National Commission on the
BP DEEPWATER HORIZON OIL SPILL
AND OFFSHORE DRILLING

National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling

I hereby certify that these minutes constitute an accurate record of the Fourth Meeting of the *National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling* held on October 13, 2010 in Washington, DC.

Senator Bob Graham
Co-Chair

March 10, 2011
Date

William K. Reilly
Co-Chair

March 10, 2011
Date

An Advisory Committee to the President of the United States

National Commission on the
BP DEEPWATER HORIZON OIL SPILL
AND OFFSHORE DRILLING

4th Meeting

October 13, 2010
Washington, D.C.

Meeting Minutes

An Advisory Committee to the President of the United States

Minutes of the 4th Meeting
Washington, D.C.
October 13, 2010

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Call to Order and Opening Remarks

1:00 PM

All Commission Members and Designated Federal Officer (DFO) Present:

Chris Smith, DFO

The Honorable William Reilly, Co-Chair

Senator Robert Graham, Co-Chair

Frances Beinecke

Donald Boesch

Terry Garcia

Cherry Murray

Frances Ulmer

Opening Remarks

Chris Smith, DFO, called the meeting to order for the afternoon stating that this 4th session is a public deliberation in a public forum with a live feed via webcast. He briefly reviewed the agenda and encouraged individuals to submit written comments and submissions through the Commission website, www.OilSpillCommission.gov. *The Executive Order establishing the Commission can be found in the Pre-Meeting Materials section of the Attachments. The agenda for the 4th Commission meeting can be found in Attachment #1*.

Mr. Reilly welcomed the attendees, acknowledged the significant amount of preparation that happens behind the scenes for the public meetings, and turned the meeting over to Senator Graham.

Senator Graham reiterated the purpose of the Commission noting that the Commission was at its halfway point. To date, 70 panelists over five days of public meetings have appeared before the Commission. This meeting is the first opportunity for the Commissioners to convene as a group and discuss their findings and possible recommendations that will become the foundation of its report. Senator Graham remarked that transparency is the top priority. As an open forum, those not present at this public meeting are invited to contribute via the website. *Senator Graham's oral opening remarks can be found in Attachment #3*.

Mr. Reilly also noted that the Commission has not met as a group to discuss the report recommendations since it is subject to the Federal Advisory Committee Act, which requires all meetings to be public. Mr. Reilly provided an overview of the agenda and explained the roles of the subcommittees, including the development of a set of candidate findings. He referenced the six Oil Spill Commission subcommittees and indicated that Chief Counsel Fred Bartlit will present a comprehensive

overview of the preliminary findings at the November meeting. Mr. Reilly reviewed the Commission's charge and meeting schedule for the next few months noting that the Commission will deliver the report to the President in January. He also mentioned that the six-month deadline has been extremely challenging, and thanked staff and all involved before turning the meeting over to Senator Graham, Cherry Murray, and Frances Ulmer to present the first subcommittee findings. *The Honorable William Reilly's oral opening remarks can be found in Attachment #4.*

The oral opening remarks can be found on pages 4 through 11 of the transcript (Attachment #2).

Subcommittee on Offshore Drilling: Report on Potential Findings Regarding Offshore Drilling & Commissioner Discussion

1:15 PM

Subcommittee Members: **Senator Robert Graham**

Cherry Murray

Frances Ulmer

Senator Graham opened this panel by remarking that the 11 findings for this subcommittee have been divided into three groups – Senator Graham would present Findings #1-4 ("Group A"), Dr. Murray would address Findings #5-8 ("Group B"), and Ms. Ulmer would discuss Findings #9-11 ("Group C").

Senator Graham presented Groups A's preliminary findings which focused on the importance of offshore drilling to the U.S. They are based on the context "what is our national energy policy and how do these recommendations relate to that policy?" Senator Graham listed the first four potential general findings as follows:

1. The nation is currently and will in the foreseeable future be highly dependent on offshore drilling in the outer continental shelf, including in deep waters.
2. The oil and gas industry developed highly innovative and advanced technologies to explore oil and gas reserves increasingly deeper and further offshore.
3. Offshore production has helped offset declines in production elsewhere in the U.S., moderated dependence on foreign imports, thereby contributing to national security and reduction of the trade deficit.
4. Offshore oil production is part of a broader picture that includes strategies for managing demand, the role of alternative fuels, and the availability of domestic reserves for future generations.

Discussion on Preliminary Findings on History and Future of Offshore Drilling

Ms. Beinecke noted that it was important for the Oil Spill Commission's report to put offshore oil and gas drilling in the context of the direction of the national policy on energy and how it should change. **Ms. Ulmer** emphasized the difference between "findings" and "recommendations"' reinforcing that the Commission is only charged with addressing findings at this stage, not recommendations. **Dr. Boesch**

offered additional perspective stating that since the U.S. agreed to the Copenhagen Accord signed in December of 2009, the implication is that carbon emissions will have to be reduced by 50-80% by 2050. The path to emission reductions will require policies that address reducing the Nation's consumption of oil in that time frame. Dr. Boesch continued indicating that the Commission needs to be specific about the term "foreseeable."

Mr. Garcia noted that the findings placed sufficient emphasis on the increased incidence and progression of offshore drilling to deepwater and ultra-deepwater. **Mr. Reilly** agreed with Mr. Garcia noting that the research the Commission has conducted clearly shows that, in time, offshore drilling will make up the majority of drilling in the U.S. **Mr. Garcia** asked about the consequences of the progression of drilling on safety and said that the Commission needs to reference the significance of safety development. **Ms. Beinecke** said it was worth noting that the *Deepwater Horizon* was in water that is only half as deep as many new operations. **Dr. Murray** recommended the hazards of ultra-deepwater drilling be spelled out in detail and, at the very least, identify the other emerging technologies. Right now oil companies are merely developing innovations based on extrapolating science from previous technologies and the Commission wants information regarding the effects of these extrapolation technologies if conditions change in the future. She also asked how large the nationwide reserve should be since national security depends on having a readily available energy supply. **Mr. Reilly** noted that the issue of future technology is very important to allow for the possibility of change for alternative energy sources or new oil and gas technologies in the oil and gas industry.

Senator Graham emphasized that it is important to have a sense of the appropriate legacy to children – what needs to be available as an ultimate resource in a time of national emergency. The Commission must to be able to answer questions about how the exploration and extraction of resources in the Gulf of Mexico fits into the long-term time horizon of accessing those reserves over the span of decades. **Mr. Reilly** clarified his point by stating that exploration and extraction need to move forward, but not to the point of risking depletion of the oil and gas resources for future generations. **Ms. Ulmer** asked that the subcommittee include a chart to provide context for the importance of drilling in the Gulf, percentage of U.S. consumption, the percentage of U.S. production, and the percentage of U.S. proven reserves. This would provide a clearer picture of the impact on national security and help to put it into perspective. **Ms. Beinecke** said that the Commission staff needs to look at future transportation policies and the effect on oil requirements and usage in order for the findings to accurately relay the tradeoffs. **Mr. Garcia** concurred with the statements regarding including current national energy policy. While this additional context is beneficial, the real focus is preventing or mitigating future accidents.

The oral remarks from this discussion can be found on pages 11 through 29 of the transcript (Attachment #2).

Senator Graham moved the subcommittee to discuss the potential findings of Group B.

Dr. Murray opened the discussion on Group B, which focused on the oil and gas industry technology and management systems. These findings were as follows:

5. Despite the impressive technology developed for offshore drilling, there were not comparable developments in the technologies that provide safety in the challenging new environments in which the industry operated.
6. Offshore rigs have complex management problems because of the combination of prime operators, subcontractors, and equipment manufacturers needed to make them work.
7. Some companies in the Gulf of Mexico failed to apply process safety measures to provide unified coordination of the range of complex technical tasks on large rigs and the diversity of companies working on them.
8. The entire oil and gas industry failed to provide adequate contingency plans, including the availability of adequate containment systems, for a major well blowout in the Gulf of Mexico, or to advance technologies for oil recovery.

Discussion on Preliminary Findings on the Oil and Gas Industry Technology and Management Systems

Dr. Murray opened the discussion, stating that this subcommittee had received feedback from and listened to a number of selected representatives from the oil and gas companies, as well as from Minerals Management Service (MMS)/Bureau of Ocean Energy Management (BOEM). It was evident that there were significant developments in extraction technologies, yet the safety and containment technologies were not as well developed. Dr. Murray noted that further examination of the safety culture of the oil and gas industry was merited as was what the U.S. should expect from industry. Dr. Murray said that the findings also point to opportunities for the industry to take a fresh look at safety culture.

Dr. Boesch stressed that the Group B findings were particularly important because much of the Commission's work is dealing with the Federal Government, the management of resources, regulations, etc. to address actions that can be taken to minimize risk in the future. The industry will be responsible for future actions and these findings point to the problems that exist and appropriate measures for action.

Senator Graham reflected on the correlation of the text in the report with the potential findings and said that the findings appear to be too general and lack supportive data and need to be specific and correlate to recommendations. The report text will need to provide factual findings and supportive data to capture the public's attention. **Mr. Reilly** noted that the specific language in the Commission's report text should include detailed information regarding the ineffectiveness of skimmers in the open ocean, breaking of the booms, negligible technology investments, and limited research and development. **Dr. Murray** cautioned that there were containment systems present during the *Ixtoc* incident in 1979, but still no one learned from the blowout twenty years earlier. **Ms. Beinecke** recommended including the dates chronicling the technological advances since the *Exxon Valdez* spill.

Ms. Beinecke remarked that there has not been much, if any, advancement in spill containment technology since then and inquired about ways to incentivize further research. **Mr. Garcia** noted that since the U.S. and industry have now gone through the exercise of dealing with a well at 5000' of water, the Commission needs more information on any additional challenges and difficulties that are present

for drilling operations at a depth of 10,000' of water. **Dr. Murray** mentioned that some wells are now as deep as 12,000' of water, and the difficulties depend both on the geologic formation as well as the depth of the water.

Senator Graham asked that some of these points be developed more thoroughly or include a new general finding addressing the site-specificity of wells based on water depth and geology. Senator Graham noted that the varying levels of company competencies could also be an issue and that specific sites should be linked with safety and risks of the leasing company on a much more specific basis. **Dr. Murray** expounded on the point that any spill containment and response activities in the Arctic would be very different from those in the Gulf of Mexico. **Mr. Reilly** stated that the subcomittee has had discussions about the future of offshore drilling and regarding drilling industry practices in Norway, where companies must either be certified or partner with a certified company to undertake complex deep sea drilling. The findings should include a similar type of guidance. **Senator Graham** remarked that drilling is a global industry, and there have been other incidents and experiences that occurred as close as Mexico that provide a precedent.

Dr. Boesch suggested that once the wording of the findings is finalized, they also reference the production facilities. The new production technologies and production facilities will be expected to perform for decades, as a result, the production operations should receive the same attention as drilling when considering safety issues.

The oral remarks from this discussion can be found on pages 29 through 40 of the transcript (Attachment #2).

Senator Graham introduced the next group of findings, Group C.

Ms. Ulmer presented the three remaining findings for the future of safety culture in the oil and gas drilling industry subcommittee:

9. The national interest requires the continuation and expansion of a strong offshore drilling program, but one with a better balancing of risk and with greater safety protections for human life, the environment and the economy.
10. The oil and gas industry is planning for exploration and development in frontier areas outside the Gulf of Mexico, including the Arctic, which would introduce new safety challenges, many of which have not been fully analyzed.
11. By forming a Marine Well Containment Company, some in the oil and gas industry are beginning to address the absence of a readily available containment system for the Gulf of Mexico. Many key decisions that will help determine the long-term viability and success of the organization, however, have yet to be made.

Discussion on Preliminary Findings on the Future of Safety Culture in the Oil and Gas Drilling Industry

Ms. Ulmer noted that once the reality is accepted that offshore drilling will continue, new regulations and operations may be required for the industry in places like the Arctic. Business approaches in the

Arctic and the Gulf of Mexico will have to be separate and distinct to that specific region. **Ms. Beinecke** commented on Finding #11 stating that the Arctic introduces new safety and environmental challenges that need to be addressed. The finding indicates that the industry is planning for exploration, which requires Federal Government approval. She suggested that the finding should read that the government is evaluating oil and gas exploration and development in frontier areas. **Mr. Reilly** asked if there was currently a suspension of all drilling activity. **Ms. Beinecke** responded that the suspension was under re-evaluation, noting that this was a government decision, not an industry decision. **Dr. Boesch** suggested the findings include specifics such as leases that have been granted but have drilling suspended pending the government determinations, and other comparable examples that would be helpful. **Mr. Reilly** agreed with Mr. Boesch and said that the same specifics, such as information on leases, could be included in any of the potential findings without overburdening them. **Mr. Garcia** explained that with the new safety and environmental challenges, not enough is known about the ecosystems to determine what the baseline data should be. More science will be necessary to learn more about these systems.

Regarding Finding #9, **Senator Graham** said he was not prepared to accept the first line in this finding as a statement of truth and that the Commission needs to know how offshore drilling fits into the national energy policy. **Mr. Reilly** provided the statistic that if 30% of the domestic supply of oil is from offshore; realistically the amount of offshore drilling will also probably increase. He further noted that an alternative to oil must be available before halting offshore drilling expansion.

Senator Graham remarked that a big reason for the decline in onshore drilling is economic, but offshore drilling is invested at even at lower oil and gas prices. Conversely, **Ms. Ulmer** understood the statement differently that offshore drilling is a strategic choice, not a given. **Senator Graham** maintained that non-market considerations should be included in the discussion. The future of a product (oil and gas) that is so essential to the country should be decided based on both market and non-market considerations.

Mr. Reilly said that based on the energy analysis he has seen, fossil fuels will be essential to the U.S. economy through at least the 2020s, and he does not think this is a disputable point. Although technology could transform this projection, it seems unlikely; the findings/recommendations should not be at odds with the projections. **Ms. Beinecke** offered that a gap exists between the public perception of offshore drilling and the reality of how much can be produced. An independent committee can confront the misperceptions that elected officials cannot. There is an imaginary goal of eliminating oil imports, but imported oil cannot be completely replaced with domestic production. **Senator Graham** noted that data-driven discussions will elucidate matters. Before the statements of findings are made and finalized, numbers and data need to support and verify statements. **Dr. Murray** noted that onshore oil production negates some of the most expensive foreign oil from being imported. Still, projecting into the future is not clear. The time frame is important, because energy sources cannot be changed quickly. It may take 30-50 years to change to a new energy economy – so while the national interest demands the continuing use of fossil fuels, that may not be the case in 100 years. **Senator Graham** indicated that the time frame would not be in terms of the number of years, but in terms of the achievement of the objective of becoming significantly less dependent on foreign sources of energy. **Dr. Boesch** agreed, noting that over the next decade or two, the U.S. will be heavily dependent on oil, especially for

transportation. But beyond that, there will be a transition to other energy sources. He said that he believes that the time frame has to be more precise than the "foreseeable future."

Mr. Reilly stated that the President and the Commission are invested in the transition to a lower-carbon society. Creating a close connection between oil and gas offshore development and transitioning to a low-carbon using society may be a stretch. The U.S. needs to restrain offshore development to be safer and more regulated, which does not seem to play a direct significant role in moving towards a different energy economy.

Mr. Garcia said that regarding Finding #9 the key point is that the continuation and expansion of offshore drilling requires a better balance of risk with better safety protection of human life. **Ms. Beinecke** recommended focusing on "continuation," and any offshore program should have higher standards. She suggested they eliminate the word "expansion" and concentrate on ensuring that no matter what the program is, it is safer.

Senator Graham concluded that the review of the potential general findings under offshore drilling is completed.

The oral remarks from this discussion can be found on pages 40 through 60 of the transcript (Attachment #2).

Subcommittee on Regulatory Oversight: Report on Potential Findings Regarding Regulation of Offshore Oil Drilling & Commissioner Discussion

2:45 PM

Subcommittee Members: **The Honorable William Reilly**

Frances Beinecke

Frances Ulmer

The Honorable William Reilly: He introduced himself, Frances Beinecke, and Frances Ulmer as the members of the subcommittee, outlining the panel discussion stating that Ms. Ulmer would address Findings #1-2 ("Group A"), Ms. Beinecke would present Findings #3-6 ("Group B"), and he would discuss Findings #7-10 ("Group C").

Ms. Ulmer presented Group A as follows:

1. Roles and Responsibilities: MMS had four distinct responsibilities requiring different skill sets and cultures: 1) offshore leasing; 2) revenue collection and auditing; 3) permitting and operational safety; and 4) environmental protection.

   The language of the Outer Continental Shelf Lands Act (OCSLA) has been interpreted as elevating the goal of "expeditious and orderly development" above the requirements of safety and environmental protection. Every former MMS Director over the past 15 years has stated

that the royalty issues have taken most of the Director's time at the expense of the other aspects of the offshore program.

