of financial responsibility,” generally based on a “worst-case discharge” estimate. In the case of offshore facilities, necessary financial responsibility ranges from \$35 million to \$150 million.

Inadequacy of Current System

There are two main problems with the current liability cap and financial responsibility dollar amounts. First, the relatively modest liability cap and financial responsibility requirements provide little incentive for oil companies to improve safety practices. Second, as noted, if an oil company with more limited financial means than BP had caused the Deepwater Horizon spill, that company might well have declared bankruptcy long before paying fully for all damages. In the case of a large spill, the Oil Spill Liability Trust Fund would likely not provide sufficient backup. Thus, a significant portion of the injuries caused to individuals and natural resources, as well as government response costs, could go uncompensated.

Any discussion of increasing liability caps and financial responsibility requirements must balance two competing public policy concerns: first, the goal of ensuring that the risk of major spills is minimized, and in the event of a spill, victims are fully compensated; and second, that increased caps and financial responsibility requirements do not drive competent independent oil companies out of the market. A realistic policy solution also requires an understanding of the host of complex economic impacts that could result from increases to liability caps and financial responsibility requirements.

Options for Reform

As this Committee and others in Congress consider options for addressing these problems, the Commission recommends that first, Congress significantly increase the liability cap and financial responsibility requirements for offshore facilities. To address both the incentive and compensation concerns noted above, Congress should significantly raise the liability cap. Financial responsibility limits should also be increased, because if an oil company does not have adequate resources to pay for a spill, the application of increased liability has little effect. Should a company go bankrupt before fully compensating for a spill, its liability is effectively capped. If, however, the level of liability imposed and the level of financial responsibility required are set to levels that bear some relationship to potential damages, firms will have greater incentives to maximize prevention and minimize potential risk of oil spills and also have the financial means to ensure that victims of spills do not go uncompensated.

Second, the Commission recommends that Congress increase the limit on per-incident payouts from the Oil Spill Liability Trust Fund. If liability and financial responsibility limits are not set at a level that will ensure payment of all damages for spills, then another source of funding will be required to ensure full compensation. The federal government could cover additional compensation costs, but this approach requires the taxpayer to foot the bill. Therefore, Congress should raise the Oil Spill Liability Trust Fund per-incident limit. Raising the Oil Spill Liability Trust Fund’s per-incident limit will require the Fund to grow through an increase of the

per-barrel tax on domestic and imported oil production. An alternative would be to increase the Trust Fund through a surcharge by mandatory provisions in drilling leases triggered in the event that there are inadequate sums available in the Fund.

Third, the Commission recommends that the Department of the Interior enhance auditing and evaluation of the risk of offshore drilling activities by individual participants (operator, driller, other service companies). The Department of the Interior, insurance underwriters, or other independent entities should evaluate and monitor the risk of offshore drilling activities to promote enhanced risk management in offshore operations and to discourage unqualified companies from remaining in the market.

The Interior Department currently determines financial responsibility levels based on potential worst-case discharges, as required by the Oil Pollution Act. Although the agency's analysis to some degree accounts for the risk associated with individual drilling activities, it does not fully account for the range of factors that could affect the cost of a spill, and thus the level of financial responsibility that should be required. Interior should analyze a host of specific, risk-related criteria when determining financial responsibility limits applicable to a particular company, including, but not limited to: geological and environmental considerations, the applicant's experience and expertise, and applicable risk management plans. This increased scrutiny would provide an additional guard against unqualified companies entering the offshore drilling market.

VIII. SPILL IMPACTS AND GULF RESTORATION

Even before the highly visible damages caused by the spill became clear, many crucial Gulf economic and ecological resources—fisheries, transportation, tourism—faced long-term threats. First, more than 2,300 square miles of coastal wetlands—an area larger than the State of Delaware—have been lost to the Gulf since the United States raised the massive levees along the lower Mississippi River after the devastating Great Flood of 1927. Exceptionally powerful hurricanes, always a threat to the region, struck the coast in 2005 (Katrina and Rita) and 2008 (Gustav and Ike), causing even more wetland loss. Second, low-oxygen bottom waters were in the process of forming a massive “dead zone” extending up to 7,700 square miles during the summer of 2010. Referred to as hypoxia, this phenomenon has intensified and expanded since the early 1970s as a result of nutrient pollution, mainly from Midwestern agriculture. And finally, the Deepwater Horizon disaster made matters worse: 11 rig workers killed in the explosion and 17 injured; many thousands of people exposed to contaminated waters, coasts, beaches, and seafood; thousands out of work; birds and sea animals killed and significant habitats damaged or destroyed. The Commission's investigation made plain that existing authorities are not adequate to redress these significant harms and ensure restoration of the Gulf.

Human Health Impacts

The National Contingency Plan overlooks the need to respond to widespread concerns about human health impacts. For smaller oil spills, the response effort is generally carried out by trained oil spill response technicians, but given the scale of the response to the Deepwater Horizon spill and the need to enlist thousands of previously untrained individuals to clean the waters and coastline, many response workers were not screened for pre-existing conditions. This lack of basic medical information, which could have been collected if a short medical questionnaire had been distributed, limits the ability to draw accurate conclusions regarding long-term physical health impacts. EPA should amend the National Contingency Plan to add distinct procedures to address human health impacts during a Spill of National Significance. Spills of this magnitude necessarily require a significant clean-up effort, potentially exposing workers to toxic compounds in oil and dispersants.

Consumer Confidence

Images of spewing oil and oiled beaches in newspapers and on television set the stage for public concern regarding the safety of Gulf seafood. Additional factors contributed to the lingering impression that the public could not trust government assurances that the seafood was safe: the unprecedented volumes of dispersants used, confusion over the flow rate and fate of the oil, frustration about the government's relationship with BP in spill cleanup, and lawsuits filed by fishermen contesting the government's assurance of seafood safety. The economic blow to the Gulf region associated with this loss of consumer confidence is sizable. BP gave Louisiana and Florida \$68 million for seafood testing and marketing, as well as money to assess impacts on tourism and fund promotional activities. As of early December 2010, BP was considering a similar request from Alabama.

In future spills, however, there is no guarantee that a responsible party will have the means or the inclination to compensate such losses. Such indirect financial harms are currently not compensable under the Oil Pollution Act. Nevertheless, losses in consumer confidence are real and Congress, federal agencies, and responsible parties should consider ways to restore consumer confidence in the aftermath of a Spill of National Significance.

The Commission recommends that Congress, federal agencies, and responsible parties take steps to restore consumer confidence in the aftermath of a Spill of National Significance.

LACK OF SUSTAINED FUNDING FOR GULF RESTORATION

A lack of sustained and predictable funding, together with failed project coordination and long-term planning, has resulted in incomplete and often ineffective efforts to restore the Gulf's natural environment. No funding source currently exists to support regional restoration efforts. While cost estimates of Gulf restoration vary widely, according to testimony before the Commission, fully restoring the Gulf will require \$15 billion-\$20 billion, or a minimum of \$500 million per year, over 30 years. A number of different sources currently provide funding to individual states for restoration, however none of these sources provides funds for Gulf-wide coastal and marine restoration, and none is sufficient to support the sustained effort required. Most policymakers agree that without a reliable source of long-term funding, it will be impossible to achieve restoration in the Gulf.

Several Gulf States and the federal government have filed or are expected to file suit against BP and other companies involved in the spill, which will likely create opportunities to direct new restoration funds to the region. In some cases, congressional action will be required to ensure that funds are directed to this purpose. The Commission recommends that 80 percent of any Clean Water Act penalties and fines be directed to Gulf restoration. Should such penalties and fines not be directed to the Gulf, Congress should consider other mechanisms for a dedicated funding stream not subject to annual appropriations. Although such mechanisms face hurdles, the fact remains that resources are needed if progress on coastal restoration is to continue. Inaction is a prescription for further degradation. Should CWA penalties not be redirected to Gulf restoration, Congress should consider other mechanisms for a dedicated funding stream not subject to annual appropriations.

Decision-making Body for Expediting Work

In order for funding to be most efficiently directed at long-term restoration, a decision-making body is needed that has authority to set binding priorities and criteria for project funding. The Gulf Coast Ecosystem Restoration Task Force is now in place, as recommended by the September 2010 report on restoration from Secretary of the Navy Ray Mabus to the President, and subsequently established by Presidential Executive Order. According to the Executive Order, the job of the Task Force is to begin coordinating the different restoration projects being undertaken by various jurisdictions in the Gulf, coordinating related science activities and engaging stakeholders. However, as many in Congress and the Administration have suggested, the Task Force lacks some features necessary to effectively direct long-term restoration efforts in the Gulf—most importantly the ability to set binding goals and priorities.

The Commission recommends that Congress establish a joint state-federal Gulf Coast Ecosystem Restoration Council. The Council should implement a restoration strategy for the region that is compatible with existing state restoration goals. Experience in major restoration endeavors, including those in the Gulf, has shown that, absent binding goals to drive the process, restoration projects are insufficiently funded, focused, or coordinated. Therefore, the restoration strategy should set short- and long-term goals with binding criteria for selecting projects for funding. Key criteria should include national significance; contribution to achieving ecosystem resilience; and the extent to which national policies—such as those related to flood control, oil and gas development, agriculture, and navigation—directly contributed to the environmental problem. Congress should also ensure that the priorities and decisions of the Council are informed by input from a Citizens Advisory Council that represents diverse stakeholders.

Restoration Rooted in Science

Finally, but essentially, restoration decisions must be rooted in science. An approach that draws heavily on information and advice from scientists will result in project selection and funding allocations that are more likely to lead to an effective region-wide restoration strategy. Such an approach will also advance transparency in decision-making and enhance credibility with the public.

The Commission accordingly recommends the establishment of a Gulf Coast Ecosystem Restoration Science and Technology Program that would address these issues in three ways: (1) by creating a scientific research and analysis program, supported by the restoration fund, that is designed to support the design of scientifically sound restoration projects; (2) by creating a science panel to evaluate individual projects for technical effectiveness and consistency with the comprehensive strategy; and (3) by supporting adaptive management plans based on monitoring of outcomes scaled both to the strategy itself and to the individual projects or categories of projects included in it.

Managing Ocean Resources

The Commission recommends that as a part of management and restoration efforts in the marine environment, greater attention should be given to new tools for managing ocean resources, including monitoring systems and spatial planning. Marine scientists have emerged from the Deepwater Horizon incident with more precise questions to investigate, as well as a better sense of monitoring needs in the Gulf of Mexico, which because of its multiple uses and economic value should be a national priority. To that end, the National Ocean Council, which the President initiated in July 2010, should work with the responsible federal agencies, industry and the scientific community to expand the Gulf of Mexico Integrated Ocean Observing System, including the installation and maintenance of an in situ network of instruments deployed on selected production platforms. Participation in this system by industry should be regarded as a reasonable part of doing business in nation's waters.

Coastal and marine spatial planning has the potential to improve overall efficiency and reduce conflicts among ocean users. Congress should fund grants for the development of regional planning bodies at the amount requested by the President in the fiscal year 2011 budget submitted to Congress. Ocean management should also include more strategically sited Marine Protected Areas, including but not limited to National Marine Sanctuaries, which can be used as "mitigation banks" to help offset harm to the marine environment. Given the economic and cultural importance of fishing in the Gulf region—and the importance of Gulf seafood to the rest of the country—scientifically valid measures, such as catch share programs, should be adopted to prevent overfishing and ensure the continuity of robust fisheries.

IX. THE FUTURE OF OFFSHORE DRILLING

The central lesson to be drawn from the catastrophe is that no less than an overhauling of both current industry practices and government oversight is now required. The changes necessary will be transformative in their depth and breadth, requiring an unbending commitment to safety by government and industry to displace a culture of complacency. Drilling in deepwater, however, does not have to be abandoned. It can be done safely. That is one of the central messages of the Commission's final report. The Commission's recommendations are intended to do for the offshore oil and gas industry what new policies and practices have done for other high risk industries after their disasters. The Commission believes that the potential for such a transformation to ensure productive, safe, and responsible offshore drilling is significant, and provides reason for optimism even in the wake of a disaster.

The significance of the Deepwater Horizon disaster, however, is broader than just its relevance to the future of offshore drilling. The disaster signals the need to consider the broader context of the nation's patterns of energy production and use, now and in the future—the elements of America's energy policy. The explosion at the Macondo well and the ensuing enormous spill—particularly jarring events because of the belief they could never happen—force a reexamination of many widely held assumptions about how to reconcile the risks and benefits of offshore drilling, and a candid reassessment of the nation's policies for the development of a valuable resource. They also support a broader reexamination of the nation's overall energy policy.

Important decisions about whether, when, where, and how to engage in offshore drilling should be made in the context of a national energy policy that is shaped by economic, security, pace of technology, safety, and environmental concerns. Offshore drilling will certainly be an important part of any such policy, but its relative importance today will not, and should not, be the same a half-century from now. The nation must begin a transition to a cleaner, more energy-efficient future. Otherwise, its security and well-being will be increasingly dependent on diminishing supplies of nonrenewable resources and on supplies from foreign sources.

Drilling for oil in the Gulf of Mexico, however, is not solely a matter for U.S. consideration. Both Mexico and Cuba have expressed interest in deepwater drilling in

the Gulf in the near future. Potential sites are close enough to the United States—Cuba’s mainland lies only 90 miles from Florida’s coast and the contemplated wells only 50 miles—that if an accident like the Deepwater Horizon spill occurs, fisheries, coastal tourism, and other valuable U.S. natural resources could be put at great risk. It is in our country’s national interest to negotiate now with these neighbors to agree on a common, rigorous set of standards, a system for regulatory oversight, and operator adherence to an effective safety culture, along with protocols to cooperate on containment and response strategies in case of a spill.

FRONTIER AREAS

Our Commission also examined prospects in so called “frontier areas.” On December 1, in the wake of the Deepwater Horizon experience, Interior Secretary Ken Salazar announced that the Administration would not proceed with drilling in areas where there are “no active leases” during the next five-year leasing plan. As a result, exploration and production in certain frontier areas—the eastern Gulf and off of the Atlantic and Pacific coasts—are deferred. The Secretary also indicated that plans for 2011 drilling in Alaska’s Beaufort Sea would be subjected to additional environmental assessments.

The major interest in offshore Alaska reflects the likelihood of finding significant new sources of oil there. The Chukchi and Beaufort Sea off Alaska’s north coast rank behind only the Gulf of Mexico in estimated domestic resources. But finding and producing those potentially important supplies of oil offshore Arctic Alaska requires the utmost care, given the special challenges for oil spill response and containment, and heightened risks associated with this frontier, especially its extreme cold, extended seasons of darkness, hurricane-strength storms, and pervasive fog—all affecting access and working conditions—and the extraordinary richness of its ecosystems and the subsistence native communities dependent upon their protection. To deal with these serious concerns about Arctic oil spill response, containment and the heightened environmental stakes the Commission recommends three approaches before the Department of the Interior makes a determination that drilling in a particular area is appropriate. First, the Department should ensure that the containment and response plans proposed by industry are adequate for each stage of development and that the underlying financial and technical capabilities have been satisfactorily demonstrated in the Arctic. Second, the Coast Guard and the oil companies operating in the Arctic should carefully delineate their respective responsibilities in the event of an accident—including search and rescue—and then must build and deploy the necessary capabilities. Third, Congress should provide the resources to establish Coast Guard capabilities in the Arctic, based on the Guard’s review of gaps in its capacity.

The Arctic is shared by multiple countries, many of which are considering or conducting oil and gas exploration and development. The extreme weather conditions and infrastructure difficulties are not unique to the U.S. Arctic. Damages caused by an oil spill in one part of the Arctic may not be limited to the waters of the country where it occurred. As a result, the Commission recommends that strong international standards related to Arctic oil and gas activities be established among all the countries of the Arctic. Such standards would require cooperation and coordination of policies and resources.

Bringing the potentially large oil resources of the Arctic outer continental shelf into production safely will require an especially delicate balancing of economic, human, environmental, and technological factors. Both industry and government will have to demonstrate standards and a level of performance higher than they have ever achieved before.

Creating and implementing a national energy policy will require enormous political effort and leadership—but it would do much to direct the nation toward a sounder economy and a safer and more sustainable environment in the decades to come. Given Americans’ consumption of oil, finding and producing additional domestic supplies will be required in coming years, no matter what sensible and effective efforts are made to reduce demand—in response to economic, trade, and security considerations, and the rising challenge of climate change.

Last June, this committee reported a bill that would reform the regulation of offshore drilling. The Outer Continental Shelf Reform Act of 2010, if passed, would effect notable changes, many of which are in line with the Commission’s recommendations. The Committee proposed to divide MMS into distinct bureaus with focused missions. The Commission expanded on that by recommending a clear distinction between the land management responsibilities of planning and leasing on one hand and the safety oversight and enforcement roles on the other. The Department of the Interior has just initiated the next phase of the reorganization of the former MMS

to achieve that clarity of purpose critical to eliminating conflicts of interest. We applaud the detail of the Secretary's plan for reorganization. While the legislation and actions taken by Interior represent significant reforms, the Commission believes it is important to go a step further. The Commission recommends that Congress pass an organic act to establish the new Bureau of Safety and Environmental Enforcement as a wholly independent agency housed at Interior, with a Director appointed by the President for a five or six year term. That authority is essential to ensure the right institutional independence to protect the welfare of offshore workers and the environment. Reorganization without statutory clarification might be undone for the sake of efficiency once the memory of the Deepwater Horizon has dimmed. That should not be allowed to happen.

The Commission recommendations go a step further than the Committee bill, in that we believe the budget for a competent safety regulator must be guaranteed with funding from an assessment on the regulated industry. This step is essential if we want to ensure that those responsible for protecting In addition, the agencies charged with regulating drilling must be adequately funded to ensure that they can perform their duties, expedite permits and reviews as needed, and hire experienced engineers, inspectors, and scientists.

The Commission will provide, within one week after this hearing, a more detailed side-by-side comparison of the Committee bill and the Commission's recommendations.

The extent to which offshore drilling contributes to augmenting that domestic supply depends on rebuilding public faith in existing offshore energy exploration and production. We have proposed a series of recommendations that will enable the country and the oil and gas industry to move forward on this one critical element of U.S. energy policy: continuing, safe, responsible offshore oil drilling to meet our nation's energy demands over the next decade and beyond. Our message is clear: both government and industry must make dramatic changes to establish the high level of safety in drilling operations on the outer continental shelf that the American public has the right to expect and to demand. It is now incumbent upon the Congress, the executive branch, and the oil and gas industry to take the necessary steps.

The CHAIRMAN. Thank you very much. Your full statement will be part of the record as will Mr. Reilly's. Why don't you go ahead with your presentation?

STATEMENT OF WILLIAM K. REILLY, CO-CHAIR, NATIONAL COMMISSION ON THE BP DEEPWATER HORIZON OIL SPILL AND OFFSHORE DRILLING, SAN FRANCISCO, CA

Mr. REILLY. Thank you, Mr. Chairman. Senator Murkowski, members of the committee, it is an honor and a privilege for us to appear before this committee now as it has been to serve on this Commission. We have, as Senator Graham described, spent the last 6 months developing these recommendations. I think what we have to report to the President and to you and to the country is fundamentally a positive, a hopeful and even an optimistic report.

We vitally need the resources of offshore oil and gas. That's where the future lies in this industry. It's a major contributor to our supplies. It will become a significantly more important contributor in the future.

The country's confidence however, in our ability to access those hydrocarbons safely, responsibly with protection for the environment has been shattered. That is a matter of concern for government and it certainly is a matter of concern for industry. We need the resource. Our economy, our mobility, our way of life requires it.

This Commission concludes that we can access it safely and responsibly. We know how. We recommend in the report the measures, the institutional changes, actually quite modest ones, particularly with respect to the amount of new money that we think is

necessary. But we absolutely must take some of these steps because when one looks at the history of government oversight of this enterprise, and of industry's own having fallen into a sense of complacency about safety, the history. The record is not pretty.

We conclude that industry—that government first, through several Administrations has allowed revenues which were one major priority that it was expected to produce and to oversee to drive concerns for safety and environment. There are many reasons for this.

One of them has to do simply with budgeting. The budget for the agency has gone down in the last 20 years while oil and gas development offshore has tripled. The agency does not have adequate resources to continue to do what the country asks it to do. It is not sufficiently trained, professional, nor are its people compensated. That is a fundamental reality.

Also because of the combination of its responsibility to generate revenue with one hand and also to regulate and protect with the other it has been conflicted. We believe that a fundamental reform needed and this is a cost free reform, is to create a wall of separation between the revenue generation that will occur at the Interior Department as a consequence for leasing. Revenues, that by the way are very substantial and which are second only to the Internal Revenue Service in total Federal receipts on the one hand and safety and regulation on the other.

Secretary Salazar has moved in this direction. We applaud those moves. We do not think they are sufficient.

We believe that in order to create a sustainable entity with integrity, free from political interference and from the concerns of revenue generation, a distinct entity must be created, a safety institute within the Interior Department to regulate for safety and environment. It should have access to all of the resources of the government, of the Department. But have an independent director, much like the FBI Director appointed for a term of years and immune to political interference.

We have used the terms complacency and systemic which have drawn the lightning. They have been heavily criticized and particularly by leaders in the industry. I understand why. Because many companies have extremely impressive systems for safety and environmental management, our Commission spent many hours in the presence of at least three of those companies and our senior technology and science advisor, Richard Sears, claimed 33 years of experience in offshore oil and gas development.

We respect those systems. We understand how good they are. However, at the conclusion of their presentations I found myself asking, well with all that you are doing, and I couldn't think nor could our Commission staff have anything more to ask them to do in many cases. Your rigs were nevertheless shut down in the Gulf.

Not only that, your response plans were concerned to protect walruses, your fatality rate is five times what it is in the North Sea which is a much more punishing environment and as I was told in the very first week of my appointment by the CEO of BP, Tony Hayward, we have no adequate subsea containment capability or technology. What I have heard so many industry people say is well, no one thought this could happen. I think that is another way of saying well we were complacent.

The government was complacent. Industry was complacent. I personally have some history in the oil and gas industry. I didn't think it could happen.

In order to address the industry part of this issue and to recognize that however fast we undertake reforms within the Interior Department to build up that Department and make it the match for the people that it's regulating. Its inspectors better trained in understanding the technologies and able to oversee them. Industry itself has got to establish a safety institute.

Other high risk industries have done this. The chemical industry after Bhopal established Responsible Care. The nuclear industry after Three Mile Island established the Institute for Nuclear Power Operations.

These enterprises are designed to raise the standard of everybody so that even the best companies, in fact especially the best companies have an interest in making them work. There were many people in industry who were fully aware of BP's challenged history with respect to safety. They had no way of doing anything about it.

With a safety institute, much like INPO for the nuclear industry they would be able to have best practices designed, do evaluations, do audits, third party audits, and then give grades.

Draw to the attention of the CEOs of the lagging companies their failings and ask if they do what the nuclear power corporations group does, actually call them out.

Ask them publicly to explain or at least within the industry to explain why they are getting a low grade and what they propose to do about it.

We also conclude in the report that we need to recognize the international dimensions of the problem. If you look at a map of the Gulf of Mexico a very large part of it is not subject to the sovereign jurisdiction of the United States. We now know that Mexico intends within the next 2 years, as does Cuba, to go into offshore oil and gas development.

We require with respect to the Gulf, in my view, in our view, an agreement among the three countries about best practices and the kinds of standards that will govern everyone's operations. We need the same thing in the Arctic. We've already seen Denmark move ahead and Greenland last summer with two new wells.

Russia has just overseen an agreement between Rosneft and BP to develop the Arctic and its waters. Canada will no doubt move ahead. There's every reason for us to engage as a matter of foreign policy these countries in ensuring that the Arctic is subject to a common high standard of environmental protection and safety.

Oil and gas is one important industry in the Gulf. Fisheries and tourism also matter. We need to manage them in a way that each is compatible with the other.

We can do that. It is very vitally important in our view to inject more science in the decisionmaking affecting areas that are determined to be eligible for leasing. Then in the way that development and permitting is allowed to go forward.

I would conclude by saying that other countries, most notably the United Kingdom and Norway, have responded to catastrophes of their own in the offshore environment by improving their stand-

ards. Norway and the UK both created something called The Safety Case. It is something that militates against a check the box mentality with respect to regulation.

It says present to the regulator an analysis of a particular problem, a particular formation with its pressures and its challenges, whatever they may be. Explain how you, the company that's going to be the operator responsible for developing it, how you propose to address those risks, how you propose to guard against a problem.

That has worked effectively in those 2 countries in the eyes both of industry and of the international regulators. We need to do something like that in our own environment. If we do I think it will begin to restore the confidence of the country in this industry and get us on with the job that we all consider so important.

So in a very real sense for Senator Graham and myself and for the members of the Commission, we've done what we can do. We're delighted to have the attention and the concern expressed by so many of you. But in a very real sense now it's over to you.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you very much. We'll go with 5 minute round of questions. Let me start out.

Let me ask first about the statistic that you, Mr. Reilly, gave us here about the United States having the highest reported rate of fatalities. You mention, I think, 5 times the fatalities that have been experienced in the North Sea. Are there some regulatory requirements that are imposed in these other countries, in the United Kingdom, in Norway, that you believe we have failed to impose?

Is that the explanation? Is it these entities that you've referenced that have been established? What explains that difference in the rate of fatalities?

Mr. REILLY. My sense of this is that there are two or three elements that play a key role.

One is there is a very close relationship between the regulatory enterprises and those who they are regulating with careful, steady, monitoring of activities and a deep analysis of what is proposed by an industry with respect to development. That is The Safety Case that I mentioned.

The second is that the unions are more powerful. There is probably a more immediate give and take with respect to safety rules on the part of people who are looking after those on the rigs, especially for the high risk businesses of helicopters and diving. I think both of those play an important part.

I guess I would say that a third reason is probably a culture that involves much better control over contractors and a much more close scrutiny of contractor activities carried out on behalf of operators.

I had a conversation recently with a chairman of one of the majors who commented that Norway was the gold standard as far as his company was concerned. He said we had our catastrophe back in the early 1980s. We learned from it. But the regulation is very, they're very practical, very specific, very much a give and take and very particular to the well situation that's being addressed. That is The Safety Case in a nutshell.

The CHAIRMAN. You also recommend this, that the industry establish its own institute to deal with safety and to establish safety standards and monitor that safety, as I understand it. You make reference to this institute of nuclear power operations, INPO, which is—was established after the Three Mile Island incident for the nuclear industry. Suggest that a similar institute should be established related to oil and gas.

You go on to talk about how, in your view, the current, the American Petroleum Institute is not properly equipped or designed to perform this function. Could you describe that a little bit more and explain how close this analogy is between the nuclear industry and the oil and gas industry?

Mr. REILLY. Let me give my own personal impressions. I serve on the board of a company that has two nuclear reactors in Comanche Peak in Texas, 2,300 megawatts of nuclear power. I have been consistently impressed that the senior management after the evaluators have come through from INPO, which they do every couple of years, has been extraordinarily respectful of the people who are evaluating them, having been an administrator of EPA, that was not always my experience with the people that we regulated. But it is true for this group.

The group is focused not on compliance. It's focused on best practice. The company that I'm associated with recently scored a No. 1.

The CEO made a remark to me. He said if we do everything this year that we did last year we will not get a No. 1 because they raised the bar. They raise the standard every year.

INPO is an independent enterprise totally separate from any other aspect of nuclear promotion, for example. That is part of its strength. It is exclusively focused on safety. It's about 400, a staff of 400, a budget of \$100 million or so, paid for by industry. The fact that it has only one responsibility and that responsibility does not include advocacy gives it, I think, its special respect and independence.

Now with respect to the American Petroleum Institute I really became aware in the course of the life of this Commission of the tremendous technical resources that it possesses. It does standards development for industry with its task forces. It certifies equipment. It is the gold standard, I understand, for equipment worldwide in the oil and gas industry.

But it also advocates. In fact, that was my only previous encounter with it when in all the years I had lived in Washington. So I think the reality is both for optics and for effective, independent operation of something that has a distinct and exclusive mission on safety, it has to be a new enterprise.

The CHAIRMAN. My time is up.
Senator Murkowski.

Senator MURKOWSKI. Thank you, Mr. Chairman. Thank you both, gentlemen.

Mr. Reilly, you mention that the use of the term systemic sets off its own controversy. Within your report the statement is made "Three major companies failed to apply rigorous process safety measures to their drilling operations in the Gulf of Mexico, Halliburton and Transocean which service drilling operations through-

out the Gulf along with BP.” Then you conclude that there’s a systemic nature of the offshore industry’s problem.

But if you apply the same logic that you have two doctors who make some pretty fatal errors with a patient that therefore the entire hospital staff is somehow necessarily responsible for what could be considered routinely making these fatal errors on other patients. Is this a fair assessment of the report’s conclusion?

If that is the case, have we just basically been lucky then that for the past few decades that a spill of this magnitude has not occurred with some other 14,000 wells that are in the Gulf of Mexico?

Mr. REILLY. Senator, I would answer that question with one word. Yes.

I would cite some statistics here on loss of well control which are 79 losses of well control between 1996 and 2009, I think are the dates. I think you should have those handouts. I know you can’t read them from here. I can’t read them from here.

But those are, in many cases, near misses and lucky accidents because they did not result in an explosion, for example or in some cases even in a major spill. But they involve loss of well control. That is the hydrocarbons. Gas was moving.

Senator MURKOWSKI. Does loss of well control mean a blow out?

Mr. REILLY. No, it doesn’t mean a blow out, but it means very often a blow outs could happen if it’s not managed, if it’s not corrected for. A loss of well control is not supposed to happen in the industry. It is a mistake.

The notion of systemic and I know this is troublesome to the industry and particularly to the companies which have worked so hard to make themselves safe. I say systemic, we say it’s systemic because the presence of the two contractors who are implicated along with BP in this accident is global. They are operating everywhere for virtually everybody.

So everybody depends upon the quality of their work. Not only that, but in the 1990s and even late 1980s the industry began to divest itself of a number of capacities that it had, many that had for example independent capacity to monitor and to measure and evaluate cement when it was provided. They no longer have that most of them now.

So they take what is given them as BP did in this case. It turned out the cement had failed several tests by Halliburton itself. Our Commission had the formula that we were given by Halliburton tested and it failed nine tests in an independent or in a laboratory run by Chevron.

It’s inconceivable to us that Halliburton would only have provided faulty cement to BP. Just as it’s inconceivable to us to Transocean which is the largest rig operator in the world would only have failed to see gas rising in the drill pipe on a BP rig. It really requires too much imagination, I think, to imagine that all of it could have occurred only with respect to one company in one place at one time.

Senator MURKOWSKI. I understand clearly what you are saying. Your report also recognizes that you have at least two companies that you cite as having exemplary records for operating in the OCS. You have a situation where you have pinpointed obviously

three operators. For those three operators the sins are being held against everybody that is operating there.

Again, the word systemic appropriately raises some concerns.

Mr. REILLY. Could I just interject?

Senator MURKOWSKI. Please go ahead.

Mr. REILLY. Even if one does not accept that it is a systemic problem everybody's exploratory rigs were shut down in deep water in the Gulf. That is one reason why I think it is the answer to it is very much a systemic answer. I think the industry is going to have to take itself, the responsibility for having the institute we describe so that those very good companies some of whose leaders most strenuously object to the term systemic and feel they've been painted with that brush have a means in the future of preventing one company from implementing them all.

Senator GRAHAM. If I could just add to what Bill has said. You used the example of two doctors in a hospital. One of the things that physicians are required to do is to diagnose the ill patient before they prescribe what to do about their condition. We think we have the same responsibility.

We could have diagnosed this. One option was that this was one rogue company. Therefore the solution was to punish/sanction that one company.

That was not our diagnosis. In the area that I spoke of, restoration, it was stunning how ill prepared the industry writ large was to respond to this incident. This—the capacity to respond is an industry wide issue. The investment in the research so that we will be constantly improving our capability to respond is an industry wide issue.

So for those reasons we thought the word systemic was appropriate, accurately diagnosed the problem. Therefore we provided prescriptions on that basis. I don't think they are onerous prescriptions. The use of The Safety Case, as is currently done in the North Sea, exactly the same companies that are operating in the Gulf of Mexico, the major companies are operating in the North Sea. So that we're not asking them to do something that is—with which they are unfamiliar.

I think another important thing that's happened in terms of the prior safety record is that record was in areas of less than 1,000 feet where the industries had decades of experience. What's happened since 1900 is the industry had been moving into first deep and now what is referred to as ultra deep drilling. The risks are exponentially greater as you go into those deeper waters. Therefore, the need to have an industry wide, systemic approach to how we can do it in the safest possible manner, I think, is compelling.