2. Regulatory Coordination: The regulation of high risk activities on the Outer Continental Shelf (OCS) has been divided among a number of regulators (DOI, DOT, USCG, OSHA) for producing platforms, pipelines and different types of drilling rigs. The negotiation and renegotiation of multiple and sequential Memoranda of Understanding to coordinate and carry out these Federal responsibilities has led to inefficiencies and gaps in oversight affecting worker safety and environmental protection.

Ms. Ulmer elaborated on these issues highlighting three fundamental problems: 1) Outer Continental Shelf Lands Act (OCSLA) has ambiguity on how to balance the safety of the environment and of workers with oil and gas production which is a result of multiple Administrations and different levels of people interpreting their role; 2) the lack of effective consultation with other agencies on the part of MMS; and 3) These two developments within an under-resourced agency have resulted in the current state of offshore drilling. She said that they can learn how to improve the law, regulations, and equip regulators with the political and financial means to do a better job.

Discussion on First Preliminary Finding on Roles and Responsibilities

Dr. Boesch noted that the last sentence in the first preliminary finding is an interesting observation about the preoccupation with royalty issues. It was an important point, and he asked why MMS was not paying more attention to other responsibilities. **Mr. Reilly** responded that the $18 billion in royalty revenues is tough to overlook and was a stunning number: MMS is the second largest revenue generator for the Federal Government after the Internal Revenue Service. **Senator Graham** inquired if the first paragraph of the first finding stated a fact, and if it could make a finding on the significance of MMS' responsibilities. He said that MMS' attention was so focused on one area that the others did not get the attention they required. **Dr. Boesch** noted that the responsibilities were obviously competing and maybe even conflicting.

Dr. Murray suggested they consider the last sentence of the first finding to be conjoined with the first paragraph rather than the second, and she asked if the subcommittee considered what other nations have done as a result of this type of tragedy. **Mr. Reilly** asked the Commission staff if they addressed Dr. Murray's question in the findings. The Commission staff representative, **Shirley Neff,** indicated that these were just findings and that they had not spoken to offshore regulators, they had just read background regulations.

Discussion on Second Preliminary Finding on Regulatory Coordination

Dr. Boesch put forward the notion that it seems the Environmental Protection Agency (EPA) also has a role with discharges into water and air. **Mr. Reilly** responded that permits are required by the EPA, and he was surprised by the delegation of authority among agencies. He was surprised that the Occupational Safety and Health Administration (OSHA) does not exercise the authority for safety on rigs, and he wanted to know if there was an adequate explanation as to why they do not. He asked who has safety

as a primary concern and wondered if OSHA had delegated it to the Coast Guard, who further delegated it to MMS. **Dr. Murray** added the United Kingdom's equivalent agency to OSHA has the safety responsibilities.

Senator Graham contended that the second sentence of Finding #2 points to negotiation as the problem, yet he believed the real problem is the misalignment of the agencies. **Mr. Garcia** asked the subcommittee to add a finding about the lack of effective consultation under OCSLA. **Mr. Reilly** replied that the Commission will have to consider how to efficiently realign the agencies and their respective responsibilities. **Dr. Boesch** added that some complexity may be due to other, broader lines of jurisdiction, and provided the example of the U. S. Coast Guard (USCG) having responsibility over maritime vessels.

The oral remarks from this discussion can be found on pages 60 through 72 of the transcript (Attachment #2).

Mr. Reilly turned the discussion over to Frances Beinecke to present the Group B findings of this subcommittee.

Ms. Beinecke presented the potential findings of Group B as follows:

3. Technology and Operational Complexity: The Federal approach to management and oversight of the leasing and development of offshore resources has not kept up with rapid changes in technology, practices, and risks in different geological and ocean environments. The lack of knowledge and understanding of such basic techniques as cementing and use of centralizers on the part of agency engineers and inspectors points to seriously mismatched expertise relative to industry operators.
4. Risk Management: MMS failed to embrace a proactive risk management approach to the oversight and regulation of offshore drilling. Neither the MMS nor the industry had systems in place to track and analyze offshore incident data for lagging and leading indicators and trends. The regulatory review and approval process for exploration plans, permits for deepwater wells, and oil spill response did not require adequate risk evaluation and management planning.
5. Oil Spill Planning: MMS approved Oil Spill Response Plans and MMS developed oil spill risk analyses are integrated into the environmental review and consultation process at all stages of OCS oil and gas development. Underestimation of the worst case scenario for oil discharge in the Gulf of Mexico oil spill risk analyses distorted the estimations of potential environmental impacts in subsequent environmental reviews. The Oil Spill Response Plans were also problematic, because they were included in some of the environmental reviews as a mitigation measure to address the threat of oil discharge. Although the BP Oil Spill Response Plan for the Gulf of Mexico met the MMS regulatory requirements for such a plan, it lacked rigor and specificity. The approval process for these plans also lacks transparency, and fails to include either a process for interagency consultations or public review.
6. Science for Decision-Making: Although there is a significant amount of scientific research that has been conducted relevant to OCS oil and gas activities, there is a need to continue

strengthening and expanding this science, as well as ensuring that it is relevant to decision-making and the environmental review of oil and gas activities. *Note: After ongoing staff research is completed, additional findings regarding the NEPA process, Environmental Studies Program, and use of science in the OCS oil and gas decision-making process will be proposed*.

Discussion on Preliminary Finding on Technology and Operational Complexity

To begin the discussion, **Ms. Beinecke** informed the Commission that the subcommittee had been looking at the structure of MMS and its procedures and analyses in the oil and gas development program. **Mr. Reilly** noted that Finding #3 indicated there was extensive evidence that the capability to contain and respond to a spill did not develop at an even pace with the technological advances. **Dr. Murray** revealed that the reach back for expertise (e.g., in cementing) by the agency responsible for regulation has happened in other places around the world, and it needs to happen in the U.S. **Ms. Beinecke** added that the Federal approach to research and development had not kept up with the changes, and the system needs to evolve and keep abreast of the industry. **Senator Graham** suggested using the nuclear power industry or commercial aviation as examples of areas that have kept safety on pace with rapid changes in technology. **Ms. Beinecke** replied that examples in which the regulators have kept up as well are very important, and it can be a lucrative and important program to the government. **Mr. Garcia** asked if the last sentence of Finding #3 was strong enough, and if it could be expanded to include the lack of training, as well as ongoing training. **Mr. Reilly** revealed that the subcommittees' interviews disclosed only on-the-job training that lasted for two or three days, which is not sufficient.

Discussion on Preliminary Finding on Risk Management

Dr. Murray addressed Finding #4 and said that after the Three Mile Island accident, the nuclear industry needed more serious risk management; they built up the public risk analysis and heard input from people, including the Department of Energy (DOE). She asked what DOE could do to help MMS and if they had any input on risk assessment. **Mr. Smith** stated that the Secretary expressed that the true challenge is not fixing problems after they occur, but preventing them from occurring in the first place. He said that there has been some research conducted within the DOE, not just on fossil energy, but around nuclear-related issues. He explained that when dealing with deepwater drilling, the problem is that incidents on the sea floor must be dealt with remotely from the surface of the water and that there are analogous situations to this issue in other industry sectors. He noted that DOE should quantify risks associated with deepwater drilling and that there is a depth of research capability that already exists within DOE that could be used quite effectively to deal with these situations in the future. Going forward, research should happen continuously, not in starts and stops as was experienced in this situation when technology had to be developed real-time while trying to cap the Macondo well.

Mr. Reilly noted that risk assessment was used effectively to develop the flow rate estimates and to manage the blowout. **Dr. Murray** asked if the National Laboratories could have a role in the research and development and risk assessment. She explained that the response to national incidents (particularly radiation or nuclear incidents) have included National Laboratory scientists. **Mr. Reilly** concurred with Dr. Murray's point and asked whether DOE had been consulted at all regarding decisions

affecting the leasing and response plans. He believed that they had not been which was surprising to him. **Mr. Smith** responded that DOE comments on the plans but has no regulatory responsibility in the process. MMS could choose whether or not to address their comments. **Ms. Ulmer** noted the disconnect speaks in part to the earlier discussion about roles and responsibilities in which there should be active engagement, not just advice given. She thought Finding #4 needed a sentence to provide context about approaches attempted in risk assessment that have not been successful. She also stated that when MMS proposed the Safety and Environmental Management System (SEMS) regulations, the oil and gas industry always objected, and the regulations were not implemented until October 2010.

Discussion on Preliminary Finding on Oil Spill Planning

Mr. Reilly moved the discussion to Finding #5 regarding oil spill response planning. **Dr. Boesch** indicated that the second sentence of the finding was significant regarding the underestimation of the worst-case scenario, in that the probability of a disaster, not the volume of a potential flow, was the important point in the worst-case scenario. He stated that oil spill response plans are filed every two years but are not specific for individual wells, and the Commission should consider this in its recommendations. **Ms. Beinecke** noted that was typical of all response plans, and they should not just target specific plans because the entire process was at fault. **Dr. Murray** qualified that statement stating that the plans should be tailored to each operating area for individual wells. **Ms. Beinecke** said there was no consultation outside MMS, and no public review so that the public could see how the company response plans might coincide with public perceptions, and **Ms. Ulmer** agreed. **Mr. Reilly** stated he could not believe that there was little or no consultation between MMS and the Coast Guard. **Mr. Garcia** added that there have been cases without any consultation, but even in cases when consultation occurred, the consultation was ineffective. **Dr. Boesch** responded that any consultation was often limited to a letter from the consulting agency, and there would be no response on how its comments were incorporated into the final decision. **Mr. Reilly** indicated he learned that EPA was not included in the list of agencies where responsibilities had been divided because EPA does not delegate its responsibilities.

Senator Graham asked about the requirement for reviews of the response plan every two years. **Dr. Boesch** replied noting that the response plans were prepared by the well operators and filed with MMS as general plans, and updated by the operating oil and gas company every two years. The BP response plans for the lease area that included the Macondo well did not have any specific oil spill details for the well. **Senator Graham** asked about the MMS policy for periodic evaluations of response plans by operators knowledgeable to perform them. His impression was that it was not performed very often – the blowout preventer should have been tested within a given period of time, but was actually tested less than half as often as it should have been. **Dr. Boesch** responded that the response plans can be voluminous, leaving the staff little time for detailed review, and he questioned the adequacy of MMS staffing.

Discussion on Preliminary Finding on Science for Decision-Making

Ms. Beinecke said Finding #6 was a purely generic finding which required more science, and it would be developed with more specific findings as the subcommittee continued. **Mr. Reilly** agreed that the

Commission findings with respect to scientific needs have to be very specific. **Dr. Boesch** stated that a number of dimensions are under evaluation including how scientific research is conceived, how it is executed, and how it is peer reviewed. **Mr. Reilly** commented that the scientific findings area should distinguish the responsibilities of industry from the responsibilities of government. He continued noting the challenges the government faces to obtain adequate resources should be addressed, and raised the possibility of funding from the oil and gas industry revenues.

Dr. Boesch advised that portions of the allocated funds be dedicated to research and development, and the question was how scientific programs should be updated to support decision-making processes. **Mr. Reilly** recommended that the report include a review of the effectiveness of the monies set aside for scientific research in Prince William Sound after the *Exxon Valdez* spill and the knowledge gained from that process. **Senator Graham** asked the Commission staff to review and validate another option: a percentage of the lease fee as a part of the leasing process be directed into a separate fund for research and science, which might avoid the appropriation process. **Ms. Ulmer** responded that $100 million remains in the fund from the *Exxon Valdez* spill in Prince William Sound and continues to generate research. The trustees' council still manages the fund and makes decisions under a comprehensive science/research plan. There are peer reviewed assessments, and the fund continues to be the model. She said that the fund will eventually be exhausted, but they cannot project how quickly. There must be better science, not just more science, and it needs to be synthesized and integrated into the decision-making process. **Mr. Reilly** added that current knowledge about populations and oil deposits would not have been known if it were not for the *Exxon Valdez* fund. **Mr. Garcia** cautioned that as the staff investigates ways of funding research and science, they need to keep in mind that independent advice is required to prevent pet projects from the State or Federal Government. They need to establish both how to conduct the research and how to accomplish the science. **Mr. Reilly** noted that planning for the use of money in Prince William Sound was very important, as was peer-reviewed science.

The oral remarks from this discussion can be found on pages 72 through 101 of the transcript (Attachment #2).

Mr. Reilly proceeded to the preliminary findings of Group C, which were presented as follows:

7. Political Pressure: The regulatory and inspection process has been subject to political and industry pressure. The industry has successfully sought Congressional intervention to prevent implementation of MMS rulemakings. The time frames allowed for regulatory approvals for complex operations are inadequate, the 30 day requirement to approve exploration plans set by statute to expedite operations has limited the opportunity for critical technical review.
8. Oversight and Inspection: The MMS management systems and regulatory philosophy have seriously lagged offshore peer regulators in not requiring companies to have a documented Safety and Environmental Management System (SEMS), a fundamental tool for hazardous operations.
9. Resources (Budget): Inadequate budget and management oversight by the Congress and successive Administrations have left MMS without the resources to carry out its responsibilities. The Secretary of the Interior's appointed Safety Oversight Board reported a serious lack of

ongoing training and workforce development. Reliance on "on the job" training for inspectors is inadequate and unacceptable for such high risk, technical operations.

10. Transition: The fundamental shift necessary in the regulatory regime applicable to the offshore oil and gas industry will require additional resources and capacity, including staff hiring and training. In addition to the interim regulations imposed in recent months, the agency will have to propose for public comment a number of more comprehensive changes, including policies and procedures for third party certifications. A transition with adequate resources, specific benchmarks and timetables will be necessary to ensure activities are not unduly interrupted.

Mr. Reilly noted that, after the subcommittee studied catastrophes in the United Kingdom and Norway, safety cases were created to define a series of expectations and a comprehensive operation plan requiring consent of a regulatory body. One major reform recommended in the U.S. is to separate revenue from environmental and safety performance. The subcommittee also found that the oil and gas industry had distorted and prevented effective rulemaking and influenced decision-making by Congress. Further, the records for incidents resulting in fatalities per 100 million hours worked on drilling rigs are five times higher in the U.S. than in the U.K. **Ms. Beinecke** remarked that it seemed as if the DOI was carrying out the public interest to proceed with caution, and the Commission's aim is to ensure that MMS has the authority to fulfill that responsibility.

Discussion on Preliminary Findings on Oversight and Inspection

Mr. Garcia noted that, regarding Finding #8, MMS has not just seriously demonstrated poor enforcement, but the U.S. is one of the few major nations that does not require a SEMS, and additional information needs to be included during the oversight and inspection of drilling operations. **Senator Graham** asked why the U.S. should be the outlier in terms of regulation and safety since most of the same companies operate in the U.S., U.K., and Norway. **Mr. Reilly** clarified that companies with international operations accommodate their operations to the regulatory system that exists in each location. **Mr. Garcia** stated it was fair to note that the regulatory changes in the U.K. and Norway followed major disasters. This was true of Australia and Canada, and was somewhat true of the U.S. following the *Exxon Valdez* disaster.

Discussion on Preliminary Findings on Resources (Budget)

Regarding Finding #9, **Dr. Murray** asked the same question on the funding of science. In Australia, funds come out of lease fees. Dr. Murray remarked that a good source of funding is required to have a strong regulator. **Senator Graham** expressed his concern about the focus on training and workplace development, rather than having a reliable system to provide funding over time. Senator Graham suggested that another finding be added to address the need for additional funding. **Mr. Reilly** responded citing that the issue of funding BOEM or another regulatory agency is tricky and will be difficult to count on adequate resources. Mr. Reilly offered the International Nuclear Power Organization (INPO) as a model regulatory agency. **Dr. Murray** agreed with Mr. Reilly and referred to the Nuclear Regulatory Commission when she reiterated there needs to be a balance between industry and federal regulators. **Mr. Reilly** indicated the subcommittee would continue analyzing the budget process

and financial situation. Still, he cautioned it will become more difficult to obtain resources in the future when memories of the disaster have faded. **Dr. Murray** maintained that it would be cheaper to do things safely than not do them at all. Further, it would be less costly to have an INPO-like entity contain spills quickly and adequately. **Ms. Ulmer** responded that the Commission would ask the subcommittee staff about funding options, such as the possibility of a cents-per-barrel tax on oil.

Discussion on Preliminary Finding on Transition

Mr. Reilly moved to Finding #10 stating that he understood the need, but wanted to make sure that they conveyed a sense of urgency. **Senator Graham** inquired if the Commission could change the wording to define the shift, or define the fundamental characteristics that will distinguish the post transition from today. **Dr. Boesch** added there were many moving parts involved with the transition or shift including the result of the moratorium being lifted, Congress' reaction, etc. **Ms. Ulmer** suggested the Commission consult with the staff to see if they require any additional clarification of the discussion as they move to the next step.

Shirley Neff (staffer) indicated the staff has been analyzing international regulations and meeting with individuals when in the Washington, D.C. area. Ms. Neff was planning to attend an international conference soon and would obtain more clarification on other regulatory systems. She said there are a number of revenue options, specific budget parameters, transition processes from one system to the other, and details on assurances to distinguish funds. **Senator Graham** indicated they had been discussing revenue in the context of funding safety responsibilities, but the bigger issue is with the response and restoration. **Mr. Reilly** noted that the challenges can be addressed and it is important to keep perspective. This Commission exists to recommend how to solve these problems.