Senator MURKOWSKI. My time has expired.

The CHAIRMAN. Senator Wyden.

Senator WYDEN. Thank you, Mr. Chairman. Thank you Chairman Graham and Chairman Reilly. I think your report is full of important recommendations.

The one I want to zero in on is this matter of the contractors. Because I think as the committee has looked at this issue it's important to really sort out all of the key relationships between who actually does the work. So we've got BP holding the lease from the

Federal Government. Then you've got contractors. They own the rigs and they do the drilling.

The problem has been that the contractors hide behind the lease holders and try to shield themselves from liability. So what we heard at Chairman Bingaman's hearing earlier is that after the event both Halliburton and Transocean rushed to blame BP. I actually went to the SEC filings and saw the lengths that Transocean goes in order to absolve themselves of liability.

My question revolves around what the Senate is now looking at, is if all you do is lift the liability limits which is what's being discussed here in the Energy Committee. We're debating it here in the Senate. The contractors and the pervasive problems that you all have pointed out aren't going to be subject to liability. They've absolved themselves.

So my question to both of you to begin is should the Congress consider some sort of special approach to ensure that there's accountability with the contractors.

For example, the Congress could consider a separate Federal certification and bonding requirements for the drilling contractors.

You could say that in deep water, for example, there ought to be some specific measures put in place to hold these contractors accountable.

My sense is if you don't do something like that and all you do is lift the liability limits we will continue to have this finger pointing routine in case after case after case and won't have built up the kind of tier of safety protection that the public deserves. I'd be interested in either of your comments.

Mr. REILLY. My own sense of that and I discussed that with the Chairman of one of the major companies, who said a good operator is in charge of everything that happens and extremely rigorous with respect to policing contractors. To fix liability on those who actually won the lease and have the responsibility and write the contracts for their contractors is probably better than the alternative of trying to parcel out. Particularly given how hugely complex their relationships and the number of service contractors are that support one large rig, for example.

I have always been struck by the differential in accident rates among contractors in the oil and gas industry verses operators. They're typically quite significant. They're not significant with respect to every company. But most companies, they are.

Most good operators work very hard to try to make sure that the whole stream of support services that they have is managed respectively, is managed effectively. I know in the case of the nuclear power industry, the INPO evaluations that I mentioned go well back into the supply chain to look at those who supply the fuel, who transport the fuel, who do the construction and so forth. I think that is probably the safer, more reassuring way to go rather than to try to get in the middle of contractor relations on the part of the operator. You want the operator to be on the line for what happens.

I would expect that one consequence of this might be that in the future operators not only will be more rigorously observant with respect to their contractors, but also contractually will probably try to share more liability.

Senator GRAHAM. If I could just add—

Senator WYDEN. Chairman Graham, just as you get into it there is no question, Chairman Reilly, that would make more sense. But when you look at these contracts, that's why I went to the SEC filing. That absent the BP, that BP in this case who holds the lease being really hardnosed with respect to these indemnity, you know, provisions, all bets are off with respect to the contractors because I've seen the lengths that the contractors are going.

It's really striking when you see this Transocean. I mean, it's clear they saw the ball game as absolving themselves from liability. So my first choice would be the BPs of the world playing a hardnosed game with the contractors. But I just don't see that to date.

Chairman Graham.

Senator GRAHAM. I would make a couple of comments.

One, the most significant accident prior to Macondo occurred in Australia. Australia set up a commission of inquiry to review that. As I have understand their report they basically absolved Halliburton which provided the cement which was, as it was in this case, a critical element in allowing this explosion to occur.

Because of this legal focus of attention on the prime contract, who in this case I think was a Norwegian company, so I would agree with the—Bill's observation. That I think while it's not a perfect solution. That of the options placing responsibility on the permittee is the best of the options.

One other thing that I would say this raises, the regulators, in our judgment, have not adapted to the new realities of the way the industry is operating. Too often they continue to see this as vertically integrated industry that it may have been in times past. Not only has it become an extremely diverse industry in terms of the use of special expertise, but it also has not given adequate, give the regulators adequate attention to the safety consequences of that—in the way in which they go about their operations.

So I think that's another reason to seriously consider our suggestion that we need to substantially enhance the capability of the regulator in part because of this greater complexity of achieving safe operations.

Senator WYDEN. My time is up, but as you all furnish more examples of potential cement problems just makes the case for one way or another overhauling this contractual relationship. Thank you both.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you.

Senator Barrasso.

Senator BARRASSO. Thank you very much, Mr. Chairman. I want to welcome our guests. Thank you.

I appreciated your editorial in today's Politico that you wrote called the due diligence for deep water oil drilling both of you put in and found it very helpful. We need to remember that 11 people lost their lives in this tragedy. The exact causes of the accident are still unknown.

The report states the crew could have prevented the blow out or at least significantly reduced its impact if they had reacted in a timely and appropriate manner and human error a component to this. Clearly there are lessons that need to be drawn from this

tragedy, ways to promote safety, to reduce risk, to improve oil spill response. In my opinion shutting down offshore energy exploration would be the wrong lesson to take from this. Offshore exploration creates jobs, drives economic development.

The Administration's response of a moratorium seems to be at a point where people are making it permanent and others—and people in the Gulf region are calling it a permatorium. It has basically stopped offshore drilling. Jobs and economic recovery have been significantly jeopardized.

The Department of Energy forecast domestic production is going to decrease at least 13 percent in 2011. The gas prices are increasing. The nationwide average is now over \$3 a gallon.

I've had concerns throughout and have worked with members of this committee on amendments to create a truly bipartisan Commission because I've had concerns from the beginning. Mr. Reilly, you and I have talked about this in my office, that the Commission the President set up was philosophically opposed to offshore drilling. One of the members of the Commission heads an environmental group that has actively been involved in litigation related to the oil spill.

The—I've been critical that the Commission has lacked members with critical, technical expertise in offshore drilling. There was no petroleum engineer or rig safety expert. That that had an impact on the credibility of the Commission.

I'd like to focus a little bit on that failed blow out preventer. I think people across the country who had never heard of a blow out preventer after the tragedy in the Gulf all focused on the blow out preventer. They saw news stories around the clock. I thought it was a crucial piece of understanding the cause of the accident.

Now the autopsy for the blow out preventer started just on November 16. The Associated Press has now reported that the testing has been delayed again on the blow out preventer. The device was raised from the sea floor on September 4. It then sat for 2 months at a NASA facility in New Orleans before testing started. The investigating team overseeing the testing and this is a report out just earlier this week isn't willing to comment.

Did the Commission run specific tests on the blow out preventer?

Mr. REILLY. No sir, we did not. This issue was obvious from the start. In fact I raised it with the President at our first meeting that we did not expect to have the blow out preventer then up from the water, deep water, much before late August. I think that was in fact true.

So there has been no forensic analysis of the BOP and nor did we address that in our own deliberations because of course we didn't have access to it.

Senator BARRASSO. So do you think your investigation was limited without the results and without even this investigation?

Mr. REILLY. We're pretty confident we figured out what happened.

Senator BARRASSO. Human error?

Mr. REILLY. We know that the BOP did not activate. So that's your fundamental fact that is relevant to the situation. But with respect to the decisions that were made and the consequences they had, we're confident that we go to the bottom of this.

Senator BARRASSO. I wanted to go also to a couple places in the report and you mentioned it in the editorial as well as your comments about Cuba and Mexico in terms of potential impacts if there are drilling accidents in those areas. Because we know right now that there is a large Russian oil and gas production company which has contracted with Cuba that they have planning on exploratory wells. They're going to be within 50 miles of the coast of the United States which if there is a problem could affect fisheries, coastal tourism.

It seems that Cuba has already leased these blocks within 50 miles of the coast of Florida according to your report with plans for seven exploration wells by 2014. You made some recommendations here. Do you know if the Administration is taking up on that? What we, as your home State of Florida, others might not even hear about it in Wyoming, that's the concern. What are the impacts of Russians coming in, their companies drilling within that close of a distance to the United States when our own companies aren't allowed to do so?

Mr. REILLY. I think they're worrisome. I have met with the Mexican regulator, Juan Carlos Zepeda, about Mexico's own standards and been reassured that also to learn that Secretary Salazar has met with the President of Mexico, President Calderon, about some of these issues and has invited us to go down with him in March to work with the Mexicans.

I've also asked Zepeda if Mexico would use its relationships with Cuba to become an interlocutor to try to ensure that they also respect whatever is decided by the Mexicans and by us together. Mexico would very much like to have a treaty and we'd like to have it resolved by the end of this year. The President has said after that he will have less influence as a lame duck President.

Given Cuba's relationships with Mexico, I would imagine that would be taken seriously by them. My understanding is and this is really, probably fifth hand, that Cuba is sensitive to what they have learned and what we have learned with respect to the problems that we've had in deep water and interested itself in ensuring that it doesn't happen to them.

Senator BARRASSO. Thank you. Thank you very much, Mr. Chairman. My time's expired.

The CHAIRMAN. Thank you.

Senator Udall.

Senator UDALL. Thank you, Mr. Chairman.

Good morning to both of you. Thank you for your hard work and in particular I want to thank your staff and make the comment that this document is wide ranging. It's readable. Concrete recommendations. It won't just sit on a shelf, I can assure you.

I did also want to comment. Senator Barrasso, I thought made an important suggestion to the committee last year. It's unfortunate in a sense that we didn't get our wide ranging energy bill out of the committee and that your idea could have been implemented. I'm not sure, Senator, how we complement and in some cases critique what's in here, but I'd be more than happy to work with you as we move forward.

I was thinking as well, listening to you, that if we had a lot of these protocols in place then we probably wouldn't have had to

have a moratorium after this spill because although we all want no spills in the future and we're going to work overtime to make that a reality, there may well be another spill. If we have to shut down the entire industry and I know Senator Landrieu is here, that's not a good thing. That hurts our economy, hurts job creation and the like.

I did want to ask you about Cuba. But I think you've already, you've expressed, I think, some thoughtful ideas there. I'm not sure your work is done.

You may both have to be co-diplomatics there. I know, Senator Graham, you've got great working knowledge of our relationship or non-relationship with the Cubans. In particular given that I think our own companies can't even collaborate with the Cuban government. This is a thorny problem but one that you've drawn important attention to.

If I might given, that my home State of Colorado has a lot of on-shore development and there have been some serious blow outs in places like West Virginia and Pennsylvania just last year, do you have any thoughts about your recommendations applying to on-shore oil and gas developments?

In particular, when you look at safety cultures and safety regulations across the board?

Mr. REILLY. As a commission we did not get into that. But in one of the questions that has arisen is would a new safety institute established by the oil and gas industry have responsibilities that go beyond the offshore environment. Our sense is that certainly to begin with it should not.

The offshore environment presents a distinct set of challenges and problems. It's more than enough to occupy a new institution for some time. So probably it would be a mistake. There are other regulatory bodies that, pipeline safety and so forth, chemical response, that do attend to aspects of the onshore oil and gas industry.

So our sense is that for now we would confine it. What we say and have confined our recommendations to the offshore environment.

Senator UDALL. Senator Graham.

Senator GRAHAM. I agree with what Bill has said. I would underscore one of the differences between offshore and onshore, onshore is a combination of drilling on publicly owned lands and privately owned lands. So the government has a regulator role and a landlord role.

In the case of the Federal waters in the Gulf of Mexico, it's all public land. In my judgment that sets a different set of obligations that yes, we're interested in having effective regulation, but we ought to also be concerned as the owner of the land for its prudent use.

A use that does not adversely affect our asset.

A use that is compatible with other users in the Gulf, particularly the seafood and the tourism industries.

So I would agree with that. We've got a lot of work to do to deal with the assignment that was given to us which was the future of offshore drilling. There could well be some learning in that process

that might be applicable and eventually applied to onshore that was outside of our jurisdiction.

Senator UDALL. Senator, I want to mention I was excited to hear you talk about restoring the Gulf's ecosystems. I know I don't have to convince Senator Landrieu that that's important. Perhaps this tragic incident can create more motivation to put some of the resources you mentioned into the Gulf—since we all have a stake not only because it's our gas station, but it's also where we get the large majority of our seafood. Then the tourism industry that's so important to your State is also affected.

My time's expired. But again I wanted to thank you and in particular I may want to follow up on the R and D ideas that you had.

Senator Shaheen and I have introduced a combination of bills that we hope we can generate support from the Chairman and the Ranking Member that would expand the kind of R and D that's done both in the Federal realm, but as well in the private realm focusing on well head safety. But then also spill responses. I know Senator Shaheen probably will want to talk about her ideas in that regard.

Thank you again.

The CHAIRMAN. Senator Landrieu.

Senator LANDRIEU. Thank you, Mr. Chairman. I want to thank both leaders of this Commission, Senator Graham and Mr. Reilly for your contributions to this effort which is an extremely important subject for our Nation, for the Gulf Coast and particularly for the State of Louisiana that serves as host. Primarily Texas and Louisiana serve as hosts along with Mississippi and Alabama to some degree, but much less to this great industry.

I want to just say to the members of this committee how impressed I am with the intensity that you both put into this work. Following it very closely at some points through this work you've managed to aggravate the White House and the President, who appointed you, the environmental community and the industry. So there is some hope that this report has, you know, found some sort of balance and—

Mr. REILLY. Making me feel we better get out of town.

[Laughter.]

Senator LANDRIEU. If we can review it with that in mind.

Second, one of my colleagues brought up again his, and I want to stress this, brought up again his uncomfortable-ness with the makeup of the Commission. I want to say again, I was very uncomfortable when this Commission started for all the reasons that the Senator outlined. But I found through your work and reading your reports and testifying before your Commission, meeting with your members, listening to what other—how other people reacted that you all took a very balanced approach.

One thing that I'm particularly pleased about because I don't think people expected this is that this committee made an unequivocal or this Commission, comment or statement about the importance of the future of this industry. That it's important that America have this industry. That we strive to make it the best in the world.

That it's, I didn't hear the word indispensable. I'm not sure the word indispensable is written here. But you've communicated how

important a robust, offshore oil and gas. I don't want to put words in your mouth, Mr. Reilly, but could you just repeat, you know, just briefly that part of your testimony which I think is important as we begin.

Mr. REILLY. Senator Landrieu I opened with that statement today. I think it is an absolutely vital industry. Vital to our economy, to our mobility, to our way of life is what I said. It seems obvious that irrespective of one's views with respect to the transition that we need to carbon free fuels to away from fossil fuels. That will be true for many, many years to come under any scenario that I have seen that we can imagine.

I would like to comment a little further, if I might.

Senator LANDRIEU. Just 20 seconds because I don't want to take up—

Mr. REILLY. On the credentials of the committee we did have resources that were quite considerable. Richard Sears, I mentioned his long experience in the industry, the meetings that we had, the technical help we had from many sources. But it really does strike me in fairness now. This is the product of what we did.

If you have problems with it, specific criticism and I haven't heard that from those who've been criticizing the makeup of the Commissioners. It seems to me it's time to focus on what we proposed—

Senator LANDRIEU. We can do and move forward together.

Mr. REILLY. What we determined were the causes rather than our credentials.

Senator LANDRIEU. One of the other significant parts of this particularly to the people of the Gulf Coast in Louisiana is your strong recommendation that 80 percent of the penalty dollars be directed to the Gulf Coast. Senator Graham, I'd just like to ask you in 30 seconds. What struck you as, you know, sort of the most important influential element that went into that recommendation?

I mean what did you see? What did you hear that made you really believe that this is the right thing to do because as you know that is not current law. We're going to have to change a law which I have introduced and will re-introduce to do so.

Senator GRAHAM. One, the Gulf of Mexico is a major American asset.

No. 2 it has been substantially degraded in recent decades in significant part due to Federal decisions and Federal actions.

Third, this tragedy will be compounded if we learn nothing about the opportunities that are available to us.

I believe this is the chance that we may not have again in the foreseeable future to make a significant movement toward restoring this critical part of our Nation. To allow it to have a new birth to perform all of the functions that it has done for us not only in the provision of energy but also in the provision of important food stocks and a source of regeneration for our people.

Senator LANDRIEU. One final point. I think that we have to be very careful. I know the systemic has been the lightning rod here.

In defense of the industry on this point I'll make just a couple of other facts, you know, noted for the record.

No. 1, I think it's important to say again since 1947 to 2009 only 175 thousand barrels have been spilled from over 16.5 billion bar-

rels of oil produced. That's about one-one thousandth of a percent spilled verses total production. I think that's a pretty good record. If the industry was as cavalier and complacent and totally unfocused on safety and environmental concerns, I don't think that would be the statistic. That is what it is.

Second, we have to be very careful comparing ourselves to Norway. I want, Mr. Chairman, to put this in the record. There were 140 million hours worked in the Gulf of Mexico. We're the most robust area in the world, as you know.

More operators.

More people.

More rigs.

More money produced.

Norway worked only 41 million man hours in the same period last year. Australia worked only 15 million. So if our, you know, rate of injury to workers is five times higher, we're still ahead of the game because this is ten times more man hours worked. I think we've got to be very careful because our industry is so large.

I'll conclude with this. We are proud of this industry. We know it's essential for America's future. I ask every member of this committee, Republican and Democrat, before you vote on this final report, you owe it to yourself to come down and see this industry in action.

You can talk to environmental groups. You can talk to industry groups. But it is important to get your eyes on what we are getting ready to sort of recalibrate and reregulate. Thank you.

Mr. REILLY. Those are quite fair comments, Senator. I accept them.

I would just say that among the industry people I have surveyed they are extraordinarily complimentary, particularly to the Norwegian system, but to the Norwegian and UK regulatory systems. They experience the regulation there and consider that it is more practical, more rigorous and ultimately satisfying to them. They comply with those rules.

So I don't want to build too much on the Norwegian experience. You're right. It's a much smaller country. Most of it is not deep water by the way. But I take your point.

The CHAIRMAN. Senator Cantwell.

Senator CANTWELL. Thank you, Mr. Chairman. Thank you gentlemen for your report and for your work on this.

My questions focus specifically on MMS and their—the reforms that we need to have at MMS. The fact that as an agency an oversight, the fact that input from other agencies and third parties are so important. So I wanted to ask you specifically about your recommendation on page 264 which is about NOAA providing comments and recommendations concerning specific geographic areas that should be excluded from the leasing program or treated in a specific manner due to ecological sensitivities for reasons relevant to NOAA's ocean and coastline and science expertise.

Now I know Chairman Rockefeller has been very big on this. I mean, my colleagues, Senator Boxer has recently introduced legislation in regards to protecting our coastal areas. So you seem to be very much in favor of making sure that Interior hear from NOAA

as it relates to science and sensitivity areas of our oceans and how to proceed.

Senator GRAHAM. I would say two of the themes that run throughout our report are first, the focus on science that we need to bring to bear the best science that within the government and outside the government to make these decisions.

Second is specificity. For a period from the late 1930s up until the 1990s most of our offshore oil and gas in the Gulf was in fairly well known, predictable areas. Therefore large tract leasing made some sense. As we move into deeper, deeper waters the circumstances from one site to the next can be quite different in terms of the geology, the pressures, the other factors that would contribute to the level of riskiness.

So we want to bring that best science on a more focused basis to evaluate specific sites as to their appropriateness, the range of risk and the commitment of the ultimate permittee to adopt measures that will mitigate those risks on that specific site.

Senator CANTWELL. Thank you, Senator Graham. Because I want to know that in 2007 NOAA recommended that MMS dramatically scale back its planned oil and gas lease sales in the Chukchi Sea because of the environmental concerns because obviously if some disaster happened there we have far, far less resources or ability to reach that area. Basically MMS ignored NOAA's recommendations and went forward with the lease sale as planned.

So these are issues that are happening every day. So I appreciate the report saying specifically Interior must adopt NOAA's recommendations or publish writing for why they're not so that we can get to the heart of this issue.

Second, the Commission's report includes a recommendation to have regular third party audits on certification. I look at the ABS Certification Societies that provide oversight for part of the rigs. To me they could have provided a valued third party validation of whether the equipment also functioned as advertised. So I appreciate that that is also in your report to strengthen the MMS oversight.

Senator GRAHAM. I think all of those suggestions are worthy, but they all reflect the fact that our regulatory system has not kept up with the opportunities and the realities of the way the industry is currently operating. So maybe one of, if not the most recommendation to Congress those—that thing which is singularly within its capability—is to provide the adequate funding for the restoration and ongoing the adequate funding to see that we have a regulatory system that allows us to be that prudent landlord in the protection of the safety and condition of the Gulf of Mexico.

Senator CANTWELL. But it's hard for an agency like MMS to provide that skill or technical expertise within inside the agency. But certainly they can have third party contractors who oversee that.

Senator GRAHAM. That's—that difficulty is a substantial part of the reason that we think it's important to have this safety function be as singular and protected from inappropriate external influence as possible.

Senator CANTWELL. Thank you.

Mr. REILLY. If I could just comment on that, Senator?

I would draw your attention to this chart, MMS budget in Gulf of Mexico crude oil production. That shows that the budget of MMS in 1984 was about 250—what's that? Oh, I don't know the page number.

I think you have it.

Senator CANTWELL. In an attachment or?

Mr. REILLY. Ok. We will cite the page number in a minute.

Senator CANTWELL. Is this the chart?

Mr. REILLY. Yes, it's that chart.

Actually I don't think you can see but what it says on the gray line which is the budget of MMS went from \$250 million to under \$200 million over that period, 1984 to 2009 while the production of oil and gas subject to it in the Gulf of Mexico went from 200 to 600 million barrels of oil. So threefold increase in the production. Reduction in the budget of the agency.

It's really obvious, it seems to me that we have been implicated, all of us, in allowing that budget to remain constant and actually to decrease while the challenge to the people doing the regulating was so much more significant. I was struck in the course of our inquiries to discover that in California an inspector is responsible for about 6, as I recall, rigs. In the Gulf the number is something like 55.

This is an agency that is under resourced. Although we would all like to be able to focus on those recommendations that do not have money attached to them in this current budgetary climate, on that one, I don't think there's any way to avoid it.

Senator CANTWELL. Thank you, Mr. Chairman.

The CHAIRMAN. Thank you.

Senator Shaheen.

Senator SHAHEEN. Thank you, Mr. Chairman. Thank you both very much for all of the work that you and the Commission and all of the staff have done to put forward such a helpful report.

As Senator Udall suggested, I want to go back and talk about oil spill research and response. That's something that Senator Udall, Senator Bingaman and I have been working on legislation. I found it stunning at the first hearing this committee did after the spill happened where we had representatives from BP, Halliburton and Transocean. When I asked the question how much money are you spending on oil spill research, deep water oil spill research? The answer from each of them was, zero.

So I think this is clearly one place where we've got to focus. I was really pleased to see that that's one of the key recommendations from the report. I'm also particularly interested because at the University of New Hampshire we have a coastal response research center. Dr. Nancy Kinner there who heads it has been doing some of the leading research in the world in this area.

But as you talk about the private sector institute that you would envision would be the way to address some of the leading research in this area.

How do you envision that actually happening?

Do you see that the industry recognizes this need and is willing to respond to that?

Right now as you know there is sort of a multi layered effort that's never been funded within the Federal system to try and address oil spill response. How do you see the two of those working?

Could you just talk a little bit more about how we move this issue along?

Mr. REILLY. Our history with respect to response and investments is not impressive.

Senator SHAHEEN. Right.

Mr. REILLY. We started—

Senator SHAHEEN. Dismal.

Mr. REILLY. We started after Exxon Valdez to make a reasonable try at it and I think it's gone down about 50 percent in the remaining years as memories of that disaster have waned. The establishment on industry initiative of the well containment corporation is in my view a very responsible and appropriate thing for them to do. The amount of money they've committed to it is serious money, a billion dollars from four companies and maybe BP is now going to join it and make it No. 5.

The Secretary of the Interior also wants to make research a major function of a new industry academic government enterprise he wants to create beginning with a FACA Committee Advisory Group there. So there's a lot more attention going to it. We really do desperately need it though.

I think the industry will probably respond significantly to some aspects of this problem with the Marine Well Containment Corporation. But there's some fundamental research needed both on skimmer technology which is relatively primitive. Based on what I saw in Alaska back in 1989 with the Exxon Valdez, it hasn't really evolved much.

It's probably—it's hard for me to—and there's some who say it's not that clear how you would change some of these ships. I don't find that really quite believable. The open ocean presents a lot of challenges to skimming. That's really the basic problem we're dealing with, the wave and wind action.

The dispersants question needs research. It needs trials. We've recommended that in the report. It seems to me that—and I've always been suspicious of dispersants as largely cosmetic. They do get into the water column and fish can't avoid it and the rest.

In this case we concluded that it was a responsible decision by the EPA Administrator to allow it and to allow it in that quantity. But what really struck me as anomalous was we had the debate about the safety of the dispersant Corexit was proposed to be used after the spill.

Senator SHAHEEN. Right.

Mr. REILLY. We've never done any open water experiments at all in Arctic waters in open, very cold, very icy waters, to find out what in fact happens to hydrocarbons and how the dispersants work with them and how fast do they degrade and so forth. There's a lot of information that we ought to have at the ready before we suddenly in real time are asked to make decisions.

Senator GRAHAM. If I could just add——

Senator SHAHEEN. Please.

Senator GRAHAM. A paragraph to that. It seems to me that what we saw after the explosion was crisis research.

Senator SHAHEEN. Right.

Senator GRAHAM. We were struggling to try to answer questions because we needed the answers today to respond. What we need to be moving to is not only an enhanced quantity and quality but also anticipatory research where we can ask what are the questions that we might need to answer five or ten or more years from now. I believe that the kind of initiative that you have advocated would give us that ability to be able to look over the horizon and be better prepared the next time we have to face a crisis.

Senator SHAHEEN. Thank you. My time is up.

The CHAIRMAN. Thank you. Let me just ask one other question that occurred to me.

I believe your recommendation is that the—this governmental regulatory agency responsible for safety be funded entirely with fees on the regulated industry itself. So that it's not subject to the vagaries of Congressional appropriations. That's my understanding of what you recommended.

Are you suggesting that this research should also be funded in that way or that that should be something that the Congress appropriates on an annual basis?

Senator GRAHAM. I would—my own answer to that question would be I think that's part of the industry responsibility. If you're going to have effective regulation it needs to be based on the best science. The best science is going to require this investment in R and D.

But whether it's done through the industry in a predictable and sustainable manner or is done through Congressional appropriations, it's important that it be done. If the Congress wants to accept that responsibility on its own, then it needs to feel an obligation to fulfill that responsibility.

Mr. REILLY. One challenge that is special to this industry is it's enormously dynamic. It's developing very fast. The technologies that are used in deep water were not around 25 years ago.

One has to be concerned in regulating the industry that the regulator stays abreast of the groups being regulated. That has not happened. They've fallen behind.

They've admitted in interviews that we have been privy to that they don't understand some of the basic technologies that negative pressure test, centralizers and the like. That's got to change and research has got to be a part of that. Research capability, I would think within the Department of the Interior, and research strengthening of NOAA as well.

I don't see any way around trying to ensure that a very fast moving industry simply doesn't get beyond the capacity of the people who are exercising oversight.

The CHAIRMAN. Senator Murkowski, do you have additional questions?

Senator MURKOWSKI. Yes, Mr. Chairman. Thank you.

As we focus on the Gulf of Mexico we can't help but think about our future opportunities when it comes to offshore, of course that is the Arctic. You have both referenced.

Clearly we were impacted up North. We had hoped that Shell would be able to proceed with a project out in the Beaufort and Chukchi. That has been put on hold at least for an additional year.

But the report recommends that the Interior Department closely examine each stage of the exploration and the development to see if the capabilities do exist for adequate risk management in the Arctic before allowing that stage to proceed. The question to you and Mr. Reilly would be whether this recommendation allows for essentially a two track process where you can have a build out of both the Federal Coast Guard, search and rescue and the industry response capacity at the same time that you have plans for exploration moving forward. Presuming again, that you do have the industrial and the Coast Guard response capacity that is growing, I guess commensurate, with the exploration program.

Mr. REILLY. We specifically recommend against a moratorium in the Arctic. That's black letter language in the report. But we recognize that the challenges there are very important.

It's a very distinctive environment. The kinds of regulations that would be effective in the Gulf would probably not be so appropriate in the icy conditions of the Arctic. We recommend that movement of the Coast Guard facility with a search and rescue capability to closer to the area, particularly in the Chukchi, that is proposed for leasing that Shell has now leased and a number of other recommendations relative to the establishment of better baseline science about the important species there many of them either threatened or endangered.

The recommendation though, as I would interpret it is very much one that acknowledges that many of these recommendations will take some time. The baseline science as it is proposed would take minimum of 3 years for all four seasons each year. The Coast Guard capacity to do search and rescue a little closer than 1,000 miles away obviously may take some time. But it probably ought to get an early priority.

In the meantime I think it has to be recognized that the industry itself can provide a number of the functions and should provide a number of the functions. In fact one of the reasons we know what we know about polar bears is \$30 million of science was spent by Shell. The Shell proposal for development there or exploration there is good as I have ever seen. I think that's generally acknowledged by most observers who have looked at it with their prevention capability and also the response planning that they have with a 500 thousand gallon tanker standing by and a top hat capability immediately accessible and so forth.

So I think that it's a reasonable proposition to expect that the decision that the Secretary has made to permit the Beaufort development to go forward this summer or at least to do so once a number of environmental studies have been complete. Then to anticipate that within another year or so drilling would be permitted in the Chukchi. I think those are perfectly reasonable and consistent with our Commission's report.

I would draw attention to the fact that some of the challenges in the Arctic are less severe than they are in the Gulf. The formation in the Chukchi, I understand, is about 5,000 feet down versus 18,000 feet in the Macondo situation. The pressures are one fourth or one third as much. The well—depth of the sea itself is 140 feet so there's no need for robots to do the reparatory work in the case of an accident or a need to correct some technology.

So there are a number of things that militate against assuming that it is a wholly impossible challenge that the country can't confront. It seems to me if there are the 27 to 35 billion barrels of recoverable oil that have been estimated by USGS there we need to pay very special attention to safety and environmental protection. But we also need to recognize reality and probably do so in a responsible, careful way.

Senator MURKOWSKI. I appreciate your statement. I think it is important to reinforce the need for additional research should not be used as a de facto moratorium on activity in the Arctic. If we carry out this effort within specific timeframes in order to inform the decisionmaking process. We are all ahead.

My time is up. But I have one quick question if I might continue, Mr. Chairman?

I mentioned in my opening statement that there are some four other studies that are either underway or have been completed. This committee will be looking to the recommendations from the Commission. The question I direct toward our panel is how much more do we need in order to make an informed decision as we move to make these changes structurally, organically in order to ensure that we have the best operating industry offshore and both environmentally and for the economic future of the country?

Senator GRAHAM. Just as said the need for additional environmental studies in the Arctic should not be used as a de facto moratorium. I would suggest similar things. I don't believe that the bulk of our Congressional recommendations such as the 80 percent of the funds be directed toward restoration are going to be a focus of or significantly challenged by any of the other studies that are underway to the degree that we have followed those other studies.

So I would suggest that there's a lot of good work that this committee can engage in now and it's likely to be into the spring before you're at a point to actually make some final judgments. By that time, for instance the report of the engineering academy will be available and all.

So will the report of the forensic analysis of the blow out preventer, I doubt that they will substantially affect the recommendations that we've made. But that information will be available to you. But don't, I would urge, use the fact that there's always more that you can learn as an excuse to do nothing.

Mr. REILLY. Could I add just to what Senator Graham said that obviously the blow out preventer has to be understood. That will happen over the next year. You will be informed about that.

Second, I regret that we did not have time to get into the more detail about the kind of training and formation that people at the BOEMRE require to be effective in the new environment. That is something worthy of focus. I believe the National Academy of Engineering will address that particular with respect to technical and

engineering training requirements and what those standards should be. They do have implications, by the way for compensation because if you want to get people who are the match for the people that they're regulating you're going to have to pay them a little more proportionately to what in fact out on those rigs are getting paid.

Then finally with respect to the liability determination, I don't know who else is going to do work on that. But there is a significant amount of attention that's needed, I think, to look at the insurance industry. Look at the way in which one would reconcile the need to continue to have vigorous and vital independent community of oil industries at the same time as we protect the country and the taxpayer against the consequences of any mistake that they might make.

We did not really resolve that definitively. But it's something that going forward, I think, still remains to be done. It's unfinished business.