Mr. Reilly moved on to the public comment portion of the meeting.

The oral remarks from this discussion can be found on pages 101 through 123 of the transcript (Attachment #2).

Public Comment

4:15 PM

1. **John Gustafson, retired, National Response Team:** He said that he would submit his written testimony to the Commission. His remarks focused on operational matters necessary to improve the Nation's preparedness and response capabilities. He said that he believes that may be one area for the Commission's findings – improving public understanding and intergovernmental collaboration. He said that web-based training tools should be considered to provide training and an understanding of the National Contingency Plan. He said that there was often confusion about the application and roles and responsibilities of the on-scene coordinator. Finally, he said that local governments may sometimes be made to feel that they are in charge of the situation under Home Rule and that they have the authority to direct Federal assets, when that is not actually the case. *Mr. Gustafson's statement can be found in Attachment #5*.

The oral remarks from the public comment can be found on pages 124 through 129 of the transcript (Attachment #2).

Meeting Adjourned

4:45 PM

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National Commission on the

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Pre-Meeting Materials

National Commission on the

BP DEEPWATER HORIZON OIL SPILL AND OFFSHORE DRILLING

Executive Order

Executive Order 13543—National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling

May 21, 2010

By the authority vested in me as President by the Constitution and the laws of the United States of America, it is hereby ordered as follows:

Section 1. Establishment. There is established the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling (the "Commission").

Sec. 2. Membership. (a) The Commission shall be composed of not more than 7 members who shall be appointed by the President. The members shall be drawn from among distinguished individuals, and may include those with experience in or representing the scientific, engineering, and environmental communities, the oil and gas industry, or any other area determined by the President to be of value to the Commission in carrying out its duties.

(b) The President shall designate from among the Commission members two members to serve as Co-Chairs.

Sec. 3. Mission. The Commission shall:

(a) examine the relevant facts and circumstances concerning the root causes of the Deepwater Horizon oil disaster;

(b) develop options for guarding against, and mitigating the impact of, oil spills associated with offshore drilling, taking into consideration the environmental, public health, and economic effects of such options, including options involving:

> (1) improvements to Federal laws, regulations, and industry practices applicable to offshore drilling that would ensure effective oversight, monitoring, and response capabilities; protect public health and safety, occupational health and safety, and the environment and natural resources; and address affected communities; and
>
> (2) organizational or other reforms of Federal agencies or processes necessary to ensure such improvements are implemented and maintained.

(c) submit a final public report to the President with its findings and options for consideration within 6 months of the date of the Commission's first meeting.

Sec. 4. Administration. (a) The Commission shall hold public hearings and shall request information including relevant documents from Federal, State, and local officials, nongovernmental organizations, private entities, scientific institutions, industry and workforce representatives, communities, and others affected by the Deepwater Horizon oil disaster, as necessary to carry out its mission.

(b) The heads of executive departments and agencies, to the extent permitted by law and consistent with their ongoing activities in response to the oil spill, shall provide the Commission such information and cooperation as it may require for purposes of carrying out its mission.

(c) In carrying out its mission, the Commission shall be informed by, and shall strive to avoid duplicating, the analyses and investigations undertaken by other governmental, nongovernmental, and independent entities.

(d) The Commission shall ensure that it does not interfere with or disrupt any ongoing or anticipated civil or criminal investigation or law enforcement activities or any effort to recover response costs or damages arising out of the Deepwater Horizon explosion, fire, and oil spill. The Commission shall consult with the Department of Justice concerning the Commission's activities to avoid any risk of such interference or disruption.

(e) The Commission shall have a staff, headed by an Executive Director.

(f) The Commission shall terminate 60 days after submitting its final report.

Sec. 5. General Provisions. (a) To the extent permitted by law, and subject to the availability of appropriations, the Secretary of Energy shall provide the Commission with such administrative services, funds, facilities, staff, and other support services as may be necessary to carry out its mission.

(b) Insofar as the Federal Advisory Committee Act, as amended (5 U.S.C. App.) (the "Act"), may apply to the Commission, any functions of the President under that Act, except for those in section 6 of the Act, shall be performed by the Secretary of Energy in accordance with guidelines issued by the Administrator of General Services.

(c) Members of the Commission shall serve without any additional compensation for their work on the Commission, but shall be allowed travel expenses, including per diem in lieu of subsistence, to the extent permitted by law for persons serving intermittently in the Government service (5 U.S.C. 5701–5707).

(d) Nothing in this order shall be construed to impair or otherwise affect:

(1) authority granted by law to a department, agency, or the head thereof; or

(2) functions of the Director of the Office of Management and Budget relating to budgetary, administrative, or legislative proposals.

(e) This order is not intended to, and does not, create any right or benefit, substantive or procedural, enforceable at law or in equity by any party against the United States, its departments, agencies, or entities, its officers, employees, or agents, or any other person.

BARACK OBAMA

The White House,
May 21, 2010.

[Filed with the Office of the Federal Register, 8:45 a.m., May 25, 2010]

NOTE: This Executive order was released by the Office of the Press Secretary on May 22, and it was published in the *Federal Register* on May 26.

Categories: Executive Orders : National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling, establishment.

Subjects: BP Deepwater Horizon Oil Spill and Offshore Drilling, National Commission on the.

DCPD Number: DCPD201000410.

National Commission on the

BP DEEPWATER HORIZON OIL SPILL AND OFFSHORE DRILLING

Federal Register

a.m. and 4:30 p.m., Monday through Friday, except Federal holidays. The application and any filed protests, motions to intervene or notice of interventions, and comments will also be available electronically by going to the following DOE/FE Web address: *http://www.fe.doe.gov/programs/gasregulation/index.html.* In addition, any electronic comments filed will also be available at: *http://www.regulations.gov.*

Issued in Washington, DC, on September 23, 2010.

John A. Anderson,

Manager, Natural Gas Regulatory Activities, Office of Oil and Gas Global Security and Supply, Office of Fossil Energy.

[FR Doc. 2010–24389 Filed 9–28–10; 8:45 am]

BILLING CODE 6450–01–P

DEPARTMENT OF ENERGY

National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling

AGENCY: Department of Energy, Office of Fossil Energy.

ACTION: Notice of open meeting.

SUMMARY: This notice announces an open meeting of the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling (the Commission). The Commission was organized pursuant to the Federal Advisory Committee Act (Pub. L. 92–463, 86 Stat. 770) (the Act). The Act requires that agencies publish these notices in the **Federal Register**. The Charter of the Commission can be found at: *http://www.OilSpillCommission.gov.*

DATES: Wednesday, October 13, 2010, 1 p.m.–4:45 p.m.

ADDRESSES: The Westin Grand, 2350 M Street, NW., Washington, DC 20037; telephone number: (202) 429–0100.

FOR FURTHER INFORMATION CONTACT: Christopher A. Smith, Designated Federal Officer, Mail Stop: FE–30, U.S. Department of Energy, 1000 Independence Avenue, SW., Washington, DC 20585; telephone (202) 586–0716 or facsimile (202) 586–6221; *e-mail: BPDeepwaterHorizonCommission@hq.doe.gov.*

SUPPLEMENTARY INFORMATION:

Background: The President directed that the Commission be established to examine the relevant facts and circumstances concerning the root cause of the BP Deepwater Horizon explosion, fire, and oil spill and to develop options to guard against, and mitigate the impact of, any oil spills associated with offshore drilling in the future.

The Commission is composed of seven members appointed by the President to serve as special Government employees. The members were selected because of their extensive scientific, legal, engineering, and environmental expertise, and their knowledge of issues pertaining to the oil and gas industry. Information on the Commission can be found at its Web site: *http://www.OilSpillCommission.gov.*

Purpose of the Meeting: To discuss relevant facts and circumstances concerning the root causes of the Deepwater Horizon explosion, fire, and oil spill, and options to guard against, and mitigate the impact of, any oil spills associated with offshore drilling in the future.

Tentative Agenda: The meeting is expected to start on October 13, 2010, at 1 p.m. Commission discussions are expected to begin shortly thereafter and will conclude at approximately 4 p.m. Public comments can be made tentatively from 4:15 p.m. to 4:45 p.m. The final agenda will be available at the Commission's Web site: *http://www.OilSpillCommission.gov.*

Public Participation: The meeting is open to the public. Seats will be available on a first-come, first-serve basis. An overflow room will be available with a live video feed of the meeting. Those not able to attend the meeting may view the meeting live on the Commission's Web site: *http://www.OilSpillCommission.gov.* The Designated Federal Officer is empowered to conduct the meeting in a fashion that will facilitate the orderly conduct of business.

Approximately thirty minutes will be reserved for public comments. Time allotted per speaker will be three minutes. Opportunity for public comment will be available on October 13 *tentatively* from 4:15 p.m. to 4:45 p.m. Registration for those wishing to request an opportunity to speak opens onsite at noon on October 13.

Speakers will register to speak on a first-come, first-serve basis. Members of the public wishing to provide oral comments are encouraged to provide a written copy of their comments for collection at the time of onsite registration.

Those individuals who are not able to attend the meeting, or who are not able to provide oral comments during the meeting, are invited to send a written statement to Christopher A. Smith, Mail Stop FE–30, U.S. Department of Energy, 1000 Independence Avenue, SW., Washington, DC 20585, or e-mail: *BPDeepwaterHorizionCommission@hq.doe.gov.* This notice is being published less than 15 days before the date of the meeting due to a national emergency.

Minutes: The minutes of the meeting will be available at the Commission's Web site: *http://www.OilSpillCommission.gov* or by contacting Mr. Smith. He may be reached at the postal or e-mail addresses above.

Accommodation for the hearing impaired: A sign language interpreter will be onsite for the duration of the meeting.

Issued in Washington, DC on September 24, 2010.

Carol A. Matthews,

Committee Management Officer.

[FR Doc. 2010–24390 Filed 9–28–10; 8:45 am]

BILLING CODE 6450–01–P

DEPARTMENT OF ENERGY

Federal Energy Regulatory Commission

[Docket No. CP10–486–000]

Colorado Interstate Gas Company; Notice of Intent To Prepare An Environmental Assessment for the Proposed Spruce Hill Air Blending Project and Request for Comments on Environmental Issues

September 21, 2010.

The staff of the Federal Energy Regulatory Commission (FERC or Commission) will prepare an environmental assessment (EA) that will discuss the environmental impacts of the Spruce Hill Air Blending Project involving construction and operation of facilities by Colorado Interstate Gas Company (CIG) in Douglas County, Colorado. This EA will be used by the Commission in its decision-making process to determine whether the project is in the public convenience and necessity.

This notice announces the opening of the scoping process the Commission will use to gather input from the public and interested agencies on the project. Your input will help the Commission staff determine what issues need to be evaluated in the EA. Please note that the **scoping period will close on October 21, 2010.**

This notice is being sent to the Commission's current environmental mailing list for this project. State and local government representatives are asked to notify their constituents of this proposed project and encourage them to comment on their areas of concern.

If you are a landowner receiving this notice, you may be contacted by a pipeline company representative about

National Commission on the

BP DEEPWATER HORIZON OIL SPILL AND OFFSHORE DRILLING

Briefing Book

National Commission on the
BP DEEPWATER HORIZON OIL SPILL AND OFFSHORE DRILLING

Meeting #4 Briefing Book

Commissioners' Discussion: History and Future of Offshore Drilling

October 13, 2010
The Westin Grand
2350 M St. NW, Washington D.C.

Draft – Background Paper
Federal Environmental Review, Interagency Consultation and Permitting Requirements Applicable to Oil and Gas Leasing, Exploration and Development Activities on the Outer Continental Shelf
October 8, 2010

On January 1, 1970, President Richard Nixon signed the National Environmental Policy Act of 1969 (NEPA) into law. Following decades of environmental decline in the United States, the law acknowledged the profound impact of human activities on the natural environment. It created a formal role for the federal government in ensuring that its activities would help "create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans."[1] Although NEPA has an underlying conservation ethic, it highlights the need to balance environmental concerns with a consideration of social, economic, and other needs. NEPA establishes a process by which federal agencies are required to consider the environmental impacts of their actions and analyze reasonable alternatives to reduce those impacts. It also attempts to provide transparency and an opportunity for public participation in reviewing the potential environmental impacts of federal decisions. NEPA expressly requires interagency consultation between the federal agency proposing to take an action and other federal agencies possessing expertise on the possible environmental consequences of that proposed action.[2]

The Deepwater Horizon incident has focused a great deal of attention on the NEPA process for reviewing outer continental shelf oil and gas activities, including questions regarding the sufficiency of interagency consultations in practice. However, there are also a number of other important environmental laws that apply to offshore oil and gas activities and include their own environmental review and interagency consultation requirements. In certain respects, these laws can be more demanding than NEPA. NEPA's mandate is essentially procedural,[3] requiring federal agencies to consider the adverse environmental impacts of their actions, but without mandating that they not cause those impacts. Other environmental laws go much further. Similar to NEPA, they require environmental reviews and interagency consultations. But these other laws frequently go further, imposing limits on the extent to which the activity may harm the environment, or at the very least, requiring federal agencies to state affirmative reasons for why they are not taking more environmentally protective measures. Like NEPA, these other federal laws apply to actions of federal agencies, but unlike NEPA, some of them also directly limit private activity through strict permitting programs. These laws cover a diverse set of topics that include marine mammals, endangered species, marine fish and their habitats, marine sanctuaries, and water

[1] National Environmental Policy Act of 1969.
[2] 42 U.S.C. § 4332; see *e.g.*, 40 C.F.R. § 1502.19
[3] Stryker's Bay Neighborhood Council v. Karlen, 444 U.S. 223 (1980).

quality.

This paper summarizes other federal environmental laws applicable to oil and gas activities on the outer continental shelf that impose environmental review, interagency consultation, and permitting requirements beyond the procedural requirements mandated by NEPA. The paper also discusses how the federal agencies charged with their administration applied their respective environmental assessment, interagency consultation, and permitting requirements in the Gulf of Mexico in advance of the Deepwater Horizon incident. Finally, the paper concludes with a discussion of the primary findings from the review of these statutes and their application in the Gulf of Mexico, as well as a presentation of issues for additional consideration by the Commissioners.

Magnuson-Stevens Fishery Conservation and Management Act

As its title suggests, the Fishery Conservation and Management Act of 1976 (currently known as the Magnuson-Stevens Act) is focused on the conservation and management of marine fishery resources and their habitat. One of the priorities of the Act is to identify and protect "essential fish habitat," which is defined by the Act as those waters and substrate necessary for fish spawning, breeding, feeding, or growth to maturity. The National Oceanic and Atmospheric Administration (NOAA) Fisheries Service is the federal agency responsible for administering the Magnuson-Stevens Act. NOAA and the Regional Fishery Management Councils that were established by the Act have designated essential fish habitat for more than 1000 species to date. These species include marine finfish, mollusks, and crustaceans. When overlaid, these distinct essential fish habitat areas cover in aggregation most of the water within the U.S. Exclusive Economic Zone. Because of the impracticality of NOAA asserting meaningful jurisdiction over such a huge area, NOAA and the Regional Councils have further designated "habitat areas of particular concern" within the broader essential fish habitat. Habitat areas of particular concern are high priority areas for conservation, management, or research due to being rare, sensitive, particularly susceptible to human-induced degradation, or important to ecosystem function. NOAA and the Regional Fishery Management Councils have identified approximately 100 habitat areas of particular concern.

The primary legal significance of the Magnuson-Stevens Act for oil and gas activities on the outer continental shelf is that the Act requires federal agencies proposing agency actions that may adversely affect identified essential fish habitat to prepare a document referred to as an "Essential Fish Habitat Assessment" and to consult with the Secretary of Commerce (through NOAA Fisheries Service) before taking action. The Bureau of Ocean Energy Management[4] (BOEM) is the agency within the Department of the

[4] Formerly the Minerals Management Service (MMS)

Interior responsible for preparing Essential Fish Habitat Assessments for proposed oil and gas activities on the outer continental shelf that may adversely affect essential fish habitat. NOAA has defined "adverse effect" in regulation to mean any act that reduces the quality or quantity of essential fish habitat. This can include direct or indirect physical, chemical, or biological alterations of waters or substrate, as well as loss or injury of benthic organisms, prey species and their habitat, and other ecosystem components.

After BOEM has prepared the required Essential Fish Habitat Assessment, NOAA must provide BOEM with conservation recommendations to avoid, minimize, mitigate, or otherwise offset the adverse effects of their action based on that Assessment. The document prepared by NOAA is described as an "Essential Fish Habitat Consultation." BOEM must respond in writing to NOAA's consultation by either accepting the recommendations, or by explaining why they are not accepting them. If not accepted, BOEM must describe the measures they propose to implement for avoiding, mitigating, or offsetting the impact of the proposed activity on essential fish habitat.