Senator MURKOWSKI. Thank you, Mr. Chairman.

The CHAIRMAN. Senator Landrieu.

Senator LANDRIEU. Thank you.

Just two other points.

One, following up on this support of this oversight agency and independent safety agency, I want to after further review of it, support that concept. I was initially skeptical. But I've talked to a number of people on all sides of the issue and reviewed again the report. I think having an independent safety agency connected to the newly reorganized Bureau of Oceans Management would be a step in the right direction.

I just caution us all when we are looking to the industry for additional fees. I want to make sure the record reflects that the industry already in just bonuses, severance and royalties contribute about \$7 billion every year in average of the last ten. So we're spending only about \$300 million. As you said that number has been flat, \$250 to \$300 million. It's less than 4 percent of the money that is generated.

I'm not counting corporate taxes paid by these entities. I'm not counting sales tax generated by their direct activities on the Gulf. I'm not counting income tax paid by every worker and business owner in the Gulf.

I don't know what that number is. We should know. But just royalties, bonuses and severance taxes direct from the offshore industry is seven billion. So I think we've already got enough money. Reallocate it to give more, a greater percentage of that coming in, to the regulatory regime.

If we could get that up, I mean it's a pitiful, you know, 4 percent. I mean, you used to have to spend 10 or 15 or 20 percent usually in development work. You know, spend that money to make that money.

We're investing less than 4 percent getting the 7.2. As I said that's a small percentage of what the industry. So I'd caution my colleagues before looking to this industry for additional fees and taxes. They're already paying a considerable amount.

Finally just, not so much that was a comment, but another comment. I'm going to submit for the record, Mr. Chairman, the latest

shallow water permit was released 3 days ago to Apache to drill in 175 feet. Here is the list.

[The information referred to follows:]

OFFSHORE SAFETY RECORD

- Over 2,000 deepwater wells have been drilled since 1992 and over 42,000 total wells since 1947. Since 1971 up until this accident, not a single spill caused by a well blowout exceeded 1,000 barrels.
- From 1947 to 2009, 175,813 barrels have been spilled from over 16.5 billion barrels produced. That is about 1/1000th of a percent of the total production spilled.

Senator LANDRIEU. We've had 28 shallow water permits issued. There are 10 pending. But to date there's not one permit has been issued for deep water drilling in the Gulf.

This industry, 9 months after this accident, deep water drilling is still virtually shut down. There are two to three hundred people working on each one or were working on each one of those rigs, Mr. Chairman, not counting the onshore support activities and suppliers all over the country. So while the moratorium has been lifted I just want to make a point no permits for deep water are being issued.

So I'd like to end with Senator Graham's comment. Let's not make, you know, the excuse of waiting for more reports to stop doing what we know we can do safely now even if it's a one on one review of each drilling operation.

Get these people back to work.

Then continue to vigorously work on the liability issues and the safety issues and the research issues and the investment in the environment.

Thank you.

The CHAIRMAN. Senator Shaheen.

Senator SHAHEEN. Yes, I'd like to go back to the oil spill R and D issue. As you referenced the Oil Pollution Act in 1990 set up an interagency committee, Interior, Coast Guard, EPA, NOAA, to develop and respond for oil spills and to do research and response. I wondered if the Commission had looked at how that agency functions and whether you have any recommendations relative to its functionality.

One of the things that we found in talking to people as we were developing our legislation last session is that there was this sense that nobody was in charge of this aspect of dealing with responding to drilling, particularly deep water drilling. So I was wondering if you had recommendations from the report on that issue.

Senator GRAHAM. I'm not familiar with the specifics of the operation of that interagency group. All I can say is that when the crisis hit they had not equipped us to be able to respond in a manner that I think is appropriate.

We have made a recommendation that the President, by Executive Order, should establish a group of both governmental and non-governmental experts to work on all these issues that relate to response including maintaining our research and development capability to be able to develop the defense against an accident at the same rate that the industry has developing the offense for drilling in increasingly deeper and more risky environments.

Mr. REILLY. My impression of what has been done in Alaska is positive. The only reason we know about the persistence of hydrocarbons under the sands of many of the beaches of Prince William Sound is because there has been a monitoring program in effect that was amply funded for quite a while. The arguments about whether or not the herring crash is attributable to the oil spill to the extent that there are—there's any real information that is more than speculation.

It's the consequence of the fact that when the amount of money was parceled out for the trustee agencies in Alaska, it was done so, not in one lump sum, but over a period of years.

I think the lesson for us in this case is to make sure that we have a continuing capability to determine whether there is impact on the Bluefin Tuna which spawns in the Gulf and actually would have come into contact with the oil and gas.

What about the crabs and the oysters?

Are there lasting impacts on the larvae and their fertility?

All of those questions—it would be very unfortunate to let 5, 10 years go by, have another incident and not have learned from this one. So the degree to which there is scientific research—money made available over a period of time and not suddenly dispersed and forgotten—I think is important to one of the lessons that we need to respect here.

Senator SHAHEEN. But that would speak to a funding stream as Senator Bingaman suggested that is not based on the annual budgeting process but is a dedicated funding stream from some other source.

Mr. REILLY. In the case of Alaska as I recall it was a billion dollar outlay that was extended—or fine rather that was applied over a period of 10 years. That funded the monitoring as I recall, the research.

Senator SHAHEEN. But for that period of 10 years.

Mr. REILLY. Yes. I think they found a way to stretch it out more.

Senator SHAHEEN. But I'm thinking about as we think about the oil spill research and response function also. I thought the Commission's recommendation—

Mr. REILLY. That's—I'm not—I wasn't talking about response.

Senator SHAHEEN. No, no. I understand. You were looking at a different aspect of the research.

But I thought your fee on offshore leases was—provided that dedicated funding source.

Thank you.

The CHAIRMAN. Senator Murkowski, do you have additional questions?

Senator MURKOWSKI. Just very quickly to follow up on the Oil Spill Liability Trust Fund. It was established to ensure that if there is an incident we have a fund to tap into, but not necessarily for research. We have discussed ways you can reserve money from the Oil Spill Liability and Trust Fund to provide for that necessary stream of research which I think is very important.

One of the things that we saw last year when we were debating not only how we would address MMS restructuring but we were also getting into the end of the session where we were looking to

essentially find funds to pay for different initiatives. The Oil Spill Liability Trust Fund all of a sudden came to everyone's attention.

The producers pay an assessment of eight cents a barrel which goes into that trust fund. It has accrued an amount of about a billion dollars. Suddenly folks were looking at that as an opportunity to access the reserve fund differently from the purposes for which it was intended.

I believe that we need to increase that fund and the assessment. I feel pretty strongly that you don't increase the assessment increase the value, the amount in that fund, and then use it as a pay for things other than it was intended which is to provide for that reserve fund in the event of emergency just as we had with the Deep Water Horizon.

Your report does not address the issue of the liability cap which is currently set at 75 million under OPA. You recognize that it should be significantly increased. I appreciate the fact that you have not gone into how much that figure might be in terms of a significant increase.

Can you explain the factors that we should use when determining a liability regime?

I laid out a few very general statements in my opening that no taxpayer should ever be on the hook. Did you look to that aspect or did you just say it needs to be increased?

Senator GRAHAM. I would agree with all the points that you made, Senator, about the considerations. If this had been a slightly different set of circumstances, for instance if it had not been BP, but a less financially capable firm or if it had been a financially capable firm that was very litigious and wanted to litigate every step of the way we would be in a much different position today than we are with BP using its deep pockets and doing things like putting up the \$20 billion to meet immediate payments. So I think the 75 million is clearly inadequate.

It's a 20-year-old number. It was a number that was derived to deal with the shallow water circumstances as dramatically demonstrated by Exxon Valdez. What we learned with Deep Water Horizon is that the consequences of a negative act can be multiplied if it's done in the deep waters.

Now I'm now going to speak personally and not for the Commission. It seems to me that if there's going to be a liability limit it should be in relation to the risk that that particular activity represented. To use the simplest measure the depth of the water that there might be an appropriate liability limit if you're operating at 140 feet.

It would be a quite different liability limit if you're operating at 5 or 6 thousand feet. There may be a point at which time no liability limit is appropriate because the potential damage is so serious. If we had a liability limit and isn't strictly applied to these deep water situations you can anticipate there's going to be a lot of victims who won't receive appropriate compensation for their losses or that the Federal taxpayers will be asked to come and fill the gap. Neither of those are acceptable outcomes.

Senator MURKOWSKI. I thank you for that.

We introduced legislation last session that would address a dozen risk factors as you have laid out. I know that Senator Landrieu has

looked at that approach as well. But I think it is important to recognize that when you are drilling offshore there are places that are a little bit riskier. Some are a lot more risky than others. It's appropriate to assess liability taking those into account.

Mr. Chairman, I thank the gentlemen for their testimony this morning. I have no further questions.

The CHAIRMAN. Senator Shaheen.

Again thank you both very much for your excellent testimony and this excellent report.

We also want to extend special thanks to Richard Lazarus who is your Executive Director of the Commission and the fine staff of the Commission for the good work that they have done.

Also note that Shirley Neff who used to be with us here on the committee staff was part of your Commission staff and we know of her good work.

So we thank you very much. We will do our best to take your good recommendations and move ahead with them.

Mr. REILLY. Thank you, Mr. Chairman.

The CHAIRMAN. That will conclude our hearing.

[Whereupon, at 11:30 a.m. the hearing was adjourned.]

APPENDIX

RESPONSES TO ADDITIONAL QUESTIONS

JOINT RESPONSES OF HON. BOB GRAHAM AND HON. WILLIAM REILLY TO QUESTIONS
FROM SENATOR BINGAMAN

THE ROLE OF API AND INDUSTRY IN DEVELOPING SAFETY STANDARDS

Question 1. In your testimony, you mention that the American Petroleum Institute should not be the organization that writes standards and handles the safety enterprise of the offshore drilling industry. Did you and your Commission staff look into other possibilities for organizations who might be better suited, or was it your recommendation that the new Bureau for Safety and Environmental Enforcement write and enforce new safety regs, exclusive of industry input?

Answer. The Commission concluded that the safety of offshore drilling could best be achieved by having both government and industry create independent entities designed to ensure the safety of offshore drilling operations. For industry, we recommended the creation of an independent self-policing entity for offshore oil and gas akin to the Institute of Nuclear Power Operations (INPO), which the nuclear power industry created in the immediate aftermath of the accident at Three Mile Island in 1979. We did not find any pre-existing industry entity within the oil and gas industry capable of taking on the self-policing function that the Commission concluded is necessary. Nor is this surprising because none exists, any more than it did for the nuclear power industry before they formed INPO. For government, we recommended the creation of an independent safety authority within the Department of the Interior, roughly analogous to the Nuclear Regulatory Commission, which the federal government created to enhance its own oversight abilities in response to Three Mile Island. Of course, that new safety authority would, like other agencies with rulemaking authority, provide industry and other parties with relevant information with meaningful opportunity to comment on proposed rules and to provide other forms of input during the agency's decision-making process.

RESEARCH & DEVELOPMENT

Question 2. On p. 21 of your testimony, you mention the need for public-private partnerships as well as tax credits for R&D for improved spill response technology development. Did you also consider how to best implement an R&D program for safety prevention equipment? Did you consider existing R&D programs and how to best leverage those to create the R&D program that appears to be greatly needed in light of the industries inability to advance safety technologies beyond their own proprietary technologies? Can you elaborate more on the R&D program(s) that you would envision to better prevent and prepare for oil spills of any magnitude?

Answer. Although the Commission did not make a recommendation focused specifically on safety technology research and development, many of its recommendations require operators to improve offshore safety, including by investing in better safety technologies. For instance, the Commission recommends that BOEMRE put into place new prescriptive safety regulations that are at least as rigorous as those of peer oil-producing nations. Other nations, unlike the United States, require a minimum of at least two tested well barriers. They also have requirements for specific riser disconnection capacity and backup activation systems for blowout preventers. The Commission further recommends that BOEMRE implement a proactive, risk-based performance approach to regulating specific individual facilities—similar to the “safety case” approach used in the North Sea—that would require operators to take more responsibility for the risk management process. And the Commission recommends that industry create its own safety institute in the mold of INPO, which would lead industry, in policing itself, to push for

everimproved safety of offshore operations. Each of these steps would create incentives for operators to develop new, more effective safety technologies.

The Commission also recommends creating regulatory and monetary incentives to advance spill response technology research and development. Spill response technologies barely improved during the 20 years following the Exxon Valdez spill. Similarly, although the Nixon administration had recognized the need for subsea containment technology as early as 1969, no deepwater containment technology had been developed prior to the Deepwater Horizon spill.

There are a host of reasons that spill response research and development has lagged behind the development of exploration and production technology. Congress has never appropriated even half of the \$28 million per year authorized by the Oil Pollution Act of 1990 for spill response research and development, and the amount Congress did appropriate generally decreased over time as the Exxon Valdez spill receded in the public's mind. In the past, MMS review of industry oil spill response plans was cursory, and the agency did not require operators to demonstrate capacity for subsea containment. Coast Guard and BOEMRE regulations for oily water discharge do not account for efficiency of skimmer technology and therefore do not incentivize improved efficiency. And EPA's permit-process for open-water testing of spill response technology is inefficient at best.

The Commission's recommendations take on these reasons for limited response research and development over the last 20 years. The Commission recommends a congressionally structured funding mechanism that assures adequate and sustained funding for this critical dimension of improved safety. A possibility would be congressional approval of using a portion of the royalties from deepwater production for this specific purpose or sanctioning funds raised through lease provisions to be utilized for this specific purpose without the necessity of annual appropriations for spill response research and development to ensure adequate funding and to remove it from the vagaries of the annual appropriations process. The Commission recommends interagency review and approval of industry spill response plans to better ensure that operators can live up to the representations about response capacity that they make in their plans. The Commission recommends that operators be required to demonstrate containment capacity in their response plans. The Commission recommends reforming Coast Guard and BOEMRE regulations to encourage development of more efficient skimmers and streamlining of EPA's permitting process for open water testing. And the Commission recommends the use of a targeted tax credit and public-private partnerships aimed at developing improved spill response technologies. Rather than prescribing specific new developments in response technology, the Commission recommends incentivizing research and innovation in the public and private sectors. With those incentives in place, experts in spill response can develop the technologies that will maximize spill response capacity.

Congress could play a critical role by holding regular, at least annual oversight hearings on the safety of offshore oil and gas development with research and development initiatives and advances as a significant part of that hearing agenda.

FLOW RATES

Question 3. You mention on p. 24 of your testimony that new protocol for calculating and estimating flow rates needs to be developed in advance of any future spills. I agree that this is critical for planning purposes, but how do you propose to do this in light of the requirement that operators do not have to submit their logging and geophysical data until 30 days following the completion of the well? In the case of Macondo, it took quite a long time for the key technical experts within the Department of Energy and Interior to receive the data necessary to correctly calculate an accurate flow rate. Surely the industry could also work on a way of fitting technology to any new containment equipment or response that could measure flow rates out of a damaged wellhead like that of Macondo.

Answer. The Commission recommends that the government create a protocol to obtain accurate estimates of flow rate or spill volume from the outset of a spill. This protocol need not rely upon logging or geophysical data provided by operators. U.S. Geological Survey Director Marcia McNutt, who heads the government's Flow Rate Technical Group, has stated that, in a future deepwater blowout, the government will be able to quickly and reliably estimate oil flow using the "[o]ceanographic gear" successfully deployed by the Woods Hole Oceanographic Institution during the Deepwater Horizon spill.¹ The Woods Hole team used a remotely operated vehicle

¹ Transcript, Deepwater Blowout Containment Conference (September 22, 2010), <http://www.doi.gov/news/video/Deepwater-Blowout-Containment-Conference.cfm> (Director McNutt stated as follows: "So we now know exactly what we do if this ever happens again, what technique

mounted with sonar and acoustic sensors to determine the volume and velocity of the outflow from the Macondo well. This method of calculating flow rate does not depend upon logging or geophysical data, nor does it require physical contact with the blowout preventer or other subsea equipment.

In addition, the Commission recommends that the government protocol require the responsible party to provide the government with all data necessary to estimate flow rate or spill volume. Thus, when a spill occurs, a responsible party should provide the government with any information in its possession that could assist the government in calculating the flow rate. The Commission further recommends that well components, including blowout preventer stacks, be equipped with sensors or other tools to obtain accurate diagnostic information—for example, regarding pressures and the position of blowout preventer rams. If this recommendation is implemented, responsible parties—and therefore the government—would have access to data on well pressures and conditions within the blowout preventer at the outset of a spill, which would be helpful in estimating the flow rate.