Outer continental shelf oil and gas activities that are most likely to trigger the Magnuson-Stevens Act's assessment and consultation requirements are those that disturb the seafloor, discharge materials into the ocean, or intake large volumes of seawater.[5] In addition to reviewing potential impacts to fisheries habitat, the consultation also considers the direct effects of the action on marine and anadromous fish species and their prey. In the Gulf of Mexico, NOAA prepared a programmatic Essential Fish Habitat Consultation in 1999 (subsequently updated in 2006, 2007, and 2008) that addressed all proposed oil and gas activities, including pipeline rights-of-way; planning for exploration and production; and platform removal. The Essential Fish Habitat Assessment produced by BOEM (MMS) relied heavily on analyses contained in BOEM (MMS) NEPA documents prepared for the Central and Western Gulf of Mexico lease sales. The Assessment found a number of major impact producing factors that could affect essential fish habitat,[6] including blowouts and petroleum spills. The BOEM (MMS) Assessment noted that oil spills could negatively impact marine fish through the ingestion of oil or oiled prey, uptake of dissolved petroleum products through the gills, and death of eggs and decreased survival of larvae. However, the Assessment noted an overall minimal risk of oil spill to marine fish:

> *"Observations at oil spills from around the world consistently indicate that free swimming fish are rarely at risk from oil spills. Fish swim away from spilled oil,*

[5] Examples could include: anchoring and construction of structures and pipelines on the ocean floor; discharge of operational wastes (drilling fluids and cuttings, waste chemicals, fracturing and acidifying fluids, produced sand, well fluids, etc); discharge of ballast or storage displacement water; and platform/structure removal.

[6] *Essential Fish Habitat Assessment for the Minerals Management Service Programmatic Consultation for Gulf of Mexico Outer Continental Shelf (OCS) Oil and Gas* Activities (EFH Assessment). June 4, 1999. The assessment found that major impact-producing factors that could affect EFH were: coastal environmental degradation; marine environmental degradation; geological and geophysical surveys; petroleum spills; blowouts, pipeline trenching, and resuspension of sediments; and offshore discharges of drilling muds and produced waters.

> *and this behavior explains why there has never been a commercially important fish-kill on record following an oil spill. Large numbers of fish eggs and larvae have been killed by oil spills. However, fish over-produce eggs on an enormous scale and the overwhelming majority of them die at an early stage, generally as food for predators."*[7]

The impact analysis within the Assessment noted that some of the proposed oil and gas activities would have a negligible impact on Central and Western Gulf of Mexico commercial fisheries, but other activities (including oil spills) would result in environmental degradation and cause greater impacts on commercial fisheries. The BOEM (MMS) analysis concluded that all the oil and gas activities covered under the assessment would result in a less than a 1 percent decrease in commercial fishery populations, essential fish habitat, and commercial fishing.[8] It also determined that it would require less than six months for fishing activity and one generation for fishery resources to recover from 99 percent of the impacts during a single action period. To address the threat to essential fish habitat and marine fishery resources from oil spill, BOEM (MMS) proposed industry Oil Spill Response Plans as a mitigation measure. These plans are required by BOEM for all owners or operators of oil handling, storage, or transportation facilities that are located seaward of the coast.

In the subsequent Essential Fish Habitat Consultation that NOAA conducted based on the BOEM (MMS) Essential Fish Habitat Assessment, NOAA noted concerns with portions of the BOEM (MMS) Assessment related to oil spill impacts.[9] However, when combined with information contained in the NEPA analysis, they found that the Essential Fish Habitat Assessment was an acceptable evaluation of potential adverse impacts overall. Although NOAA did add a number of essential fish habitat conservation recommendations to the mitigation measures proposed by BOEM (MMS), NOAA did not require any additional conservation measures to address oil spill threats beyond the Oil Spill Response Plans.

Issues for Commission Consideration:
In hindsight, the BP oil spill and subsequent impact on essential fish habitat raises the question of whether NOAA should have more firmly questioned the BOEM (MMS) oil spill risk assumptions and projected oil spill impacts in the Essential Fish Habitat Assessment. Another deficiency highlighted in the wake of the BP oil spill is the fact that NOAA relied on an assertion by BOEM (MMS) that the Oil Spill Response Plans were sufficient to address the threat of oil spills on essential fish habitat. Because the Essential Fish Habitat Consultation was programmatic in nature and covered future activities in the Gulf of Mexico, the individual Oil Spill Response Plans were not

[7] MMS EFH Assessment, 1999. Page 5.
[8] MMS EFH Assessment 1999. Page 16.
[9] NOAA National Marine Fisheries Service, Southeast Regional Office. Letter to MMS dated July 1, 1999.

available for review by NOAA as part of the consultation.[10] The adequacy and review process for those plans following the Deepwater Horizon incident has been seriously questioned. If BOEM and NOAA are going to rely on the Oil Spill Response Plans to protect essential fish habitat from oil spills, then changes are needed to improve their review and transparency. Given the fact that NOAA environmental consultations rely on the plans to limit impacts on marine species in the case of an oil spill, the Commissioners may want to recommend that the plans undergo a more thorough review before their approval, including an interagency review by the U.S. Coast Guard, Environmental Protection Agency, and NOAA. The Commissioners may also want to consider ways that review and approval for the plans can be more transparent, including the option to require a public comment period before their approval by BOEM. For transparency purposes, it would also be helpful for a copy of all Oil Spill Response Plans to be posted online.[11]

NOAA has recognized the need to update the 1999 Programmatic Essential Fish Habitat Consultation in light of the oil spill. On September 24, 2010, NOAA formally requested that BOEM conduct a new Essential Fish Habitat Assessment and reinitiate consultation under the Magnuson-Stevens Act.[12] This will provide an opportunity to re-evaluate the previous assumptions related to oil spill risk and impacts to essential fish habitat. This consultation will be again be conducted on a programmatic basis, which allows NOAA to broadly evaluate the cumulative impacts of oil and gas operations across the Gulf of Mexico planning areas. However, NOAA may also want to consider whether the broad consultation should be supplemented with additional analyses on a smaller geographic scale that would allow a finer analysis of habitat impacts on a project by project basis during the later stages of the BOEM process (such as during approval for exploration or development and production plans).

Endangered Species Act

The Endangered Species Act of 1973, which seeks to conserve threatened or endangered species, is another federal law applicable to oil and gas drilling activities on the outer continental shelf. The Act is jointly implemented by NOAA Fisheries Service and the U.S. Fish and Wildlife Service. Those two agencies have listed more than 1,900 species as endangered or threatened under the Endangered Species Act, which are then entitled to the Act's safeguards. NOAA is responsible for 69 listed marine and anadromous species that include sea grass, corals, fish, turtles, and whales.

The Endangered Species Act is one of the nation's most demanding environmental laws. It applies in some respects exclusively to federal agencies, and in other respects to

[10] In practice, the Oil Spill Response Plans are not provided to other federal agencies outside of BOEM for comment or review. They are also not subject to any form of public comment.

[11] This will likely require industry submission of two plans, including one "clean" version with all Personally Identifiable Information and proprietary information removed from the document.

[12] Letter from Roy Crabtree (NOAA/NMFS) to Joseph Christopher (BOEM) dated September 24, 2010.

any activity, governmental or private, that can harm endangered or threatened species. The Act imposes absolution prohibitions, permitting limitations, environmental assessment mandates, and interagency consultation requirements.

One of the Act's most sweeping restrictions is making unlawful the "take" of any endangered species absent a permit that is only available in limited circumstances. The Act broadly defines "take" as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct). Through administrative regulation, the Act's prohibition on takings has not only been extended to threatened species, but the definition of "harm," has been extended to include the modification of species habitat that physically injures or kills an individual member of a species. As a result, the Act makes activities not directed to the species themselves, but that harm those species by causing a change in their habitat, unlawful. The Act also directs NOAA and the U.S. Fish and Wildlife Service to identify endangered and threatened species critical habitat.

Section 7 of the Endangered Species Act bars federal agencies from authorizing, funding, or carrying out any action likely to jeopardize the continued existence of any endangered or threatened species, or adversely modifying or destroying their critical habitat. Section 7 sets forth a series of consultation requirements with NOAA and the Fish and Wildlife Service designed to ensure compliance with this prohibition. Federal agencies must consult with NOAA or the Fish and Wildlife Service if there is reason to believe that an endangered or threatened species may be in the area affected by the proposed action. If NOAA or the Fish and Wildlife Service advise that such a species may be in the area, then the federal agency must prepare a "Biological Assessment" that identifies any endangered or threatened species that might be adversely affected. If the Assessment concludes that there is a potential for an adverse effect, then NOAA or the Fish and Wildlife Service (depending on which Service is responsible for that species) must prepare a "Biological Opinion." The Biological Opinion describes the extent of the adverse effect, whether the proposed agency action will jeopardize the continued existence of endangered or threatened species, and whether the proposed agency action will adversely modify or destroy critical habitat.

If NOAA or the Fish and Wildlife Service determine that either jeopardy or habitat modification will occur, they shall suggest "reasonable and prudent alternatives" that the federal agency can implement to reduce the impact so the activity can occur without violating Section 7. The federal agency must implement these alternatives if they intend to move forward with the proposed action. However, absent an exemption from Section 7, if NOAA or the Fish and Wildlife Service conclude that there are no reasonable and prudent alternatives, then the federal agency is barred from taking its planned action. In this respect, the Endangered Species Act's consultation requirement is far tougher than that provided by either NEPA or the Magnuson-Stevens Act – the result of consultation may be to prohibit the proposed federal agency action altogether.

Potential impacts from outer continental shelf oil and gas activities that are likely to trigger Section 7 of the Endangered Species Act include: disturbance or damage to critical habitat from construction of pipelines or placement of anchors and structures on the ocean floor; acoustic impacts from seismic surveys; strikes of listed sea turtles or marine mammals by vessels supporting oil and gas activities; discharge of toxic fluids or marine debris; and oil spills. NOAA handles Section 7 Consultations for Gulf of Mexico oil and gas activities in a programmatic way, consulting on the full BOEM 5-Year Leasing Program, rather than individual lease sites or plans.

NOAA completed its most recent formal oil and gas consultation and Biological Opinion for the Gulf of Mexico in June 2007 for seven listed species (five species of sea turtle, Gulf sturgeon, and sperm whales). The consultation considered the effects of activities occurring under the Five-Year Outer Continental Shelf Oil and Gas Leasing Program (2007-2012) in the Central and Western Planning Areas of the Gulf of Mexico. Specific activities that were analyzed included seismic surveys, platform construction activities, well drilling and development, pipeline installation, vessel traffic, helicopter use, and spilled oil. Effects were considered over the typical 40-year lifespan of all leases that would be granted during the 2007-2012 lease sale period. They included: vessel strikes; acoustic impacts; marine debris; habitat destruction; animal displacement; discharge of heavy metals; and degradation of water quality. NOAA determined that sea turtles and Gulf sturgeon were not likely to be adversely affected by most of these effects, but opted to conduct a more detailed analysis of the effects of vessel strikes on sea turtles, seismic activity on sperm whales, and the effects of oil spills on all listed species.

The NOAA analysis of potential oil spill effects on listed species and their habitat was comprehensive. However, NOAA's estimation of potential takes of endangered and threatened species from oil spills relied on BOEM (MMS) oil spill risk analysis modeling. With the benefit of hindsight, the BOEM (MMS) risk analysis significantly underestimated the worse case spill scenario as approximately 630,000 gallons of oil over the 40-year lifetime of the proposed leases in the Gulf of Mexico Central Planning Area, and up to 875,490 gallons of oil in the Gulf of Mexico Western Planning Area.[13] Based on this, NOAA subsequently underestimated the number of potential takes of endangered and threatened species by oil spill.

NOAA's Biological Opinion concluded that the proposed oil and gas activities were not likely to jeopardize the continued existence of any sea turtle species, Gulf sturgeon, or sperm whales. The Biological Opinion also provided reasonable and prudent measures designed to reduce the risk of accidental vessel strike with sea turtles, as well as a series of conservation recommendations. These conservation recommendations focused on

[13] NOAA Fisheries Service, Southeast Regional Office. Endangered Species Act - Section 7 Consultation. June 29, 2007. Page 75.

the need for: research on the cumulative effects of noise from oil and gas construction activities; proposed cooperative NOAA-BOEM (MMS) work on marine mammal observer programs; reduction of marine debris; and research on the impacts of oil and gas activities on protected species. Although NOAA considered the impacts of oil spills on listed species as part of the Biological Opinion and jeopardy analysis, NOAA did not authorize the take of any endangered or threatened species from oil spills due to the fact spills are considered an unlawful activity. BOEM (MMS) implemented the terms and conditions of the Biological Opinion through three Notices to Lessees in 2007.[14]

Issues for Commission Consideration:
In light of the BP oil spill and its impacts on living marine resources, NOAA and BOEM evaluated whether ecological conditions and threats to endangered and threatened species have changed or increased enough that consultation under Section 7 of the Endangered Species Act should be re-initiated for oil and gas activities in the Gulf of Mexico. On July 30, 2010, BOEM formally requested re-initiation of interagency consultation. NOAA concurred with this request on September 24, 2010. In NOAA's response letter to BOEM, NOAA highlighted concerns that the previous BOEM environmental impact statement did not estimate the size of a catastrophic spill, and NOAA was instead required to rely on historical data and other assumptions to estimate the potential size and impacts of such a spill on listed species. NOAA does not believe that the oil spill assumptions sufficiently addressed the potential risks of a spill the magnitude of the BP oil spill, or the associated risks to listed species and their habitats. NOAA specifically requested that BOEM re-analyze the risk of oil spills and the potential impacts of oil and gas industry response activities on listed species and their habitats, as well requesting that BOEM conduct new oil spill probabilities and modeling of different sized spills (including catastrophic spills).[15]

The Commissioners may want to reinforce the request that BOEM update and revise its oil spill risk analyses reports for the Gulf of Mexico and Alaska with information learned during the BP oil spill. It may be appropriate for BOEM to complete separate oil spill risk analyses for shallow water oil and gas activity and deepwater activity in the Gulf of Mexico. NOAA should integrate these new analyses into the estimation for takes of threatened and endangered species in an updated Biological Opinion.

The Commissioners may also want to consider whether to recommend establishing an internal expertise at NOAA for conducting oil spill risk analyses, or opt for another method to independently review BOEM oil spill risk analyses. Because of the link between the BOEM risk analysis report and the NOAA estimation of takes in the Biological Opinion, it is important that the oil spill risk analysis be as accurate as possible.

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[14] Minerals Management Service. Notice to Lessees 2007-G02, 2007-G03, and 2007-G04.
[15] Letter from NOAA to BOEM. September 24, 2010.

Marine Mammal Protection Act (MMPA)

The Marine Mammal Protection Act of 1972 was enacted in response to concerns that significant declines in some species of marine mammals were caused by human activities. The Act established a national policy to prevent marine mammal species and population stocks from declining beyond the point where they ceased to be significant functioning elements of their ecosystems. It applies to all marine mammals, regardless of population stock health or size.

Unlike NEPA, the Magnuson-Stevens Act, or the Endangered Species Act, the Marine Mammal Protection Act includes no interagency consultation or environmental assessment requirements. The Act instead directly regulates human activities that threaten to harm marine mammals by making it generally illegal to "take" a marine mammal without prior authorization from NOAA Fisheries Service or the U.S. Fish and Wildlife Service.[16] "Take" under the Marine Mammal Protection Act is defined at a lower threshold than the Endangered Species Act: in addition to including hunting, capturing, or killing (real or attempted) a marine mammal, "take" under the Marine Mammal Protection Act also includes "harassment." Harassment is defined as any act of pursuit, torment, or annoyance that has the potential to injure or disturb a marine mammal in the wild by causing disruption of behavioral patterns, including migration, breathing, nursing, breeding, feeding, or sheltering.[17]

Under the Act, NOAA and the U.S. Fish and Wildlife Service authorize the take of small numbers of marine mammals incidental to otherwise lawful activities (except commercial fishing), provided that the takings would have no more than a negligible impact on those marine mammal species, and would not have an unmitigable adverse impact on the availability of those species for subsistence uses. In the event that any aspect of a proposed activity is expected to result in a take, the project applicant is required to obtain an incidental take authorization (either a Letter of Authorization or an Incidental Harassment Authorizations) in advance from NOAA Fisheries Service or the U.S. Fish and Wildlife Service. When issued, these authorizations include mitigation, monitoring, and reporting requirements that must be followed by the applicant.

There are 28 species of marine mammals in the Gulf of Mexico. Activities from outer continental shelf oil and gas activities that could result in potential takes of marine mammal and a need for an incidental take authorization include: activities related to the

[16] There are approximately 125 marine mammal species managed under the MMPA. The U.S. Fish and Wildlife Service manages 8 species of walrus, polar bear, sea otter, marine otter, manatees, and dugong. The remaining 117 species are managed by NOAA, including all whales, dolphins, porpoise, sea lions, and seals.

[17] A different definition applies to military readiness activities and some scientific research activities.

explosive removal of offshore structures[18], seismic exploration, construction, and drilling. When NOAA evaluated oil and gas activities in the Gulf of Mexico, they determined that the explosive removal of offshore structures posed the largest potential harassment threat to marine mammals, followed by seismic activities. As a result, these two areas have been viewed as the highest priority for Marine Mammal Protection Act review and permitting. In 1989, the American Petroleum Institute petitioned NOAA for rulemaking related to the incidental take of dolphins during structure removal operations. NOAA promulgated the Marine Mammal Protection Act Incidental Take Authorization regulations in 1995. These regulations were most recently re-issued for the Gulf of Mexico in 2008.[19]

In 2002, BOEM (MMS) applied to NOAA for Marine Mammal Protection Act incidental take regulations for geological and geophysical exploration, or seismic surveys, in the Gulf of Mexico. The application was specific to the potential take of sperm whales. At that time, BOEM (MMS) was in the process of developing a Programmatic Environmental Assessment to support the action. Upon review, NOAA found that the Environmental Assessment would not be sufficient for the regulations, and instead requested that a full Environmental Impact Statement be prepared. NOAA also determined that the species covered by the regulations should be expanded beyond sperm whales. In 2004, NOAA received a revised application from BOEM (MMS) that included dolphins, beaked whales, and Bryde's whales. BOEM (MMS) later decided to make additional changes to the application, which has not yet been re-submitted to NOAA for processing. In the meantime, BOEM and NOAA are working together as co-agencies in the preparation of a Draft Programmatic Environmental Impact Statement for Geological and Geophysical Exploration of Mineral and Energy Resources in the Gulf of Mexico to support the Marine Mammal Protection Act regulations.

Issues for Commission Consideration:
Although there has not been a complete lack of activity related to the Marine Mammal Protection Act authorizations for oil and gas seismic activity in the Gulf of Mexico, it is clear that it has not been the highest priority for NOAA or BOEM. Staffing constraints and a heavy NOAA work load related to U.S. Navy permits appear to have contributed to the slow pace of progress. The Commissioners may want to recommend that both agencies place a higher priority on completion of the seismic permitting in the Gulf of Mexico. Additional resources could also be extremely helpful to expedite Marine

[18] *From the "Request to NOAA for Incidental Take Regulations Governing Explosive-Severance Activities Conducted during Structure-Removal Operations on the OCS of the Gulf of Mexico":* During exploration, development, and production operations for mineral extraction on the Gulf of Mexico OCS, the seafloor around activity areas becomes the repository of temporary and permanent equipment and structures. In compliance with OCS Lands Act regulations and Minerals Management Service guidelines, operators are required to remove seafloor obstructions from their leases within one year of lease termination, or after a structure has been deemed obsolete or unusable. To accomplish these removals, a host of activities are required to (1) mobilize necessary equipment and service vessels, (2) prepare the decommissioning targets (e.g., piles, jackets, conductors, bracings, wells, pipelines, etc.), (3) sever the target from the seabed and/or into manageable components, (4) salvage the severed portion(s), and (5) conduct final site-clearance verification work.

[19] Federal Register. Vol. 73, No. 119. June 19, 2008.

Mammal Protection Act permitting for oil and gas activities, as well as to expand their scope. Finally, additional funding for NOAA's marine mammal stock assessments would also serve to strengthen the science underlying the Marine Mammal Protection Act incidental take authorizations and their associated NEPA documents.

The Commissioner should keep in mind that Marine Mammal Protection Act permitting in the Arctic is different than the Gulf of Mexico. Rather than covering activities in a programmatic fashion, similar to how explosive removal and seismic activities in the Gulf of Mexico are addressed by NOAA and BOEM, oil and gas activities are considered on an individual activity basis in the Arctic. For example, each company proposing to conduct seismic activities in the Arctic will submit an individual application to NOAA or the U.S. Fish and Wildlife Service for a single year of authorization. Part of the difference in approaches between the Gulf of Mexico and Alaska can be attributed to the reliance on marine mammals for subsistence by Alaskan natives, and the Marine Mammal Protection Act requirement that activities not have an unmitigable adverse impact on species or stocks of marine mammals for subsistence uses.[20] There are also differences in the types and distribution of marine mammals, as well as the extent of oil and gas activities between the two regions.

National Marine Sanctuaries Act

Congress first enacted the National Marine Sanctuaries Act in 1970, and has amended and reauthorized the Act on six subsequent occasions. The Act provides NOAA with the authority to protect and manage the resources of significant marine areas of the United States. NOAA's administration of the marine sanctuary program involves designation of National Marine Sanctuaries and adopting management practices to protect the conservation, recreational, ecological, educational, and aesthetic values of those areas.

The Sanctuaries Act and implementing regulations regulate activities within Sanctuaries that might cause adverse impacts on Sanctuary resources. The Act also includes an interagency consultation requirement. It requires any federal agency that is taking an action either inside or outside the boundary of a Sanctuary that is likely to injure Sanctuary resources to provide the Secretary of Commerce with a written statement describing the action and its potential effect. If the Secretary of Commerce finds that the federal action or permitted activity is likely to injure Sanctuary resources, the Secretary will recommend alternatives to the proposed action. These alternatives could include choosing a different location for the activity. If the action agency chooses not to follow the recommended alternatives, they must provide NOAA with a written explanation. If Sanctuary resources are eventually destroyed, lost, or injured after a federal agency chooses not to follow NOAA's alternatives, the federal agency is

[20] Marine Mammal Protection Act of 1972, as amended 2007. Sections 101(a)(5)(A) and 101(a)(5)(D).

required to act to prevent further damage and to restore or replace the resources in a manner approved by NOAA.

There are two Sanctuaries in the Gulf of Mexico, both of which include unique reef ecosystems: Flower Garden Banks and Florida Keys National Marine Sanctuaries. Flower Garden Banks National Marine Sanctuary is approximately 42 square nautical miles in size and consists of three separate areas that are located approximately 70 to 115 miles off the coasts of Texas and Louisiana in the western Gulf of Mexico. The Banks contain the northernmost coral reefs in the continental United States. They sit on salt domes that rise to within 55 feet of the surface and serve as a regional reservoir of shallow water Caribbean reef fishes and invertebrates.[21] The Florida Keys National Marine Sanctuary is located in the far southeast corner of the Gulf of Mexico, encompassing 2,900 square nautical miles and stretching across the Florida Keys from the Gulf of Mexico to the Atlantic Ocean. The Keys Sanctuary contains extensive offshore coral reefs, fringing mangroves, seagrass meadows, hard bottom regions, patch reefs, and bank reefs – a complex marine ecosystem that serves as the foundation for the commercial fishing and tourism based economies that are vital to south Florida.[22]

While each Sanctuary has its own unique set of regulations, there are some regulatory prohibitions relevant to oil and gas activities that are typical for many sanctuaries: discharging material or other matter into the sanctuary; disturbance of, construction on, or alteration of the seabed; disturbance of cultural resources; and exploring for, developing, or producing oil, gas, or minerals (with a grandfather clause for preexisting operations). Oil and gas activities are not allowed within either of the Gulf of Mexico Sanctuaries, with the exception of one preexisting oil and gas platform that is located within the boundaries of the Flower Garden Banks. The Flower Garden Banks National Marine Sanctuary office has reviewed proposals for oil and gas activities near the Sanctuary. For a number of actions that were proposed in close proximity to Flower Garden Banks, NOAA has conducted consultations pursuant to the Sanctuaries Act. These consultations consistently warn BOEM (MMS) about potential impacts to sanctuary resources and associated liability in the case of an accidental oil spill.

Issues for Commission Consideration:
The BP oil spill highlighted the realistic possibility that oil from a spill in the Central or Western Gulf of Mexico could be carried long distances to Flower Garden Banks or the Florida Keys National Marine Sanctuary via the Gulf of Mexico Loop Current or associated eddies. If this occurred, it could potentially damage Sanctuary resources both inside and outside the boundaries of the Sanctuaries. The Commissioners and NOAA may want to consider whether NOAA should expand the geographic scope of

[21] NOAA National Marine Sanctuaries Program – Encyclopedia of the Sanctuary, Flower Garden Banks. http://www8.nos.noaa.gov/onms/park/Parks/?pID=9
[22] NOAA National Marine Sanctuaries Program – Encyclopedia of the Sanctuary, Florida Keys. http://www8.nos.noaa.gov/onms/park/Parks/?pID=8

its National Marine Sanctuary Act consultations for Deepwater oil and gas activities that are proposed at a distance from the Gulf of Mexico Sanctuaries, but have the potential for large oil spills that could impact Sanctuary resources.

Coastal Zone Management Act

The Coastal Zone Management Act set a national policy to encourage states to preserve, protect, develop, restore and enhance natural coastal resources. It also encourages coastal states to develop and implement comprehensive programs to manage and balance competing uses of and impacts to coastal resources. The Act emphasizes the primacy of state decision-making regarding the coastal zone through its "federal consistency" provision. This provision requires federal agency activities that have reasonably foreseeable effects on land, water, or natural resources of the state's coastal zone to be consistent (to the maximum extent practicable) with the state's federally approved coastal management program. If they are not, the state may object to the federal action. If a state coastal management program makes a federal consistency objection, the non-federal applicant for the activity may appeal to the Secretary of Commerce. If the Secretary does not override a state's objection (decision based on the objectives of the Coastal Zone Management Act or national security concerns), the federal agency may not move forward with issuing the authorization or funding.

State Coastal Zone Management Act federal consistency reviews for oil and gas activities occur during both the exploration plan and the development and production plan approval stages at BOEM. The Supreme Court ruled in 1984 that consistency reviews were not required at the lease sale stage.[23] According to NOAA documentation, tens of thousands of federal license or permit activities, outer continental shelf oil and gas activities, and federal financial assistance activities have been reviewed for consistency since approval of the first coastal management plan in 1978. States have concurred with approximately 95 percent of these actions.[24] The Secretary of Commerce has made 43 appeal decisions, of which 14 were related to outer continental shelf oil and gas activities. Decisions by the Secretary have been split evenly between overriding the state objection and not overriding the state objection. Four of these appeal decisions were related to oil and gas activities in the Gulf of Mexico – all in response to Coastal Zone Management Act consistency objections that were filed by the State of Florida (three cases decided in 1993 and one case decided in 1995).

Issues for Commission Consideration:

The BP oil spill demonstrated the potential for a spill to cover a massive geographic area, as well as highlighted the threat of the oil being carried to distant locations and

[23] Secretary of the Interior v. California, 464 U.S. 312 (1984).

[24] NOAA. *Appeals to the Secretary of Commerce Under the Coastal Zone Management Act (CZMA).* http://coastalmanagement.noaa.gov/consistency/media/appealslist.pdf March 10, 2010

coastlines via the Gulf of Mexico loop current and other ocean circulations. As a result, it raises questions that the Commissioners may want to consider related to the future interpretation of "reasonably foreseeable effects" under the Coastal Zone Management Act. NOAA's current test for reasonably foreseeable effects is whether it is reasonably foreseeable that impacts that occur outside of the state's coastal zone will affect uses and resources of that state's coastal zone.[25] Should states with coastlines that are located at a distance from outer continental shelf activities have the right to object to federal authorization of those activities due to the potential threat they may cause to the state coastal resources? This question could be important as states like Florida, who has traditionally opposed oil and gas activities near its coastal zone, look to protect their ocean and coastal tourism and fishing industries from the possibility of a future spill. Although it is possible that an oil spill in the Gulf of Mexico could be carried by currents to impact coastal resources of states along the east coast, is it reasonably foreseeable? NOAA will need to carefully consider whether or not these geographically distant impacts meet a threshold for "reasonably foreseeable" in light of the BP oil spill.

Clean Water Act

The Clean Water Act has the objective of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters. The Act establishes the basic structure for regulating discharges of pollutants into the waters of the U.S. and for regulating surface water quality standards. Under the Clean Water Act, it is unlawful for any person to discharge any pollutant from a point source into U.S. waters without a National Pollution Discharge Elimination System (NPDES) permit from the U.S. Environmental Protection Agency (EPA).

The EPA regulates all waste streams generated from outer continental shelf oil and gas activities, following guidelines that are intended to prevent the degradation of the marine environment and that require an assessment of the effects of the proposed discharges on sensitive biological communities and aesthetic, recreational, and economic values.[26] Outer continental shelf oil and gas related issues that fall under the purview of the Clean Water Act include water pollution from exploratory wells and development and production facilities (sanitary wastes, toxic pollutants, chemical oxygen demand, total organic carbon, nitrogen, phosphorus, etc); oil discharges; and cooling water intake. BOEM inspectors perform most of the NPDES offshore platform compliance inspections for EPA.[27] Additional inspections are performed by the US Coast Guard Marine Safety Office.

EPA Region 6 reissued a NPDES Outer Continental Shelf General Permit for existing

[25] NOAA Office of Ocean and Coastal Management. CZMA: Federal Consistency Overview. February 20, 2009. http://coastalmanagement.noaa.gov/consistency/media/FC_overview_022009.pdf

[26] BOEM – Branch of Environmental Assessment, Clean Water Act. www.boemre.gov/eppd/compliance/cwa/index.htm

[27] EPA Region 6 - Compliance and Enforcement. http://www.epa.gov/region6/6en/w/offshore/home.htm

and new source discharges in the central and western Gulf of Mexico off the coasts of Louisiana and Texas in October 2007 (expires September 2012). The remainder of the Gulf of Mexico is covered by a NPDES permit issued by EPA Region 4 in March 2010 (expires March 2015), including the outer continental shelf off the coasts of Florida, Alabama, and Mississippi. The Region 6 permit is the one that applies to the Mississippi Canyon 252 site. It established effluent limitations, prohibitions, reporting requirements, and other conditions and discharges from oil and gas facilities and supporting pipeline facilities that are engaged in production, field exploration, developmental drilling, facility installation, well completion, well treatment operations, well workover, and abandonment or decommissioning operations.

Issues for Commission Consideration:
Although the Commission staff is still conducting research, no significant concerns regarding the Clean Water Act permitting process for offshore oil and gas activities in the Gulf of Mexico have been raised to date. However, as the Commissioners consider different regimes for BOEM offshore inspection, they may want to consider how enforcement of NPDES permits is integrated into the process.

Conclusions

One of the most striking conclusions that can be taken from the analysis of federal environmental reviews, interagency consultations, and permitting requirements in the Gulf of Mexico is the fact that they almost all relied to some extent on BOEM (MMS) conducted or approved environmental analyses, impact assessments, oil spill risk analyses, and oil spill response plans. If there are flaws in the BOEM analyses or documents, it is likely to have ripple effects through the other environmental reviews, consultations, and permits. The most troublesome linkage in the case of the Deepwater Horizon incident are the impacts of a BOEM oil spill risk analyses that failed to account for a "worse worse case scenario," and industry prepared/BOEM (MMS) approved Oil Spill Response Plans that received a low level of BOEM (MMS) oversight and were approved through a process that lacked transparency and rigor. It should be noted that the BOEM oil spill risk analysis also influences BOEM NEPA analyses, serving as a basis for evaluating potential negative impacts of oil spills on living marine resources and habitats in Environmental Assessments and Environmental Impact Statements. In the case of NOAA's environmental consultations, an underestimation of impacts to endangered and threatened species, marine fisheries and their habitat, and marine mammals can all be linked to back to BOEM estimations of oil spills and their impacts, and a failure by BOEM to question the industry's ability to prevent and respond to a catastrophic blow out in their Oil Spill Response Plans.

This review of environmental reviews, consultations, and permits also raises a number

of other issues for consideration by the Commissioners:[28]

- What is the best approach for strengthening the science and analyses underlying federal environmental reviews, interagency consultations, and permitting requirements for offshore oil and gas activities? How can the science be better connected to the needs of the environmental regulatory processes?

- As the Commissioners consider different options for reorganizing BOEM, what is the best structure to ensure that BOEM environmental reviews, oil spill risk analyses, and oil spill response plans are conducted with a high level of integrity, oversight, and independence from political influence? What structure will best ensure that the science stays connected to the environmental regulatory review and decision-making process at BOEM?

- Should NOAA be increasing its frequency of interaction with BOEM related to the species and habitats over which it has statutory responsibilities to protect? Should NOAA and BOEM be consulting informally more frequently throughout the oil and gas planning, exploration, and development process? Should NOAA be conducting additional environmental consultations or permitting activities during the BOEM process?

- What level of additional resources and staff are needed to implement changes that will strengthen or expand environmental review and oversight at both BOEM and NOAA? Should dedicated funding for these activities be provided through the Oil Spill Trust Fund?

[28] Note that linkages and recommendations related to the BOEM NEPA process and the BOEM Environmental Studies Program will be considered in separate documents.

PROFESSOR TYLER PRIEST

Clinical Assistant Professor and Director of Global Studies, C.T. Bauer College of Business, University of Houston

History & Future of Offshore Drilling

Anticipated Focus:

Professor Tyler Priest is preparing a draft of Chapter Three of the report and will be available by phone to answer questions.

Biography:

Professor Tyler Priest, Clinical Assistant Professor and Director of Global Studies, is a specialist in the history of energy, business, and globalization. In 2004, Priest helped found the Global Studies Program, which provides a broad, interdisciplinary perspective on international business and the world economy. In 2007, he received the Bauer College's Wayne Payne Award for Teaching Excellence.