RISK ASSESSMENT/MANAGEMENT FOR OFFSHORE DRILLING

Question 4. There has been considerable discussion in the time since the oil spill about more adequately characterizing risk and planning for high risk scenarios. I see a major challenge to risk management in the industries unwillingness to share proprietary data that is required to more accurately assess how risky a given situation is. How would you suggest that regulators and industry overcome this barrier?

Answer. The problem of industry reluctance to share proprietary business information does present challenges, but not insurmountable ones. Both industry and the government have faced similar challenges in other areas where risk regulation is required and have overcome those issues in those other contexts. We are confident they can do so for the offshore industry as well.

The challenges, while substantial, are not qualitatively different and are similarly surmountable. For instance, relevant lessons can be borrowed from the techniques used by the EPA to regulate risks presented by chemicals, while protecting confidential business information submitted to the federal government by businesses, and by the protections provided by INPO to operators of nuclear power plants who are subjected to rigorous and intensive inspections. In all of these analogous settings, meaningful risk regulation requires some exposure of confidential business information and a commensurate need to ensure that government regulators and industry selfpolicing entities protect that information from unauthorized release.

CUBA

Question 5. On pg. 37 of your testimony, you highlight a growing concern for environmental safety in the Gulf—it is the oil and gas exploration that is taking place in Cuban waters to the northwest of Cuba. The Cuban oil industry is quite young—it only recently came about in the mid-90's. They do not have the experience in regulating that we do here in the US. It is also unclear that they would have the preparedness should a big oil spill event occur in their waters. This poses a huge safety risk for the rest of the Gulf. You state that the US should “negotiate now with these neighbors to agree on a common, rigorous set of standards, a system for regulatory oversight, and operator adherence to an effective safety culture”. In light of the embargo that the US has in place for Cuba, US oil companies cannot even conduct businesses in Cuba. Some of the US companies have the strongest safety record for working in the Gulf. How would you suggest that we go about undertaking this very critical, time sensitive task of assisting our neighbors with their growing offshore energy development when our own companies cannot collaborate and work with the Cuban government?

Answer. The need to ensure safe offshore drilling in the Gulf is clearly compelling, and exists regardless of whether that drilling falls under the immediate jurisdiction of Cuba or Mexico. A major spill in a drilling operation anywhere in the Gulf could have disastrous economic or environmental consequences for the United States. That is why we were heartened when, as Co-Chair Reilly testified, Mexican officials informally approached Mr. Reilly to express an interest in working with the United States to forge safe drilling standards that would be uniformly applicable through-

we would use first, under what circumstances, and we could have the right technology in the field within hours to days of a blowout and have a flow rate that we could put forward to the American people, and we would trust that answer and we would not need multiple methodologies to have a good flow rate. . . . What we found were the best techniques actually were in the ocean. It was important to get equipment into the bottom of the ocean. Oceanographic gear was the best way to do it.”).

out the Gulf and, to that same end, entering into direct conversations with Cuba with which Mexico, unlike the US, has close diplomatic relations. The Commission has not had occasion to determine precisely the best way to ultimately achieve the desired result over the long term, but the Co-Chairs believe that entering into these discussions with Mexico is an important, immediate first step.

BLOWOUT PREVENTER

Question 6. Your testimony and report note that the blowout preventer was not available for your examination. How were you able to do a thorough investigation and determine the causes of the accident without being able to examine this piece of equipment?

Answer. The Commission could do so for the straightforward reason, explained in our Final Report, that even if the blowout preventer did fail, that failure did not cause the explosion that killed 11 men on April 20th. As our report explains, the rig crew realized too late what was happening and thus activated the BOP too late to have prevented an explosion. By the time the crew tried to activate the BOP, gas had already flowed above the BOP and was rocketing up the riser. That gas is what ignited on the 20th.

By contrast, as the Commission report further explains, if the crew had heeded warning signs earlier in the day, they could easily have prevented the explosion from happening. These included misinterpreting the negative pressure test used to check the integrity of the cement job. In the hour or so before the explosion, there were several other odd and unexpected pressure readings that the crew should have realized were signs of a problem, but unfortunately did not. If they had properly recognized these signs, they could easily have closed in the well.

To be sure, the blowout preventer failures may potentially have played a part in the severity of the oil spill, but the disaster as a whole was due to a rather staggering series of errors by the three companies, all of which our investigation has documented. These errors can be addressed through better regulation, better training for workers, and a strong commitment to safety by both the companies and the regulators. Examples of key mistakes by BP, Halliburton, and Transocean as identified by the Commission's investigation include

- Failure to get a good cement job
- Failure to understand that the negative pressure test indicated that the cement was instable
- Problems with BP's temporary abandonment procedures, in particular, its decision to displace mud from the riser before setting additional barriers to back up the cement at the bottom of the well. This left the faulty cement at the bottom of the well as the only physical barrier that could prevent the flow of hydrocarbons into the well
- Failure to understand that a kick was occurring, even though there were several odd and unexpected pressure readings in the hour or so leading up to the explosion that the crew should have realized signaled a problem
- Failure to respond appropriately once mud and gas began spewing onto the rig floor. The crew should have diverted the gas overboard instead of diverting it through the mud-gas separator. While it is not entirely clear this would have prevented the explosion, it could have at least limited its impact.

For these reasons, the blowout preventer analysis, while important, will not change the Commission's conclusions that a failure of management led to numerous risky and unnecessary decisions made by the companies involved, each of which led to the occurrence of the blowout. The blowout preventer can, like a seatbelt, reduce the amount of harm that is caused, but in the circumstances of the Macondo well, even a properly functioning blowout preventer was not a root cause of the accident and its immediate tragic consequences for those on the rig on the night of April 20th.

INDUSTRY SAFETY RECORD

Question 7. The industry has drilled over 40,000 wells in the Gulf of Mexico without an accident of this magnitude. Yet your report suggests that the safety issues related to this accident are systemic and not the result of an anomalous, isolated incident. How do you square that finding with the industry's safety record?

Answer. The problems we identified that led to the Macondo well blowout reveal an industrywide failure to manage and plan for the heightened risks presented by deepwater drilling, which represent only a small fraction of those 40,000 wells drilled in the past. The Commission was appropriately concerned not with the past but the present and the future. It is in the deep waters of the Gulf where the most

oil is to be found and, for that reason, where most future drilling in the Gulf is now headed. It is also where, because of those same high volumes of oil and heightened safety risks, the potential for another environmental catastrophe is greatest.

What our investigation revealed is that the industry as a whole had, because of the lack of past accidents in less risky waters, failed systematically to manage the risks presented by deepwater or to plan for the contingency of an accident there. The systemic nature of the lack of risk management was underscored by the role played in the Macondo well blowout not just by the largest operator of deepwater drilling in the Gulf—BP—but also by the involvement of two of the largest service contractors—Transocean and Halliburton—upon which most of the entire industry is dependent. The Commission's conclusions were further bolstered by the fact that none of the oil companies was in fact prepared to contain and respond to an oil spill of the magnitude of the Deepwater Horizon spill even though they each had submitted plans to the federal government claiming that they were. None of those claims was in fact true.

JOINT RESPONSES OF HON. BOB GRAHAM AND HON. WILLIAM REILLY TO QUESTIONS
FROM SENATOR MURKOWSKI

ARCTIC

Question 8. Regarding the recommendations for additional Coast Guard facilities and infrastructure in the Arctic: do the commissioners agree that this additional capacity would be a wise investment even without the prospect offshore drilling, as shipping lanes open up and Arctic fisheries become a possibility in the future?

Answer. The Commission did not have occasion to consider the need for these additional resources outside the context of offshore drilling because that question was not fairly within the President's charge to the Commission, which was strictly limited to the offshore drilling context. Certainly, however, nothing in the Commission's recommendations, which were to increase those Coast Guard resources, is inconsistent with the conclusion that such additional resources would be appropriate wholly apart from the compelling need for their presence in support of offshore drilling.

Question 9. The report recommends that the US take the lead in developing international agreements for standards for Arctic offshore oil and gas drilling. As of the submission of these questions, the US is not competitively producing or even exploring its Arctic resources. So, do we have evidence that other producing nations (i.e. Russia and Canada) would be interested in proceeding on our timeline?

Answer. We know that other nations are actively considering offshore drilling in the Arctic and that the U.S. has a compelling interest in ensuring safe drilling practices within the Arctic for the straightforward reason that unsafe drilling by any nation there could have disastrous economic and environmental consequences for U.S. territory. The same mutual incentives exist for those other nations as well, which provides the essential ingredient for active engagement with those nations in developing in an expeditious fashion international agreements for uniformly applicable Arctic drilling standards.

Question 10. This same point applies to the Gulf of Mexico, where not only Cuba is actively leasing very close in to Florida's waters, but also where Mexico as a nation is, for the first time ever, allowing private companies to contract for drilling in its almost entirely untapped offshore areas, including deepwater. Are there any indications of a willingness to proceed at the same pace of the US, and what specific commitments have been contemplated in your discussions with these foreign governments?

Answer. As described in his testimony, Commission Co-Chair Bill Reilly has had informal discussions with Mexican government officials, who have expressed an interest in working with the United States now to develop common standards applicable to drilling in the Gulf, as necessary to ensure safe drilling practices. Mexico would like to work with Cuba as well, which is also contemplating offshore drilling in the Gulf.

Question 11. If Mexico, Canada, Russia, or Cuba proceed with offshore drilling either in a way that the US government has insufficient information about, or in a way we believe to be unsafe or environmentally irresponsible, what steps does the Commission contemplate the US might take?

Answer. The Commission never had occasion to address that particular hypothetical. The Commission's recommendations were directed instead at how best to minimize the chances of that hypothetical becoming a reality. We recommend that the federal government act now to work with other nations in the Arctic and the

Gulf to develop international safety standards that would uniformly apply to all drilling in those waters.

SCOPE OF THE PROBLEM

Question 12. Has industry always and consistently been opposed to changes in its regulatory regime?

Answer. The Commission has never suggested that industry has been opposed to every change in regulations that apply to its operations. What the Commission found was that industry impeded the implementation of the kind of vigorous, proactive risk management approach that other nations adopted decades ago, and that aspects of which would have provided for safer drilling operations in the United States. The Commission further found, based on its investigation, including interviews with officials from major oil companies, that the American Petroleum Institute systematically favored regulatory standards that reflected current practices and often the least common denominator within industry, rather than best industry practices.

Question 13. In Chapter 3, this report found that industry has been historically resistant to change. Did the commission find any instances of the offshore industry actually suggesting stronger safety standards for Interior to implement? Have such recommendations ever been made and accepted?

Answer. The Commission does not doubt that there have been occasions when industry has favored government adoption of stricter standards. The Commission has never suggested that it found that industry has reflexively and consistently opposed every proposal for stricter regulation. What the Commission found was that industry resisted certain, significant reform efforts that would have provided for greater safety and that, as a general matter, the American Petroleum Institute, which frequently speaks for the industry as a whole, promoted safety standards that reflected current practices achievable by all rather than the best practices achieved within the industry.

INTERAGENCY VETOES AND PARALLEL REGIMES

Question 14. The commission seems to recommend a stronger role for cooperating agencies in the five year planning process, with some additional administrative reasoning requirements for the Interior Department in the consideration of comments from other interested agencies. Does the report favor giving agencies outside the Interior Department full overriding veto authority over Interior's decisions on OCS leasing, plan approval, and permitting? (Please discuss why or why not.)

Answer. The Commission deliberately stopped short of providing any other agency with veto authority over the Department of the Interior's leasing decisions. The Commission found that Interior had failed to pay adequate attention to other expert agencies in the past, especially NOAA, which is why the Commission recommended adoption of a decision-making process in which NOAA was provided a greater voice and Interior was required to explain its reasons for rejecting NOAA's recommendations on certain leasing decisions. The reason that the Commission stopped short of providing any other agency, including NOAA, with veto authority, is that the Commission concluded that it was important to have one agency ultimately responsible for leasing decisions and that Interior was the appropriate agency for that decisionmaking responsibility.

Question 15. The Commissioners' testimony cites the adherence to the "safety case" regime of peer producing nations as a modest and relatively simple additional layer of compliance for US operators. Did the commission find any parallel legal and statutory hurdles in the UK and Norway that result in protracted or costly litigation similar to levels in the US? Specifically, are there similar mechanisms for citizen/NGO lawsuits challenging administrative decisions in these nations?

Answer. The Commission is not aware of any protracted litigation relating to the introduction of the "safety case" method in those other nations, but the Commission also has no reason to anticipate that there would be such litigation in the United States should this nation embrace the kind of pro-active risk management system that the Commission has recommended. In the United States, the litigation that has existed has historically occurred and on occasion, delayed exploration and production offshore has been directed to the leasing and sale stages. Such litigation has not been directed at the individual drilling permit stages and there is no reason to assume that there is anything about the Commission's recommendations regarding the propriety of risk management that, if adopted, would change the nature of such litigation.

Question 16. Did the Commission examine or find in peer regimes similar statutes to NEPA, the Endangered Species Act, the Clean Air Act, or the Clean Water Act?

Answer. Most nations have environmental protection and pollution control laws analogous to those here in the United States. The Commission did not believe that any differences in those regulatory regimes, none of which relate directly to drilling safety, had any major relevance to our own nation's need to improve drilling safety in U.S. waters.

Question 17. Did the commission examine comparative costs of labor, corporate and income taxes, and other significant financial elements contributing to the cost portfolio of offshore production in peer regimes?

Answer. The Commission and its staff engaged in multiple conversations with leading officials in the oil and gas industry, including API, about the need for tougher prescriptive standards and a risk-management approach that borrowed aspects from the "safety case" method used by other nations. In none of those many conversations did any industry representative suggest that such possible cost differences, assuming they exist in terms of labor or taxes or other matters, made it economically infeasible for companies operating offshore in the United States to conduct their operations in a manner as safe as their operations offshore in other nations. The United States need not have a safety regime less protective than that provided for in other nations.

Question 18. Does the Commission suggest or contemplate a "safety case" requirement as a substitution for any single existing statutory, legal, or regulatory hurdle that may exist in the US but does not exist in any parallel regime?

Answer. The Commission has not recommended that the United States adopt wholesale the "safety case" regime used in other nations. As explained in the Commission's final report, the Commission recommends adoption of selected aspects of that kind of regime, coupled with technical safety regulations at least as protective as those applied in other nations.

SAFETY

Question 19. The report contends that our fatality rate in the US offshore is four times worse than European waters. This is attributed to a culture of complacency onboard the rigs and among the regulators and companies overseeing those rigs. Were any of these fatalities due to accidents that occurred away from the rigs, where jurisdictional lines change?

a. If many or of the fatal accidents the commission cites occurred in helicopter accidents, why are there no additional safety recommendations where the FAA can play a role?

b. If many or most of the fatalities the commission cites occurred in helicopter accidents, how is it fair to attribute the safety culture onboard drilling rigs, and the regulatory capacity of a Department whose jurisdiction does not cover aviation, for those accidents?

c. Should BOEMRE inspectors board and inspect industry helicopters?

Answer. The statistics reported to the International Regulators Forum (IRF) upon which the Commission relied include fatalities and injuries that occur only at or near rigs. MMS had one reported fatality in the last three years as a result of a helicopter accident, but this fatality is not included in the IRF statistics. In addition, the fatality and injury statistics are per million hours worked and, accordingly, they reflect only the relative risks to workers at or near rigs and platforms in United States waters, compared to other countries. For that reason, the difference cannot be explained simply because the number of hours worked offshore the United States might be greater.

Because the scope of the accidents upon which the Commission was relying for its analysis of safety did not extend broadly to all helicopter accidents and was instead confined to the relatively few that occurred at or near rigs, the Commission did not have reason to investigate the safety of helicopters more broadly or to make recommendations regarding helicopter safety to the Federal Aviation Administration. That inquiry was beyond the Commission's charge. Nor did the Commission have reason to consider whether BOEMRE inspectors should board and inspect industry helicopters.

HISTORICAL RECORD OF BALANCING OCEAN USES

Question 20. Does the commission feel that, up until the Deepwater Horizon spill at least, a proper balance had been achieved between offshore oil development and the valuable fishing and tourism industries in the Gulf?