Priest is a leading expert on the history of offshore oil and gas in the United States and around the world. He is a regular commentator on the subject of offshore oil for major print, radio, and television media. In 2008, he won the Geosciences in the Media Award from the Association of American Petroleum Geologists (AAPG) for his book, *The Offshore Imperative: Shell Oil's Search for Petroleum in Postwar America* (Texas A&M Press, 2007), and the Alice Hamilton Prize from the American Society for Environmental History (ASEH) for his article published in *Enterprise & Society*, "Extraction Not Creation: The History of Offshore Petroleum in the Gulf of Mexico" (June 2007). He is currently working on a book manuscript entitled "Deepwater Horizons: Managing Offshore Oil and Gas in the Gulf of Mexico."

Priest has more than ten years of public and corporate history experience, including work as chief historian on a Shell Oil corporate history project and chief historian on a series Department of Interior studies to document the history of the offshore oil industry in the Gulf of Mexico. His other public history and consulting work includes his positions as a member of the Outer Continental Shelf (OCS) Scientific Committee for the Minerals Management Service; a U.S. Department of Interior member of the Advisory Committee and Technology Pioneer Committee of the Offshore Energy Center (OEC); and chief historian on the Association for International Petroleum Negotiators' (AIPN) history project.

PROFESSOR JODY FREEMAN

Archibald Cox Professor of Law, Harvard Law School

Regulatory Structure

Anticipated Focus:

Professor Jody Freeman will discuss how one might structure a decision-making process to provide for better and more rigorous consideration of science and in particular environmental risk factors in the oversight of offshore oil leasing.

Biography:

Professor Jody Freeman is the Archibald Cox Professor of Law at Harvard Law School. She is a nationally prominent scholar of administrative and environmental law, and the founding director of the Harvard Law School Environmental Law and Policy Program. Freeman served in the White House as Counselor for Energy and Climate Change from 2009-10. In that role, she contributed to a variety of policy initiatives on energy and climate issues, including renewable energy, energy efficiency, greenhouse gas regulation, and the pursuit of comprehensive energy and climate legislation that would put a market-based cap on carbon emissions. She played a key role in the negotiation of the historic national auto agreement, which set the first ever greenhouse gas standards for cars and trucks.

Freeman's major writings in environmental law include Climate Change and US Interests, 109 Columbia L. Rev. 1531 (2009) (with Guzman), Timing and Form of Federal Regulation: The Case of Climate Change, 155 U. Penn. L. Rev. 1499 (2007) (with DeShazo), and Modular Environmental Regulation, 54 Duke L. Rev. 795 (2005) (with Farber). She is the co-author of a leading casebook in environmental law, and has produced two other significant books: *Moving to Markets in Environmental Regulation, Lessons after Twenty Years of Experience* (Oxford University Press 2006, edited with Charles Kolstad) and *Government by Contract: Outsourcing and American Democracy* (Harvard University Press, 2009, edited with Harvard Law School Dean Martha Minow). In 2006, Freeman authored an amicus brief on behalf of former Secretary of State Madeleine Albright, *MA v. EPA*, the global warming case decided by the Supreme Court in 2007. Her analysis of the implications of the case, *MA v. EPA: From Politics to Expertise*, (with HLS Professor Adrian Vermeule) appears in the 2007 Supreme Court Review.

Freeman is also a leading scholar of administrative law and regulation, and a prominent thinker on collaborative and contractual approaches to governance. Her major works in administrative law include The Private Role in Public Governance 75 NYU L. Rev. 543 (2000) (for which she received the annual scholarship award from the American Bar Association's Section on Administrative Law and Regulatory Practice for the single best article in the nation on administrative law), Extending Public Law Norms Through Privatization, 116 Harv. L. Rev.1285 (2003), The Contracting State, 28 FLA. St. U. L. Rev 155 (2001), Regulatory Negotiation and the Legitimacy Benefit, 9 NYU Env'l L. Rev. 60 (2001) (with Langbein), and Collaborative Governance in the Administrative State, 45 UCLA L. Rev 1 (1997). She has also written

extensively on the dynamic between Congress and Executive agencies (The Congressional Competition to Control Delegated Power, 81 Tex. L. Rev. 1443 (2003)), and among agencies (Public Agencies as Lobbyists, 105 Colum. L. Rev. 2217 (2005)) (both with DeShazo). Her administrative law writings have been translated into several languages; a collection of her articles was published in China in 2009. Professor Freeman recently joined a prominent casebook in administrative law, with Cass, Diver, Beermann, Administrative Law: Cases and Materials (6th ed., Aspen Press, forthcoming 2010). In 2010, she was appointed a public member of the prestigious Administrative Conference of the United States.

Freeman consults on administrative law and environmental law matters, and lectures widely both in the U.S. and abroad. In 2007, she delivered invited lectures at the Shanghai People's Congress and Beijing University and in 2008 delivered a public lecture on environmental law and ethics at Princeton University.

Freeman has testified in Congress and before state commissions on administrative law and environmental law issues. She has served as vice-chair of the ABA Administrative Law Section sub-committees on Dispute Resolution and Environmental Law and Natural Resources. In 2006, she chaired the Executive Committee on Administrative Law for the Association of American Law Schools.

Prior to joining HLS, Professor Freeman taught for 10 years at UCLA where in 2004 she received the law school's Rutter Award for excellence in teaching.

PROFESSOR NANCY LEVESON

Professor of Aeronautics and Astronautics and Professor of Engineering Systems, MIT

Reducing Accidents in Oil and Gas Industry

Anticipated Focus:

Professor Nancy Leveson will comment on ways to reduce accidents in the oil and gas industry.

Biography:

Professor Nancy Leveson is Professor of Aeronautics and Astronautics and also Professor of Engineering Systems at MIT. She is an elected member of the National Academy of Engineering (NAE). Leveson conducts research on the topics of system safety, software safety, software and system engineering and human-computer interaction. In 1999, she received the ACM Allen Newell Award for outstanding computer science research and in 1995 the AIAA Information Systems Award for "developing the field of software safety and for promoting responsible software and system engineering practices where life and property are at stake." In 2005, Leveson received the ACM Sigsoft Outstanding Research Award. She has published over 200 research papers and is author of a book, *Safeware: System Safety and Computers*, published by Addison-Wesley. She consults extensively in many industries on the ways to prevent accidents.

National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling

---Draft---

Staff Working Paper No. 1[1]

A Brief History of Offshore Oil Drilling

The BP Deepwater Horizon explosion in April 2010 occurred after a dramatic, three-decade-long reconfiguration of how the United States and several other nations drill for oil. Technology, law, and geology pushed oil exploration farther from U.S. shores, as land-based exploration became less fruitful, and the global demand for energy ramped up. Oil production off American coasts began well over a century ago, but the move into deepwater and ultra-deepwater is a relatively recent phenomenon.

Developing the Shallow Waters

Offshore drilling for oil began off the coast of Summerfield, California, just south of Santa Barbara, in 1896. Closely resembling boardwalks in appearance, rows of narrow wooden piers extended up to 1,350 feet from the shoreline, their piles reaching 35 feet to the floor of the Pacific. Using the same techniques as then used on land, steel pipes were pounded 455 feet below the seabed. The hunt for oil ultimately produced only a modest yield. The field's production peaked in 1902, and the wells were abandoned several years later. The project left behind a beach blackened by oil and marred by rotting piers and derricks, the latter

[1] Staff Working Papers are written by the staff of the BP Deep Horizon Oil Spill Commission for the use of the members of the Commission. They are prepared before the conclusion of the Commission's work and are subject to further refinement and updating.

providing ugly reminders of the pioneering effort that stood until a strong tidal wave wiped out the remaining structures in 1942.

Another offshore milestone was achieved in 1947, when Kerr-McGee Oil Industries drilled the first productive well beyond the sight of land, located 10.5 miles off the Louisiana coast, but still in water depths of only about 18 feet. By that time, drilling technology had advanced far beyond the methods used to dig the first wells in Summerfield. Sophisticated rotary rigs had replaced unidirectional pile drivers. Increasingly, firms chose steel over wooden drilling structures, recognizing the metal's greater structural integrity for rigs and its lower costs over the life of the well. Offshore operators, such as Texaco and Shell, had recently pioneered "barge drilling," the practice of towing small mobile platforms to new locations at the end of drilling jobs.[2] As the oil companies grew more comfortable operating in the offshore environment, they adapted land-drilling methods – especially in the uniquely shallow continental shelf in the Gulf of Mexico.

Just as advances in technology opened up large swathes of the offshore to the possibility of drilling, a legal impasse of major proportions brought exploration and development to a virtual halt in 1950. Leases for subsea drilling were being offered by the States of California, Texas, and Louisiana, yet President Harry Truman had asserted exclusive federal jurisdiction over the entire continental shelf in 1945. The U.S. Supreme Court in 1947 and 1950 subsequently upheld Truman's claim.[3] But because no then-existing federal law conferred authority on the Department of Interior to issue offshore leases, neither the federal government nor the states possessed power to authorize offshore drilling. When Congress proved unable to resolve the matter with new legislation, leasing on the continental shelf came to a virtual halt by the end of 1950.[4]

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[2] Tyler Priest, *The Offshore Imperative: Shell Oil's Search for Petroleum in Postwar America* (Texas A&M Press, 2007), 34. A good survey of the early history of offshore drilling can be found in Leffler, Pattarozzi, and Sterling, *Deepwater Petroleum Exploration & Production: A Nontechnical Guide* (Tulsa, Oklahoma: PennWell Corporation, 2003), pp. 1-8.

[3] See United States v. California, 332 U.S. (1947); United States v. Texas, 339 U.S. 707 (1950); United States v. Louisiana, 339 U.S. (1950).

[4] John Whitaker, *Striking a Balance: Environment and Natural Resources Policy in the Nixon-Ford Years* (American Enterprise Institute/Hoover Institution Policy Studies, 1976), p. 260.

This so-called "Tidelands dispute" over who should control offshore drilling became an issue in the 1952 presidential election, when General Dwight Eisenhower pledged to restore the leasing authority coastal states had lost in the courts. His election led to the passage of the Submerged Lands Act of 1953, which gave states the right to lease up to three nautical miles from the coast. Some states could lease up to nine nautical miles, if justified by the boundaries documented when states entered the union or by a subsequent action by Congress. After lengthy battles in the courts, only Florida and Texas won the right to the nine-mile limit.

Eisenhower's elevation to the presidency also helped facilitate the passage of the Outer Continental Shelf Lands Act (OCSLA) of 1953, which gave the federal government (Department of Interior) the authority to issue leases in coastal areas beyond state jurisdiction. The federally administrated area became known as the Outer Continental Shelf, or OCS – a legal designation more reflective of legislative negotiations, than the actual geology of the seafloor. After the implementation of the OCSLA, leasing activity on federal submerged lands began in 1954.

Offshore production of oil in 1954 stood at only 133,000 barrels of oil a day (2 percent of total U.S. production at that time).[5] With legal disputes mostly resolved, offshore production rose steadily to reach 1.7 million barrels a day, roughly 20 percent of U.S. production, in 1971, when the industry was still recovering from a watershed event.

Two years earlier (Jan. 28, 1969), a blowout at a Union Oil Company well located in the Santa Barbara Channel had resulted in an 800-square-mile slick of oil that blackened an estimated 30 miles of Southern California beaches and soaked a substantial number of sea birds in the gooey mess. The blowout lasted 11 days and ultimately released approximately 80,000 barrels of oil. Before the BP Deepwater Horizon blowout, Santa Barbara stood as the greatest offshore drilling accident in American waters. Although Santa Barbara is often remembered as an isolated incident, the next two years saw three more blowouts and one major fire on rigs off American shores. Though each individual incident was smaller than

[5] One barrel equals 42 gallons. Basic energy data taken from Energy Information Administration, U.S. Department of Energy.

Santa Barbara, one blowout could not be contained for more than four and a half months, and the cumulative loss of oil – as reported by the oil companies – was greater than Santa Barbara.[6]

The Santa Barbara incident had a rapid impact on federal environmental and regulatory policy. Ten days after the accident, Secretary of the Interior Walter Hickel, with the support of President Richard Nixon, issued a moratorium on all drilling and production on offshore rigs in California waters. On February 11, 1969, Nixon directed his Presidential Science Advisor, Dr. Lee A. DuBridge, a physicist, to assemble an advisory team and recommend measures to restore the affected beaches and waters. Nixon also requested that DuBridge "determine the adequacy of existing regulations for all wells licensed in past years now operating off the coast of the United States [and] to produce far more stringent and effective regulations that will give us better assurance than the Nation now has, that crises of this kind will not recur." With DuBridge at his side, Nixon remarked three months later, when unveiling his new Environmental Quality Council that "The deterioration of the environment is in large measure the result of our inability to keep pace with progress. We have become victims of our own technological genius."[7]

In April, Hickel completed a preliminary assessment of the leases affected by the moratorium and allowed five of the seventy-two lessees to resume drilling or production. By the late summer, the Department of Interior issued completely new regulations on OCS leasing and operations – the first update since the program's start fifteen years earlier. These were the first rules in which the Department claimed authority to prohibit leasing in areas of the continental shelf where environmental risks were too high. Although a small amount of drilling continued off the coast of California, the Santa Barbara accident furthered an existing trend of almost exclusive reliance on the Gulf of Mexico for U.S. offshore oil production.

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[6] Whitaker, pp. 264-66. There is some expert opinion that oil companies greatly underestimated the volumes of these spills, and the leaked oil may have been much greater than reported. See Steve Mufson, "Federal Records Show Steady Stream of Oil Spills in Gulf since 1964," *Washington Post*, July 24, 2010.

[7] All Presidential statements can be found at John T. Woolley and Gerhard Peters, *The American Presidency Project* [online], Santa Barbara, CA, available at http://www.presidency.ucsb.edu/.

After U.S. domestic oil production peaked in 1970, making the nation increasingly dependent on imported oil, the Organization of Arab Petroleum Exporting Countries' embargo of 1973-1974 escalated fears of dependence on foreign oil.[8] Public interest in development of OCS oil and gas resources grew accordingly. Presidents Nixon, Ford, and Carter advocated the expansion of offshore drilling, while also emphasizing the need for environmental safeguards, but the results were meager. The Santa Barbara blowout and the transformed regulatory environment had little immediate effect on offshore production, but they did have a lagged impact. By 1981, offshore production levels had dropped to two-thirds of its peak production, just ten years before.

Although no other blowout in American waters reached the scale of the Santa Barbara incident, accidents at rigs in other counties reached magnitudes far surpassing the volumes of oil released at Santa Barbara. These occurred in the Persian Gulf and the Niger Delta in 1980, and the North Sea and the Mexican waters of the Gulf of Mexico in 1979. The Ixtoc I blowout off Mexico's Bay of Campeche took nine months to cap and released an estimated 3.5 million barrels of oil. The Hasbah platform blowout in the Persian Gulf killed 19 workers on the rig.

In 1982, President Ronald Reagan's Interior Secretary James Watt issued a five-year leasing plan for federal waters that greatly expanded the area available for leasing and quickened the pace of sales. Watt called the Outer Continental Shelf "America's great hope of reducing our dependency on foreign sources" of petroleum. The revised leasing plan projected estimated incomes of $40 billion to $80 billion for the federal government – revenues needed to offset an ambitious series of tax cuts passed by the Congress. Watt maintained that except for the Santa Barbara blowout, offshore drilling had been conducted with little environmental damage.[9] The new plan, known as "area-wide leasing," brought a

[8] In the early months of the embargo, some non-Arab members of OPEC increased production in response to the shortage. By the end of 1973, however, there was broader OPEC support for higher prices resulting from production cuts by the Arab members. See Jay Hakes, *A Declaration of Energy Independence* (Wiley and Sons, 2008), pp. 24-35.

[9] *Congress and the Nation 1981-1984* (Congressional Quarterly, 1985), pp. 347-48.

renewed burst of activity. One sale in the Central Gulf of Mexico reaped a record bid of $4.5 billion.

The expanded program for OCS leasing drew sharp criticism from environmental groups, officials from some coastal states, and others who argued the value of the tracts would be diluted if so many were on the market at the same time. In response, Congress began writing provisions into the yearly appropriations bills to place limits on drilling off the shores of California, New Jersey, Florida, and Massachusetts. After Watt left Interior in October of 1983, his successor, William Clark, scaled back the 1982 leasing plan.

During the same period, coastal states made a hard push for a share of OCS revenues. The Mineral Leasing Act of 1920 granted states 50 percent of Interior mineral leasing revenues from onshore federal lands within their borders, but the OCSLA of 1953 made no provision for sharing revenues with states adjacent to oil and gas production in federal offshore waters. The idea went as far as a House-Senate conference committee, but stalled because of concerns with revenue sharing's potential adverse impact on the federal budget deficit and the threat of a presidential veto. States received another setback in 1984, when the Supreme Court rejected California's argument that Interior decisions to lease OCS tracts could be blocked if inconsistent with state coastal zone management plans.[10]

A collapse in world oil prices in the mid-1980s stalled the expansion of onshore and offshore drilling and struck a devastating blow to the economies of Louisiana and Texas. By 1990, offshore production stood at only 1.1 million barrels a day – just 5 percent more than a decade earlier.

The safety record in American waters improved during the decade, but in 1988, offshore drilling suffered another major calamity, this time in the North Sea. The Piper Alpha – a platform about 110 miles north-east of Aberdeen, Scotland,

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[10] *C&N*, pp. 350, 358-59. The federal Coastal Zone Management Act (CZMA) provides that each federal agency shall conduct its activities "directly affecting the coastal zone in a manner which is, to the maximum extent practicable, consistent with approved state managements plan. See 16 U.S.C. § 1456(c) (1).. In Secretary of Interior v. California, 464 U.S. 312 (1984), the U.S. Supreme Court held that OCS leasing falls outside the CZMA's consistency requirement because OCS leasing does not "directly affect" the coastal zone within the meaning o f the CZMA.

producing oil and gas -- suffered two fires and an explosion leading to the death of 167 workers. It was the deadliest accident in oil rig history and, at the time, the insurance industry's costliest man-made catastrophe.

The Move into Deepwater

The relatively stable levels of offshore production in the 1980s masked a major shift occurring in the Gulf of Mexico. Production in shallow waters rose and fell in tandem with boom and bust cycles in the broader oil and gas industry. There were some highly prospective plays in shallow water but they proved too challenging given the seismic limitations. The shelf was heavily gas prone so the economics were more difficult for small pockets. Those two factors led to the greater exploration for larger fields in deeper waters.

The first discovery in deepwater (depths of 1,000 feet or more, though definitions vary) came at Shell Oil Company's *Cognac* field in 1975. Technology had yet to evolve from shallow to deepwater, just as it took a while to develop from land to sea. Cognac adapted the fixed platform technology from shallow water, which proved economically impractical for moving much further from the coast.

Nonetheless, with the emergence of new technologies, the 1980s witnessed several pioneering discoveries. Shell's parallel deepwater work on its *Augur* (1987) and other sites discovered in the 1980s advanced the potential of deepwater more than *Cognac*. *Augur* used a tension leg (non-fixed) platform, which was better suited to deepwater conditions than fixed platforms. More importantly, geologists working on these sites came to better understand the deposition of the turbidite sands and the complex relationships to subsea salt. Turbid (i.e. murky) currents had washed away the finer grains of sand in the sandstone, making them more porous and permeable – in the words of Leffler, "qualities high on a reservoir engineer's wish list."[11] The deepwater turbidite reservoirs turned out to be even better than imagined.

While good wells on the shelf produced a few thousand barrels of oil a day, deepwater fields were developed with flow rates commonly exceeding 10,000

[11] Leffler, p. 33.

barrels per day. The *Auger* platform was originally designed with an estimated production capacity of 40,000 barrels per day. Once the well reached full production, its capacity grew beyond 100,000 barrels per day. The *Auger* field was developed with fewer than half the number of wells originally envisioned, which reduced capital costs. "High rate-high ultimate" wells became the standard for deepwater developments and one of the most critical factors for deepwater project success. Shell's MENSA field, completed in1986, was located in depths of more than 5,000 feet, a threshold often defined as "ultra-deepwater".[12]

Shell was not alone in making significant discoveries in the deepwater Gulf of Mexico in the 1980s. Conoco (later merged with Phillips), British Petroleum (later BP), Mobil (later merged with Exxon), Amoco (later merged with BP), Oryx (later merged with Kerr McGee), and Exxon moved further offshore to find new oil and gas. Petrobas – founded by the government of Brazil in 1953 – was moving into deepwater off the coast of Brazil.

Advances in exploring the deepwater of the Gulf of Mexico relied in large part on improvements in seismic technology. As a result of these advances, the percentage of wells drilled in the Gulf where 3-D seismic technology was employed increased from 5 percent in 1989 to 80 percent in 1996. The success rate of exploratory offshore wells shot up once 3-D seismology and other improvements became common. Between 1985 and 1997, the offshore exploratory success rate for the major U.S. companies increased from 36 percent to 51 percent.[13]

Propelled by advances in rig technology and seismology and a better understanding of the potential of turbidite reservoirs, offshore production in 1991 started a string of thirteen consecutive years of increased production, which by 2002 topped 2 million barrels per day. Since onshore production continued to decline during this period, the share of offshore in total domestic supply took on increasing importance. (See Fig. 1 below.)

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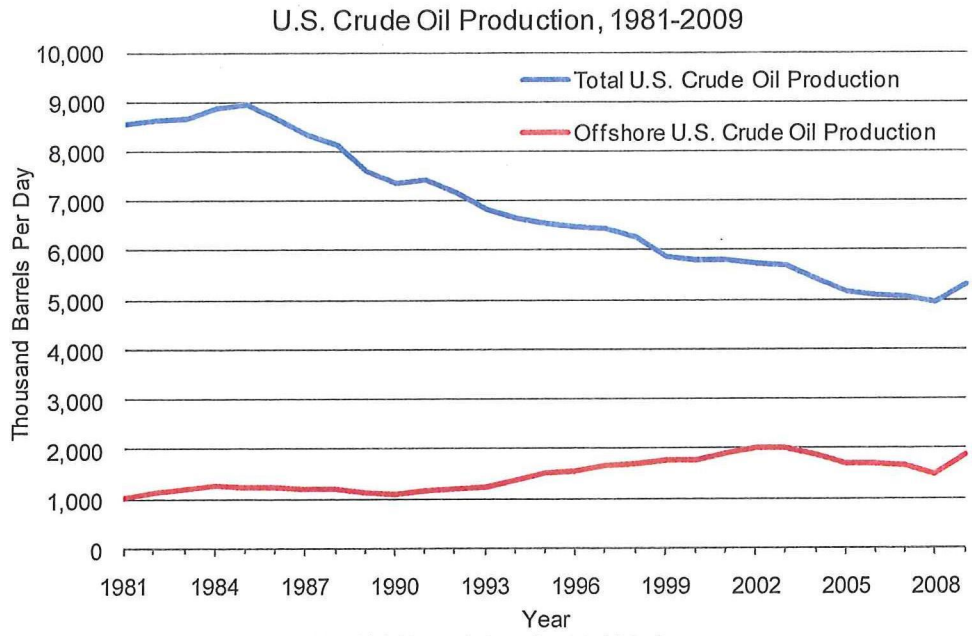
[12] The story of Shell's role in these developments can be found in Tyler Priest, *The Offshore Imperative*.

[13] U.S. Energy Information Administration, http://www.eia.doe.gov/emeu/finance/usi&to/upstream/index.html#n9

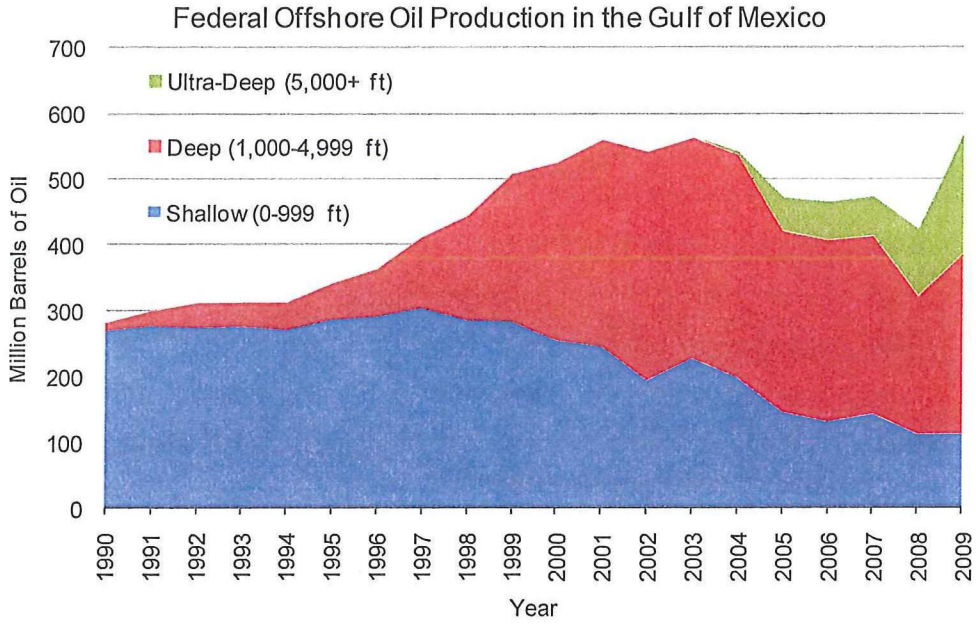
Fig. 1.



Source: Commission staff, adapted from U.S. Energy Information Administration

Attention quickly shifted to offshore assets, as discoveries in deepwater in the 1980s developed into producing wells in the 1990s. By the end of the decade, production in deepwater – a minor factor just ten years earlier – surpassed that in shallow water for the first time. Just five years later, deepwater was producing twice as much as shallow water. An increasing amount of oil was coming from ultra-deepwater (5,000 feet and deeper). (See Fig. 2 below.)

Fig. 2.

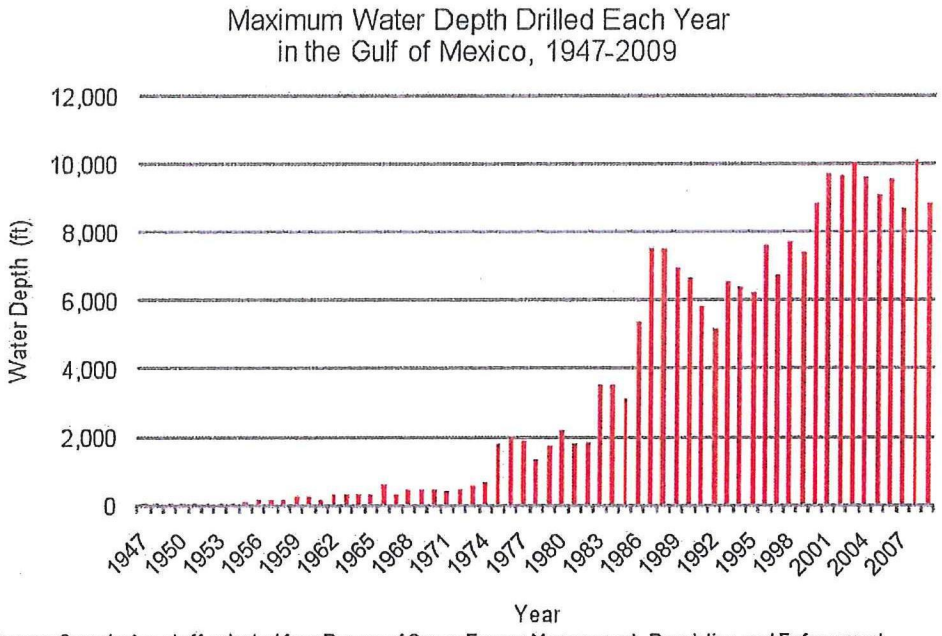


Source: Commission staff, adapted from U.S. Energy Information Administration

The move to deepwater was not gradual, as companies quickly leapfrogged each other to go deeper and deeper for new oil and gas. (See Fig. 3 below.) The move into the deepwater was a rare, dramatic era in American energy history, comparable in some ways to the early emergence of civilian nuclear power and the opening of drilling in Prudhoe Bay Alaska and subsequent rapid construction of a 600-mile pipeline through permafrost.[14]

[14] The first civilian nuclear plant began operation in 1957; by 1967, most orders for new plants were nuclear. Legislation authorizing the Alaska oil pipeline passed late in 1973; oil began reaching Valdez in the summer of 1977, and the pipeline was delivering well over a million barrels a day by the following year.

Fig. 3.



Source: Commission staff, adapted from Bureau of Ocean Energy Management, Regulation and Enforcement

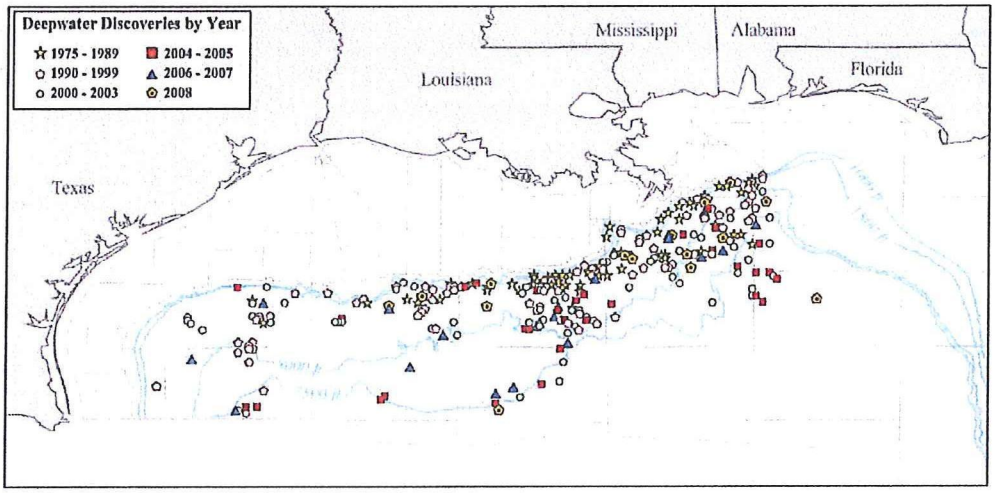
The Outer Continental Shelf Deep Water Royalty Relief Act of 1995 provided additional impetus to accelerated drilling in the Gulf. Up to specified volumes (which were larger for greater depths), the Act eliminated royalty payments on new deepwater leases issued from 1996 to 2000 and allowed different levels of relief for leases issued before and after these dates. The Administration took the position: "Even the largest energy companies are often unable to make substantial investments in long-term, high-risk R&D, which is why the government supports energy industries through appropriate tax treatment and invests at all stages of technological development to ensure that Americans will have clean and affordable energy in the future."[15] Critics in Congress countered that royalty relief was unnecessary because "improved economics, better technology, and growing experience have already facilitated development of productive areas in the Gulf of Mexico without the industry first winning forgiveness of royalties, which are an important source of revenue for the Treasury."[16]

[15] Hazel O'Leary, "Unlocking Energy, Not 'Corporate Welfare,'" *Washington Post*, Nov. 25, 1995.
[16] George Miller, "No Royalty Relief for Oil Companies," *Washington Post*, April 24, 1995.

Hurricanes and the cycles of the oil and gas industry led to a 30 percent drop in offshore oil production from 2003 to 2008, to approximately 1.4 million barrels a day. Within the industry, however, this drop was viewed as a pause rather than a new trend. In 2008 alone, exploration efforts resulted in fifteen new discoveries. In 2008-2009, new lease sales opened up areas that had been closed to drilling for twenty years.[17] To find new resources, drillers continued to go further and further offshore. (See Fig. 4 below.)

Fig. 4.

Deepwater Discoveries by Year



Source: Minerals Management Service, *Deepwater Gulf of Mexico 2009: Interim Report of 2008 Highlights*

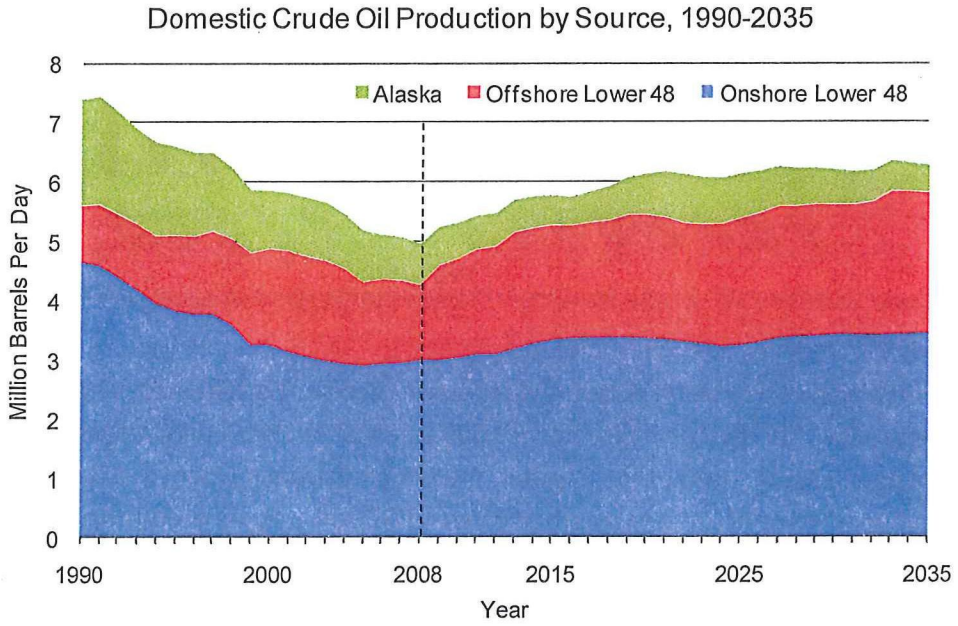
As of last year, there were fifteen new mobile offshore drilling units being built and contracted for use in the ultra-deepwater Gulf of Mexico, all of which are scheduled for operation over the next two to three years. They will be capable of operating in water depths up to 12,000 feet and drilling an additional 28,000 feet below the seabed. All modern rigs are highly sophisticated and powerful, capable of lifting one million pounds or more, a substantial advance on the original offshore operation in Summerfield. Some new deepwater projects cost

[17] Mineral Management Service, *Deepwater Gulf of Mexico 2009: Interim Report of 2008 Highlights*, p. 3-5.

approximately $4 billion dollars. Despite high initial costs, these projects can pay off in several years, or even months, due to flow rates exceeding 200,000 barrels per day of oil plus associated gas.