Answer. The Commission concluded that prior to the Macondo well blowout, neither government nor the offshore oil industry were taking adequate measures to reduce the risk of a well blowout in deepwater, and the only question was not whether

a potentially catastrophic event would happen, but when it would happen. The Gulf Coast and the valuable fishing and tourism industry were, for that same reason, fortunate that no accident had happened. On April 20, 2010, that luck ran out.

Question 21. Were the fishing and tourism industries, prior to the Deepwater Horizon spill, productive and healthy?

Answer. The fishing and tourism industries were far more healthy before the Deepwater Horizon spill than after the spill, which caused billions of dollars of damage to both.

MISCELLANEOUS

Oil budget

Question 22. As reported in the press, there is some controversy over the report's characterization of the "oil budget" and the actual amount spilled. It seems that NOAA had an issue with referring to dispersed oil as "gone," but once it is fully dispersed, would the commissioners want to clarify any more apt adjectives for describing the remaining oil particles?

Answer. As laid out in the Commission's report (pages 167-69), the Commission does not take issue with how the original Oil Budget (released August 4, 2010) or the revised Oil Budget (released November 23, 2010) described dispersed oil. The Oil Budget documents differentiated between "chemically dispersed" and "naturally dispersed" oil, but the documents nowhere suggested that such oil was "gone." The Commission did conclude that Carol Browner, Director of the White House Office of Energy and Climate Change Policy, inaccurately characterized the Oil Budget's findings when she stated during the Budget's rollout that "the vast majority" of the oil—including dispersed oil—was gone. As documented in the Commission's report, NOAA Administrator Jane Lubchenco emailed Browner's Deputy immediately following Browner's statements in an effort to correct the record. Like Dr. Lubchenco, the Commission views the Oil Budget documents as accurate in describing dispersed oil as "dispersed" rather than gone.

The Oil Budget does not distinguish between "dispersed" and "fully dispersed" oil because all dispersed oil, even at low concentrations, remains in the environment. Dispersed oil is, however, subject to biodegradation, which does remove the oil from the environment altogether. Neither version of the Oil Budget attempted to quantify the rate of biodegradation of Macondo oil, which remains the subject of ongoing scientific research.

Oil Spill Liability Trust Fund

Question 23. As you know, the Oil Pollution Act of 1990 created the Oil Spill Liability Trust Fund, which assesses an 8 cent per barrel fee that is deposited into what has accrued to a more than \$1 billion fund. In the Commission's view, what are the appropriate uses of moneys paid into this Oil Spill Liability Trust Fund? Specifically, is it appropriate to use it as a "pay-for" in unrelated legislation, as we saw happen repeatedly late last year? Is it appropriate to use the fund for its original legislative purposes?

Answer. The money in the Oil Spill Liability Trust Fund (Trust Fund) is authorized for many uses, including removal costs incurred by federal and state governments, damages caused by a spill, and spill response research and development. The Commission did not take a position on the full range of appropriate uses of the Trust Fund. The Commission did, however, make recommendations about research and development, and per incident damage payments, that are relevant.

First, the Commission recommends the adoption of a structured funding mechanism for spill response research and development to ensure adequate funding and to remove it from the vagaries of the annual appropriations process. The Oil Pollution Act of 1990 authorizes \$28 million from the Trust Fund to be spent annually on oil spill response research and development. Since the passage of that Act, however, Congress has never appropriated even half of that amount, and the amount Congress did appropriate generally decreased over time as the Exxon Valdez spill receded in the public's mind. Creating a mandatory appropriation would ensure funding of response research and development at a level intended by the Oil Pollution Act.

Second, the Commission recommends increasing the available per incident payout from the Trust Fund, which is currently limited to \$1 billion. An increase in this limit, in conjunction with an increase in the Oil Pollution Act's liability cap and financial responsibility limit for offshore facilities, will help ensure that adequate compensation is available to those who suffer from spills.

Budget Resources

Question 24. Your report to the President includes a chart showing MMS' budget over the past 25 years. After reaching a low in 1997, the agency's budget has increased by about 40 percent. Your report calls for a reorganization of the agency, similar to what Interior has already undertaken, but also for considerably more resources for the agency. That brings up that the agency received about \$180 million last year. How much more does the Commission advise the agency's budget needs to grow before it will have sufficient resources?

Answer. The Commission received testimony from BOEMRE Director Michael Bromwich several times as to the resource needs to ensure both an adequate and competent staff. The Administration requested a supplemental increase to the FY11 budget of \$91 million. This included a certain amount associated with the reorganization to eliminate the conflicts of interest between leasing, revenue collection and ensuring safety. The agency must both hire and retain a sophisticated engineering staff as well as skilled inspectors who will require ongoing training as well as continuous improvements in technical and management systems. A significant cost for the offshore program is leasing helicopters. To the extent those costs increase, they must all be covered as well.

Implementation of Recommendations

Question 25. Some of the early news stories on your report suggested that the President could implement many of your recommendations by issuing executive orders, rather than signing congressional legislation into law. Can the Commission describe which of your recommendations it considers suitable and proper to be carried out by executive order in a legally defensible way?

Answer. As a general matter, it is preferable to have Congress enact legislation to implement many of the reforms recommended by the Commission. Comprehensive reform legislation, however, necessarily takes time for Congress to enact and, at least as an interim measure to get the offshore oil and gas industry up and running as quickly and safely as possible, there are many things the President could do in the near term.

A few illustrative examples of such reforms the President could achieve, pending further legislative action, include:

- The Secretary of the Interior could, and indeed already has since the Commission issued its Final Report, separate Interior's safety regulatory authority from the revenue generating office, including those responsible for their supervision at Interior. The Secretary possesses authority to separate even further those two functions, as the Commission has recommended be done.
- Interior could require that industry meet safety requirements that reflect best industry drilling practices and could couple this with a pro-active risk management approach designed to ensure the safety of individual operations
- Interior could require that industry design wells in a manner that allows for expeditious well containment in the event of a well blowout and that industry include instrumentation that allows for accurate flow measurements in the event of such a blowout and spill
- EPA and the Coast Guard could bolster state and local involvement in oil spill contingency planning and create a mechanism for citizen involvement in planning and response.
- Interior could require that an applicant for a drilling permit demonstrate that it has access to readily available resources for containment and response in the event of a well blowout and spill
- Interior could use its existing authority in the drafting of new offshore leases to impose fees on lessees as necessary to defray the costs of their regulatory oversight

Lost Production

Question 26. I understand—and appreciate—that your report focuses on ways to improve the safety of offshore drilling operations. As a policymaker, however, we have to examine whether recommendations could reduce offshore production and have energy security implications. One interim rule from BOEMRE included analysis in which reduced offshore production would simply be replaced with supply from OPEC. Does the Commission agree that the policy response to the Deepwater Horizon spill should not render us any more dependent on foreign oil?

Answer. The Commission does not anticipate that any of the reforms that it recommends will render the United States more dependent on imports of oil and gas. Just the opposite is true. The purpose of the Commission's recommendations is to allow the significant oil and gas resources that are available domestically to be explored, developed, and produced, but to be done so more safely. Although it was be-

yond our Presidential assignment, the Congress might consider the development of a comprehensive petroleum policy which could place issues of production, national security and longevity of domestic resources in a broader context than that which was available to the Commission.

Question 27. Would the Commission recommend that Congress consider steps to increase onshore and/or shallow water production, in areas we know we can produce with smaller potential consequences, if reform policies are likely to crimp deepwater exploration?

Answer. Nothing in the Commission's recommendations is inconsistent with Congress's deciding to take such steps. Deepwater, however, is where the most significant domestic resources currently are, which is why the Commission sought to develop recommendations to allow for those significant resources to be explored, developed, and produced safely. To the extent, moreover, that there are issues not addressed by the Commission's final report, the Commission is not able to consider further recommendations. By Executive Order, the Commission ends no later than March 11, 2011 and the Commission cannot, consistent with the Federal Advisory Committee Act, deliberate on the new recommendations within the limited time available.

Question 28. Does the Commission have a position on whether the US ought to produce a higher than current percentage of the oil it does use, or a lower percentage?

Answer. The Commission did not take a position on that issue in its final report.

Economic Burden

Question 29. Again understanding that your principal focus was safety, as it should be, have the Commissioners conducted any sort of economic analysis to determine the employment and revenue impacts that the Commission's recommendations might have?

Answer. Nothing in the Commission's research suggested that economic costs would make it economically infeasible for companies operating in the Gulf to comply with the enhanced safety requirements contemplated by the Commission's recommendations. The Commission, for instance, learned during its investigation that many of the same oil companies operating in the Gulf were already complying with very similar safety requirements in waters offshore of other nations. The Commission perceived no reason why companies should be operating in a less safe manner in U.S. waters.

Time to Drill

Question 30. To what extent did the Commission consider the length of time it takes to drill an offshore well when making its recommendations? Is it possible that your recommendations would frustrate the ability of companies to commence drilling within their lease terms? Please provide the Committee with an example of how much time it takes to drill the average deepwater well today, as compared to the amount of time it is likely to take to drill a deepwater well with all of your Commission's recommendations—including new environmental analyses, multiple new agencies involved in the approval of permits, and any other item that could change the amount of time it takes to drill a well.

Answer. There is no reason why implementation of the Commission's recommendation would frustrate the ability of companies to commence drilling within their lease terms. Oil companies comply with comparable drilling safety requirements in waters offshore other nations without unreasonable delays. The Commission also does not believe that its recommendations will, taken together, necessarily delay, in particular, the time required in drilling a deepwater well. The Commission's recommendations are aimed ultimately at streamlining the process by providing for more able and expeditious government oversight than exists today. The industry's current delays in obtaining the necessary permits in the Gulf, for instance, are caused by an underfunded government regulator that lacks the resources necessary to ensure drilling safety in an expeditious manner. By providing for a fully funded and expert agency overseer, the Commission's recommendations may well enable industry to obtain the necessary permits more quickly than it can today once industry has made the necessary demonstration that it possesses the containment and response capacities that it lacked at the time of the Macondo well blowout.

Macondo Blowout

Question 31. Chapters 1 and 4 of the report explain how a series of tragic management missteps, mistakes, and oversights led to the Macondo well blowout. In looking at the Chapter 9, however, to what degree are the Commissioners certain that the

recommendations of the Commission would have prevented the disaster from occurring?

Answer. Had those in charge of the drilling operations at the Macondo well last April been subject to a regulatory regime consistent with the Commission's recommendations, we are confident (although one can never be completely certain) that the mistakes that ultimately led to that well blowout would not have occurred. There would have been procedures in place that would have guarded against, among other things (i) the use by BP of an unstable cement slurry supplied by Halliburton; (ii) the failure by rig personnel to interpret the results of a negative pressure test, which showed the well's instability; (iii) the adoption of temporary abandonment procedures that unreasonably increased the risk of a well blowout; and (iv) the failure of rig personnel to respond to an instrumentation reading that showed that hydrocarbons were entering the well in an uncontrolled fashion and thereby signaled an impending well blowout.

JOINT RESPONSES OF HON. BOB GRAHAM AND HON. WILLIAM REILLY TO QUESTIONS FROM SENATOR SANDERS

Question 32. In your report, you find that "scientific understanding of environmental conditions in sensitive environments in deep Gulf waters, along the region's coastal habitats, and in areas proposed for more drilling, such as the Arctic, is inadequate." Yet your report also concludes that we should continue to open up new areas for offshore drilling, even in areas such as the Pacific and Atlantic where the Administration has reinstated a moratorium and where there is not widespread public support for new drilling. How can you conclude that we should open up new areas for drilling when by your own finding, we lack necessary scientific understanding of the environments in which new offshore drilling is proposed?

Answer. The Commission recommends that the need for new information should not, standing alone, serve as a basis for a moratorium on new drilling. The Commission did not otherwise determine whether, when, or where drilling should occur in the Arctic, Pacific, or the Atlantic, concluding that those decisions should be made by the appropriate government officials based on a series of principles outlined in the Commission's final report.

Question 33. The Energy Information Administration has found that opening up the Pacific, Atlantic, and areas around Florida not currently open for drilling would only save consumers 3 pennies per gallon by 2030. That contrasts with the fact that according to the Union of Concerned Scientists we can save consumers the equivalent of a dollar or more per gallon in 2030 just through the Obama Administration's current fuel economy standards of 35 miles per gallon by 2016. Would you agree that our nation should put priority on increasing fuel economy standards to reduce our dependence on oil and save consumers money, as opposed to opening up areas in the Pacific and Atlantic for new drilling even when states in those regions do not support it?

Answer. The Commission has not previously addressed this issue in its prior deliberations and its final report and, in light of the Commission's termination date of March 11, 2011 and the requirements of the Federal Advisory Committee Act, is not now able to take on any new issues for the purpose of making a recommendation.

Question 34. The oil industry's largest corporations have recorded record-breaking profits over the last decade. On page 257 of your report, you recommended that the off shore oil industry pay for its own regulation, similar to what is required of the telecommunication industry. In your estimation, how much money would this save the American taxpayer?

Answer. We do not have a precise number but the cost would be in the order of only a few hundred million dollars per year, at most, which is a small fraction of the profits earned by the offshore industry. There is no reason why the American taxpayer, rather than industry, should pay for that cost of doing business on property owned by all Americans.

Question 35. In his State of the Union address, President Obama laid out a plan to move to generating 80 percent of the nation's electricity from clean energy sources by 2035, and to pay for the clean energy technology development by eliminating the billions in taxpayer dollars we currently give to oil companies. In your considered view, is the President's plan to convert to far greater use of clean energy sources, and to eliminate giveaways and tax breaks to oil companies, a sensible way for this nation to proceed?

Answer. The Commission has not previously addressed this issue in its prior deliberations and its final report and, in light of the Commission's termination date

of March 11, 2011 and the requirements of the Federal Advisory Committee Act, is not now able to take on any new issues.

JOINT RESPONSES OF HON. BOB GRAHAM AND HON. WILLIAM REILLY TO QUESTIONS
FROM SENATOR SESSIONS

Question 36. Alabama's economy, specifically the coastal counties, has been severely impacted by the tragedy in the Gulf. Tourism dropped dramatically last summer, and continues to suffer as our usual visitors choose other vacation locations. The Commission's report recommends 80 percent of the Clean Water Act fines return to the Gulf States for "Gulf restoration." Does the Commission recommend these funds be allocated solely toward environmental restoration, or are economic concerns also being considered?

Answer. The Commission recommends that this particular source of funds be allocated exclusively for ecological restoration. The Commission's rationale for this limitation is that there will be other sources of funds that will compensate individuals suffering those exceedingly serious adverse economic consequences. As importantly, and as noted in the Commission's Report (p. 213), "[t]he economies of the Gulf—fisheries, energy, and tourism—are as rooted in the environment as any in the developed world. Restoration, or restored resilience, represents an effort to sustain these diverse, interdependent activities and the environment on which they depend for future generations."

Question 37. On page vii of the Summary Document of your Recommendations, you state "the immediate causes of the Macondo well blowout can be traced to a series of identifiable mistakes made by BP, Halliburton, and Transocean that reveal such systemic failures in risk management that they place in doubt the safety culture of the entire industry" So can we conclude the majority of your recommendations are based primary on your doubt, or can you provide detailed analysis of these mistakes versus the former operations on over 4,000 other deepwater wells drilled in the Gulf of Mexico to truly show statistically that the safety culture of the Industry is weak?

Answer. The detailed analysis of the nature of the mistakes made are summarized in Chapter 4 of the Commission's Final Report and set forth in the detail that you seek in a several hundred page report to be released by the Commission's Chief Counsel in mid-February. The reasons why these errors support our conclusion that there is a systemic problem in industry even though this is the first major blowout of a deepwater well in the Gulf are several fold.

First, the wells being drilled in deepwater in recent years, and that will continue to be drilled in the foreseeable future, are significantly riskier than the vast majority wells that have been drilled in the past, which is why one cannot rely on past safety records to predict the safety of future deepwater drilling in the Gulf. The Commission was appropriately concerned not with the past but the present and the future and it is in the deeper waters of the Gulf where the most oil is to be found and, for that reason, where most drilling in the Gulf is now headed. It is also where, because of those same high volumes of oil and heightened safety risks, the potential for another environmental catastrophe is greatest.

More broadly, what our investigation revealed is that the industry as a whole had, because of the lack of past accidents in less risky waters, failed systematically to manage the risks presented by deepwater or to plan for the contingency of an accident there. The systemic nature of the lack of risk management was underscored by the role played in the Macondo well blowout not just by the largest operator of deepwater drilling in the Gulf—BP—but also by the involvement of two of the largest service contractors—Transocean and Halliburton—upon which most of the entire industry is dependent. The Commission's conclusions were further bolstered by the fact that none of the oil companies was in fact prepared to contain and respond to an oil spill of the magnitude of the Deepwater Horizon spill even though they each had submitted plans to the federal government claiming that they were. None of those claims was in fact true. The fact that all of the major oil companies failed to have in place meaningful oil spill response plans and similarly failed to have adequate containment and response capacity to deal with a deepwater well blowout make clear the lack of the kind of industry-wide commitment to safety culture that Americans can and should expect of those given the privilege of developing the nation's energy resources on public properties.

JOINT RESPONSES OF HON. BOB GRAHAM AND HON. WILLIAM REILLY TO QUESTIONS
FROM SENATOR CANTWELL

REPAIRING ENVIRONMENTAL DAMAGE

The Commission's recommendations talk about the need for a Natural Resources Damage Assessment (NRDA) process to provide "transparent and appropriate" restoration to compensate for the damage done by the oil spill to the natural resources and habitats in the Gulf of Mexico Region (pg 37). As a separate recommendation you also call for 80 percent of the Clean Water Act (CWA) penalties from the BP Deepwater Horizon spill to be dedicated to long term restoration in the Gulf to restore decades of ecological degradation that preceded the spill.

Question 38. Can you explain further how these two restoration efforts—one through the NRDA process and one funded by the CWA penalties—are different and how they should fit together?

Answer. There is a distinction between legal action to recover costs for damages to natural resources and enforcement actions aimed at imposing civil or criminal penalties on the responsible party under an environmental statute. Both actions may be pursued, under separate authority, by states and the federal government in response to an event such as an oil spill. In bringing an enforcement action for civil or criminal penalties, the Department of Justice—on behalf of EPA, the Coast Guard, or another agency—acts in the role of prosecutor. By contrast, when the Department of Justice and/or states sue to recover natural resource damages, they are acting on behalf of the "natural resource trustees" with jurisdiction over the injured resources and the action is in many ways similar to a tort action.

As a general rule, funds recovered as a result of civil or criminal enforcement actions under federal environmental statutes are deposited in the federal treasury and may not be used to redress the harms caused by the pollution event or incident. Under the Clean Water Act, the recovered funds would normally be deposited in to the Oil Spill Liability Trust Fund and would be available primarily for uses other than restoration of injured Gulf resources. Congressional action is required to redirect these funds to the Gulf.

The authority to recover costs for damages to natural resources, on the other hand, is unique in that the funds recovered from responsible parties must be used to restore the resources injured by the event. The NRDA funds will be available for the purpose of "restoring, rehabilitating, replacing or acquiring the equivalent of, the damaged natural resources" injured by the spill. The measure of damages is based on the injuries resulting from the spill and is generally tied to "baseline" conditions existing just prior to the spill.

The Commission's proposal to direct 80% of penalties to Gulf restoration recognizes that there are many causes of degradation of the Gulf that have existed for decades, including flood control projects and energy development. The Deepwater Horizon spill was only one cause of coastal and marine degradation, but its effects have added to the deteriorating health of the Gulf.

The Commission recognizes that NRDA funding should be directed at its legal purpose of restoring coastal and marine damages resulting from the spill, but recommends that the potential Clean Water Act penalties and fines could go toward addressing the systemic ecological damages that are not related to the spill, and that have drawn increasing attention over the last 20 years and are predicted to worsen over time. The Commission recommends, in particular, that the key criteria for funding include: national significance, contribution to achieving ecosystem resilience, and the extent to which national policies, such as those related to flood control, oil and gas development, agriculture, and navigation directly contributed to the environmental problem. Because Clean Water Act penalties would otherwise be deposited into the Oil Spill Liability Trust Fund, congressional action is necessary to direct those funds to Gulf restoration.

Question 39. Given that the CWA penalties are penalties from an environmental statute to address environmental damage, do you agree that these penalties should be directed towards environmental restoration in the Gulf?

Answer. The Commission does agree and, to that end, has recommended that 80% of those penalties be allocated to environmental restoration in the Gulf.

Question 40. Your recommendations discuss the need for a Gulf-wide restoration approach that is rooted in science and informed by input from Gulf citizens and stakeholders. Can you elaborate on why a Gulf-wide approach is important? What role can Congress play to ensure that such an effort moves forward and is efficient and effective?

Answer. Scientists and policymakers view the Gulf as an ecosystem—an interconnected web of ecological functions and resources whose individual survival de-

depends on the health of the whole. The largest and most formidable challenges are to bring balance and efficiency to the Gulf's shared marine resources, and to address the rapid and continuous loss of wetlands, barrier islands, and shorelines comprising the Mississippi Delta and associated Chenier Plain of southwestern Louisiana. Beyond restoration of Delta and other coastal ecosystems, a broader restoration effort—guided by new research and an understanding of what long-term damages may be resulting from the spill—seeks to improve the environmental quality of the marine habitat. These issues link a complex web of problems (including the annual appearance of the low oxygen dead zone in waters of the Louisiana-Texas continental shelf) with the continued efforts to conserve the biodiversity and resources of offshore ecosystems.

Restoration in the Gulf has been the subject of continued piecemeal efforts to fund and implement individual restoration projects. Funding has been authorized but not appropriated, and projects have stopped and started due to insufficient funding. Lack of sustained and predictable funding, project coordination and long term planning have resulted in incomplete and often ineffective efforts to restore the Gulf.

Despite policies that have allowed continual degradation of the coast and marine ecosystems of the Gulf decade after decade, the economies of the Gulf—fisheries, energy, and tourism—are rooted in the environment. The Gulf region produces more than one-third of the nation's domestic seafood supply, including most of the shrimp, crawfish, blue crabs, and oysters; provides one-third of all domestic oil; and claims four of the top seven trading ports by tonnage. The northern Gulf also provides diverse fish nursery and feeding grounds in the form of expansive marshes, mangrove stands, swamp forests, and seagrass beds, and boasts some of the best beaches and waters in the United States for recreation and tourism. Coastal tourism and commercial fisheries generate more than \$40 billion of economic activity annually in the five Gulf States.

Congress needs to act in order to move a Gulf-wide restoration effort forward. First, congressional action is required to direct a significant stream of funding to restoration of the Gulf. Redirecting 80% of the Clean Water Act civil and criminal penalties paid by the responsible parties would ensure funding at the scale needed to begin achieving restoration. If Clean Water Act penalties are not directed toward Gulf ecosystem restoration, Congress should consider other mechanisms for a dedicated funding stream not subject to annual appropriations.

Second, Congress should enact legislation to establish a joint state-federal Gulf Coast Ecosystem Restoration Council with authority to determine how restoration funds should be spent. The Council should set short- and long-term goals for restoration and establish specific, binding criteria for projects that would be eligible for expenditure of funds. A Gulf Coast Task Force is now in place, but it lacks the authority to set binding goals and priorities. Legislation could ensure this critical next step.

Question 41. The Commission's recommendations note that historically most applications of the NRDA process have focused on coastal restoration, as opposed to restoration in water column or on the sea floor (pg 37). Would focusing primarily on coastal restoration be appropriate in this case? What suggestions do you offer for how to address the damage offshore, which you note is "unprecedented and unknown" (pg 36).

Answer. The Commission's note that most applications of the NRDA process have focused on coastal restoration is directly related to the fact that most, if not all, past oil spill damages resulting in a NRDA have been to coastal habitats, surface waters, and animals. Since most spills occur at nearshore facilities, such as transfer stations, or on the ocean surface, as in tanker spills, the resulting damage to the deeper water column, if it exists at all, is often insignificant to warrant dedicated restoration. For example, small injuries to water column species such as zooplankton could be restored through salt marsh (coastal) restoration, because it improves the water quality and food sources necessary for zooplankton to thrive.

The Deepwater Horizon spill, with its depth, volume, and duration creates a new challenge for Natural Resource Trustees charged with "acquiring, replacing or restoring the equivalent" to the injured resource. The potentially large injury to water column species, many of which may reside 50 miles offshore and more than one mile deep cannot quickly be restored through coastal restoration projects. For example, we know that the Deepwater Horizon spill occurred during spawning season for many marine species, including oysters, blue crab, and bluefin tuna. The result could be a reduction in future populations due to a significant loss in juveniles and larvae. There is also emerging evidence that oil-laden organic material is settling on the deep water coral and other benthic communities causing (as yet unquantified) damage to these communities. Without direct and timely restoration of these resources, they may never recover to pre-spill conditions.

Therefore, the Commission, while recognizing the challenge of marine restoration, concluded that focusing solely on coastal restoration would not be appropriate in this case. Potential restoration projects that may be implemented to directly benefit injured water column and benthic resources include coral reef restoration, expanded marine protected areas, and more comprehensive observing systems.

As the question notes, much of the nature and extent of the damage to marine resources is as yet unknown. The Commission offers several recommendations to advance restoration of marine areas, including:

- Any potential settlement agreement between the responsible party and the Trustees provide for long-term monitoring of affected resources for a period of at least three to five years.
- As a part of the restoration efforts in the marine environment, greater attention be given to new tools for managing ocean resources, including monitoring systems and marine spatial planning. In this vein, the Commission recommends expansion of the Gulf of Mexico Integrated Ocean Observing System, including the installation and maintenance of an in situ network of instruments deployed on selected production platforms.
- A Gulf Coast Ecosystem Restoration Science and Technology Program be established and funded to address science needs in three ways: (1) by creating a scientific research and analysis program, supported by the restoration fund, that is designed to support the design of scientifically sound restoration projects; (2) by creating a science panel to evaluate individual projects for technical effectiveness and consistency with the comprehensive strategy; and (3) by supporting adaptive management plans based on monitoring of outcomes scaled both to the strategy itself and to the individual projects or categories of projects included in it.

'FUNDAMENTAL TRANSFORMATION' OF THE INDUSTRY

In addition to calling for sorely-needed improvements in government oversight and regulation, the Commission focused a great deal on the need for a transformation within the oil and gas industry itself. Your report stated [quote]:

Government oversight must be accompanied by the oil and gas industry's internal reinvention: sweeping reforms that accomplish no less than a fundamental transformation of its safety culture.

Question 42. What are the top three big, tangible steps the industry needs to take to show the American public that they mean business about achieving the 'sweeping reforms' the Commission is calling for?

Answer. The industry needs first, to create a self-policing entity, akin to what the nuclear power industry did in establishing INPO in the immediate aftermath of the Three Mile Island accident in 1979. Second, industry needs to make readily available the technology capable to ensure containment of a deepwater well blowout within a few days of such an event. Finally, the offshore industry needs to create and fully fund an entity that will undertake the kind of sustained, significant research and development in oil spill response technology that industry promised in the aftermath of Exxon Valdez in 1989, but in fact failed to maintain.

Question 43. If the oil and gas industry falls short of the fundamental transformation you are calling for, do you believe the industry has the right to ask for the trust of the American people in the future?

Answer. We believe, based on our conversations with the oil and gas industry officials over the past several months, that those leaders understand the compelling need to transform industry safety culture, and that they will do just that.

WEST COAST DRILLING BAN

As you may know, Senator Wyden and I and our other West Coast colleagues yesterday reintroduced legislation to permanently ban offshore drilling along the West Coast of the United States. This legislates the Department of Interior's conclusions in its five-year drilling plan that the West Coast is inappropriate for offshore drilling.

Question 44. We all hope that government and the oil and gas industry make drilling much safer in the future. But even if it does become safer in the future, isn't it still appropriate for the Administration and for Congress to say "no" to offshore drilling in areas where we think the risks don't outweigh the benefits?

Answer. Nothing in the Commission's recommendations is inconsistent with the Administration and Congress deciding to disallow offshore drilling in any particular offshore area.

Question 45. Will offshore oil drilling ever become totally riskless? As long as there is offshore drilling, can we ever totally guarantee that a tragedy like the BP oil spill will never happen again?

Answer. There is no such thing as risk-free offshore drilling. In fact, almost no industry is totally risk-free. What the Commission nonetheless believes, however, is that the risks of such drilling, including in deepwater, can be reduced to reasonably acceptable levels if the appropriate safeguards are undertaken.

UNREALISTIC OIL SPILL RECOVERY PLANS

The Commission report points out that BP's oil spill response plan for this well had blatant inaccuracies and made completely unrealistic assumptions about a worst-case scenario and BP's ability to respond.

Question 46. Do you believe that this problem is still ongoing right now? Are there response plans currently in place that are inaccurate and have unrealistic assumptions?

Answer. BP was not the only major company to have submitted oil spill response plans applicable to the Gulf based on blatantly inaccurate and unrealistic information. In the immediate aftermath of the Deepwater Horizon disaster, it quickly became apparent that other major oil companies had similarly flawed plans. Indeed, many of these plans repeated verbatim the same mistakes. The Commission has, for this reason, made a series of recommendations designed to ensure that oil companies do not continue to submit such plans in the future, but is not aware to what extent in recent months, oil companies have already begun on their own initiative to correct their prior safety lapses in this important respect.

ROOT CAUSE ANALYSES OF FAILURES

In a technical paper presented by Transocean employee Earl Shanks at the Offshore Technology Conference in 2003, he wrote that:

because of the pressure on getting the equipment back to work, root cause analysis of the [blowout preventer] failures is generally not performed.

This echoes the Commission's finding that BP has had a history of utilizing a 'band-aid' approach and failing to conduct effective root cause analysis procedures to identify systemic causal factors following past accidents.

Question 47. Isn't industry's failure to investigate the root causes of blowout preventer failures and other mishaps a long-term safety risk?

Answer. The Commission concluded that BP in particular, and industry as a whole lacked sufficient commitment to ensuring safety in deepwater drilling operations. Without a doubt, any such commitment would have to ensure the reliable operation of blowout preventers.

Question 48. Which of the Commission's recommendations do you believe are particularly important for fundamentally and permanently shifting away from this 'band-aid' mentality not just for blowout preventers, but for all drilling systems?

Answer. It is hard to single out any one Commission recommendation because so many of the Commission recommendations are directed to this common end: some directed to changing government oversight and some more directed to industry self-policing. Two of the more significant, however, include the establishing of an independent and autonomous safety authority within the Department of the Interior and the establishment by the offshore oil and gas industry of a self-policing entity akin to that established successfully by the nuclear power industry in the aftermath of the Three Mile Island accident in 1979.

BLOWOUT PREVENTER FAILURES

A 1999 MMS study that revealed 117 blowout preventer failures over two years also revealed that those failures were often not fixed. The study stated:

for many of the failures observed. . . it was decided not to repair the failure after MMS had granted a waiver (MMS granted twelve such waivers). The failures in question were typically failures in components that were backed up by another component in the BOP stack.

Question 49. If the status quo is to not fix blowout preventer failures when they happen, do you believe the status quo is acceptable?

Answer. It is never acceptable to fail to take all reasonable and necessary steps to ensure the safety of well operations. And blowout preventers clearly play an important role in ensuring well safety.

Question 50. Even if a failed component is supposedly backed up, doesn't intentionally not fixing a broken component increase the risk that the overall blowout preventer will fail in an accident?

Answer. Blow-out preventers, like all other aspects of well operations, should always be maintained so as to ensure their reliable operation.

RELIABILITY STANDARDS

A paper presented by Transocean employee Earl Shanks at the 2003 Offshore Technology Conference outlined how reliability standards for blowout preventers were not explicitly part of industry's thinking, and were generally just assumed to be improving. It stated:

A brief investigation into the specifications given to blowout preventer control vendors revealed that rarely was any equipment performance requirements given. . . Reliability was assumed to be as good as the previous systems built. Or, in the case of a new design, it was assumed better than before.

Question 51. Isn't it dangerous to simply assume that newer systems are safer and more reliable if the industry and regulators are not making reliability standards an explicit requirement that is tested and measured?

Answer. The reliability of equipment used in well operations is always essential to the safety of those operations. And, the mere fact that equipment is new is not the functional equivalent of such equipment also being reliable, especially reliable is frequently determined over time.

Question 52. Should blowout preventer reliability standards be made an explicit part of decisionmaking by both the industry and regulators?

Answer. Both industry and government should always take all reasonable and necessary steps to ensure that equipment used in well operations, including blowout preventers, is operating reliably and therefore safely.