Investments in offshore drilling have contributed to the reversal of a long-term drop in U.S. oil production. Total U.S. oil production recorded year-on-year growth in 2009 for the first time since 1991, and the U.S. Energy Information Administration has projected additional increases in the coming years. (See Fig. 5 below.)

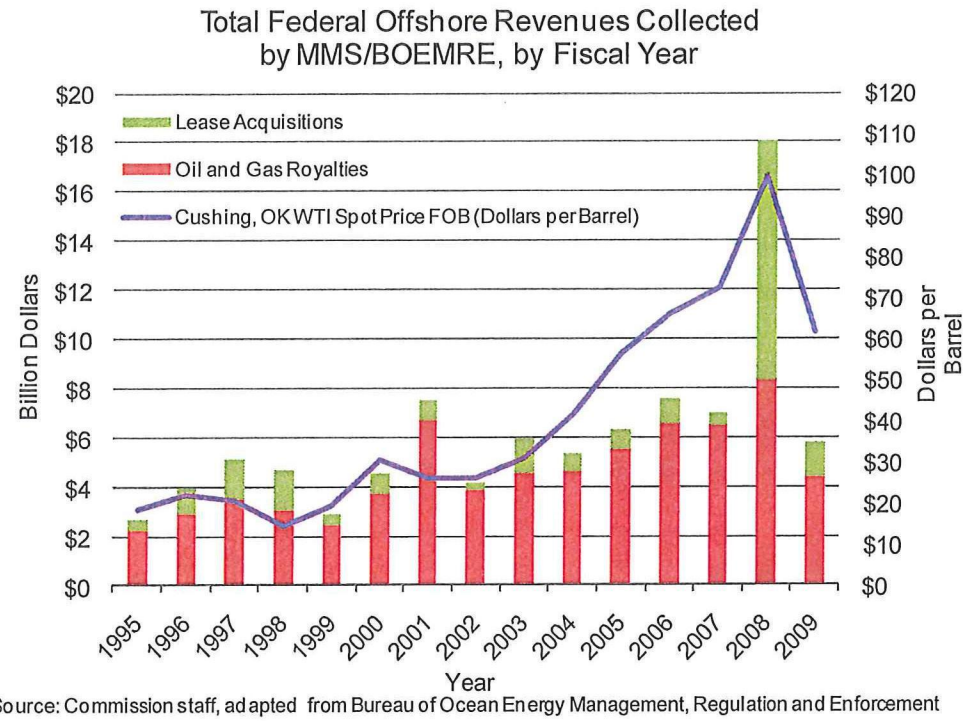
Fig. 5.



Source: Commission staff, adapted from U.S. Energy Information Administration

The boom in offshore drilling has produced considerable revenue for the federal government, most coming from the Gulf of Mexico. In recent years, the leasing and royalty programs have yielded about $6 billion to $18 billion a year, the higher-end figures coming at the time of big lucrative lease sales. (See Fig. 6 below.)

Fig. 6.



Source: Commission staff, adapted from Bureau of Ocean Energy Management, Regulation and Enforcement

Compensation to coastal states revived as an issue during the George W. Bush presidency. The Energy Policy Act of 2005 established the Coastal Impact Assistance Fund. Under this program, the Minerals Management Service within the Department of Interior awarded funds to OCS oil and gas producing states to offset the impacts of energy development. A total of $250 million was to be split among Alabama, Alaska, California, Louisiana, Mississippi, Texas, and the states' coastal counties each year.

Nonetheless, some coastal states wanted a greater share of Gulf of Mexico oil and gas revenue and more authority over how to spend it. In 2006 – the year following Hurricane Katrina – new legislation allotted Texas, Louisiana, Mississippi, and Alabama a 37.5 percent share of the revenues derived from leasing activity in the so-called 181 South area off the coast of Alabama. For Phase 2 beginning in 2017, the bill expands the areas from which the four states receive their 37.5 per cent share. Subject to a cap, the states will divide the revenue based on individual

distance from each lease.[18] In Fiscal Year 2009, Alabama, Louisiana, Mississippi, and Texas and their eligible local governments received a total of $25 million dollars.

Deepwater as the New Frontier

The share of deepwater production in the current U.S. and world energy mix understates its importance for the future, at least as it was understood before the BP Deepwater Horizon accident. With high per-capita energy demands in the developed economies and dramatically rising levels of consumption in emerging economies, most experts project the world's appetite for oil and other fuels to grow for the foreseeable future. The role of deepwater oil and gas in providing that energy is also likely to grow.

According to a recent report by IHS-CERA , global deepwater production capacity has more than tripled since 2000. Ten years ago, capacity stood at 1.5 million barrels per day in water depths over 2,000 feet. By 2009 it had risen to over 5 million barrels per day. Deepwater discoveries also comprise a significant portion of new finds. In 2008 total oil and gas discovered in deep water globally exceeded the volume found onshore and in shallow water combined.[19]

The Gulf of Mexico has been only a part of the global offshore boom. Substantial exploration and development has also taken place off the coasts of Brazil and the West Africa. Interest in other, more challenging areas has been growing. Oil companies are looking to expand American production into new offshore areas, particularly Alaska and Virginia. Russian oil and gas companies are reviewing plans to develop areas in the Arctic, while Norway and Canada are assessing similar projects.

There are two key hurdles to new ultra-deepwater drilling. First, oil companies must be willing to invest substantial amounts of capital on generally challenging projects. Second, they must identify sites with significant resources and very high

[18] http://www.boemre.gov/offshore/GOMESARevenueSharing.htm

[19] James Burkhard, Peter Stark, and Leta Smith, "Oil Well Blowout and the Future of Deepwater E & P," IHS CERA, May 2010.

potential flow rates to justify such large capital expenditures. However, companies have had great success finding such sites. According IHS-CERA, the average size of a new deepwater discovery in 2009 was about 150 million barrels of oil equivalent compared with an onshore average of only 25 million barrels.

Risks in Offshore Drilling

The BP Deepwater Horizon oil spill is appropriately requiring a dramatic reassessment of the risks associated with offshore drilling. Before April 20, many believed that drilling might be safer in deep than in shallow waters. Since deepwater rigs worked farther off the coast, it would take longer for spilt oil to reach shore, giving more time for intervention to protect the coast. Moreover, the companies working in the deeper waters were seen as the "big guys" who utilized more advanced technologies than the smaller firms working near the coast, which presumably made them more adept at handling challenging conditions.

Even the severe hurricanes of the previous decade seemed, on balance, to provide validation that offshore facilities were safe. Substantial damage did occur, but caused less serious problems than might have been expected. The companies and the Minerals Management Service embarked on projects to make damage less likely during violent weather.

Any offshore drilling had the added advantage of displacing foreign oil which (except for Canada) arrived by tanker. Many of the visible damages from oil spills over the years came from tanker accidents, most notably the collision of the Exxon Valdez that led to between 260,000 and 750,000 barrels of oil leaking out and wreaking havoc on Alaska's coastline. If offshore drilling reduced the use of tankers, that seemed like a good thing.[20]

The dominant image of Exxon Valdez became itself a problem in assessing the risks of a major accident in the deepwater and the requirements for robust contingency plans. Because the tanker accident in Alaska was the largest oil spill in history and received heavy American media coverage, it became the picture of a worst case scenario for planning purposes. From that perspective, the worst

[20] Some oil from offshore is transferred to shore by tanker, but most arrives via pipeline.

case, if it occurred in the Gulf of Mexico, seemed far more manageable because the oil from such a spill would naturally be dispersed over a much wider area. Yet there was no logical reason that the accident in Prince William Sound should have been considered the worst case scenario. The blowout at the Ixtoc I well had produced a spill much larger than Exxon Valdez, a precedent that should have signaled a potential danger from an offshore well for a spill much greater than Exxon Valdez. Still there had been no major blowouts (greater than 1,000 barrels) in federal offshore waters since 1970, which made the chances of another one seem remote.

Another problem for appropriate risk assessment was the failure to adequately consider published data on recurring problems in offshore drilling. These included powerful "kicks" of unexpected pressures that sometimes led to a loss of well control, failing blowout preventer systems, and the drilling of relief wells -- the last lines of defense for a troublesome well. These problems were not great considering the large number of wells around the world and were usually more minor as threats than they sounded. However, these issues, known to petroleum engineers, did demonstrate that wells do not perform in a flawless manner.

Loss of well control, blowout preventer failure, or the need for relief wells can also occur in shallow water or on shore. Are some risks greater in the deep water? Both the velocity and irregularity of underwater currents as well as extreme pressures and temperatures put extra stress on subsea equipment in the deep. Pressure control becomes more difficult as the drill bit descends because of the greater likelihood of encountering abnormal geopressures.[21]

In the deeper water, sophisticated robotics increasingly substituted for human inspections and other tasks. According to Leffler (2007), "Because the subsea elements are way down there and hard to get to, designers and builders emphasize redundancy and reliability – not unlike the space industry." But items do fail, he noted, which is why extensive robot-friendly connections and contact points are installed to make robotic intervention as simple and straightforward as possible.[22]

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[21] Leffler et al, pp. 59, 66-68.
[22] Leffler, p. 119.

It was also recognized within the petroleum industry that deepwater conditions create special challenges for critical equipment, including the blowout preventer. In a 2007 article in *Drilling Contractor*, Melvyn Whitby of Cameron's Drilling System Group described how blowout preventer (BOP) requirements got tougher as drilling went deeper. "Today," he said, "a subsea BOP can be required to operate in water depths of greater than 10,000 ft, at pressures of up to 15,000 psi and even 25,000 psi, with internal wellbore fluid temperatures up to 400° F and external immersed temperatures coming close to freezing (34° F)." One possible enhancement he discussed involved taking advantage of advances in metallurgy to use higher-strength materials in ram connecting rods or ram-shafts in the BOP. He suggested that "some fundamental paradigm shifts" were needed across a broad range of BOP technologies to deal with deepwater conditions.[23]

Working further below the surface of the ocean creates myriad problems after a loss of well control or a blow out. Containment problems become much more challenging and real-time decisions become more difficult when so little is known about the deep ocean. Up to the BP Deepwater Horizon accident, little attention was devoted to containment of a blown out well in the deepwater, largely because its occurrence was considered so unlikely.

Perhaps the greatest risk factor was the very feature that made the deepwater boom so big in the first place. The prodigious flow rates in the deepwater help create "elephants," industry slang for wells whose production is considered especially high by historic standards. Such fields have very high daily output and good overall economics. But in cases of an uncontrolled blowout, high flow rate becomes the enemy as great volumes of oil and gas are spewed into the environment. This special risk of the turbidite reservoirs was both obvious and largely ignored in public discussions before April 2010.

[23] Melvyn Whitby, "Design Evolution of a Subsea BOP: Blowout Preventer Requirements Get Tougher as Drilling Goes Ever Deeper," *Drilling Contractor* (May, 2007).

To: National Commission on the BP Deepwater Horizon Oil Spill and Offshore Oil Drilling
From: Professor Jody Freeman, Harvard Law School*
Date: October 13, 2010
Re: Structural Options for Improving MMS/BOEM Decision Making on Offshore Drilling

This memorandum describes structural options for better integrating scientific, engineering and other technical expertise into Minerals Management Service/Bureau of Offshore Energy Management (MMS/BOEM) decisions related to offshore drilling through more robust interagency consultation and independent review by outside experts.

I. INTERAGENCY CONSULTATION

A. The Current System

Currently, federal agencies with relevant expertise on the environmental effects of offshore drilling have limited access to and influence over MMS/BOEM decision making throughout the planning, leasing and permitting process under the Outer Continental Shelf Lands Act (OCSLA). A number of statutes require consultation with outside agencies for particular purposes, but the consultation provisions generally are either weak or narrowly limited. The National Environmental Policy Act (NEPA) serves in theory as the umbrella process for soliciting interagency input on the potentially significant environmental effects of offshore drilling, but for a number of reasons this too is limited.

OCSLA itself requires the Secretary of the Interior to invite and consider suggestions from "any interested federal agency" during the development of the five-year plan, but does not require the Department of the Interior (DOI) to respond to these comments, or accord them any particular weight.[1] By contrast, during development of the five-year plan, OCSLA requires the agency to respond and explain itself when deviating from comments by either the states or the Attorney General regarding antitrust conformance.[2] Under applicable regulations, at the individual lease sale stage, MMS/BOEM must, in consultation with "appropriate federal agencies," develop measures to mitigate adverse environmental impacts.[3] Yet there is no legal mandate requiring MMS/BOEM to adopt in lease stipulations any recommendations made by other agencies, or to explain why they have not. Finally, during the development and production plan stage, "any federal agency" may submit comments and recommendations to the Regional Supervisor within 60 days, but there is no requirement that MMS/BOEM respond to such comments.[4] The statute requires the Secretary of the Interior to "cooperate with the relevant departments and agencies of the

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[1] OCSLA § 18, 43 U.S.C. § 1344(c)(1) (2000). Section 18 of OCLSA identifies a number of factors that the Secretary must consider when proposing a five-year plan, but his decision regarding how to balance those factors is discretionary.

[2] *See* OCSLA § 18, 43 U.S.C. § 1344 (c)(2) and (d)(2) (2000).

[3] 30 C.F.R. § 256.29(a)

[4] 30 C.F.R. § 250.267(b).

Federal Government and of the affected States" in the enforcement of safety, environmental and conservation laws.[5]

In addition, a number of environmental statutes require MMS/BOEM to consult with outside agencies such as the Environmental Protection Agency (EPA), the National Oceanic and Atmospheric Administration (NOAA), and the Fish and Wildlife Service (FWS) at different points in the leasing process prior to drilling.[6] Yet such consultations typically are for narrow purposes such as ensuring compliance with the Clean Air Act (CAA) permit requirements for offshore rigs[7] or Clean Water Act (CWA) requirements for discharges of solid or liquid wastes generated by drilling,[8] or to secure authorization to "take" limited numbers of protected marine mammals.[9] The strongest of the consultation requirements, Section 7 of the Endangered Species Act (ESA), requires MMS/BOEM to consult with the FWS (in DOI) and National Marine Fisheries Service (NMFS, in Department of Commerce) to ensure drilling does not "jeopardize" protected species. The jeopardy prohibition gives the two Services significant leverage to require MMS/BOEM to adopt alternatives and conditions that will avoid harm to listed species. Yet even this fairly robust consultation requirement is limited to that specific purpose.

NEPA provides an umbrella process for soliciting interagency input on the potential environmental effects of DOI's offshore drilling program. It is important to remember, however, that NEPA is a "procedural" statute with no substantive obligations—it requires action agencies to fully disclose environmental impacts, but does not require them to alter their plans in light of that disclosure. NEPA does not require mitigation even when environmental impacts are expected to be severe,[10] nor does it require action agencies to provide a "worst case" analysis.[11]

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[5] OCSLA § 5, 43 U.S.C. § 1333(a) (2000).

[6] Consultations or permits are required under statutes including the Clean Air Act § 328, 42 U.S.C. § 7627 (1990), Clean Water Act § 402, 33 U.S.C. § 1342 (1987), Marine Mammals Protection Act § 104, 16 U.S.C. 1374 (2007), Endangered Species Act § 7, 16 U.S.C. § 1536 (2006), Magnuson Stevens Fishery Conservation and Management Act § 305(b), 16 U.S.C. § 1855 (1976), and Coastal Zone Management Act § 307, 16 U.S.C. § 1456 (1988).

[7] CAA § 328, 42 U.S.C. § 7627 (1990); 40 C.F.R. § 55.6.

[8] CWA § 402, 33 U.S.C. § 1342 (1987); 40 C.F.R. § 122.21.

[9] Marine Mammals Protection Act § 104, 16 U.S.C. 1374 (2007); 50 C.F.R. § 216.104.

[10] *See Robertson v. Methow Valley Citizens Council*, 490 U.S. 332 (1989) (holding that NEPA does not impose a substantive duty on agencies to mitigate adverse environmental effects or to include in each EIS a fully developed mitigation plan). It is well settled that NEPA itself does not impose substantive duties mandating particular results, but simply prescribes the necessary process for preventing uninformed—rather than unwise—agency action.

[11] Under applicable caselaw and regulations, when identifying potentially adverse impacts that could result from a proposed action, an agency must include low probability, high consequence impacts, but only those that are reasonably foreseeable. CEQ addressed this issue in its August 16, 2010 report on MMS's NEPA practices: "[MMS] did not deem a catastrophic spill, comparable to the BP Oil spill, to be a reasonably foreseeable impact, based on historical information on spills in U.S. OCS waters. Since April 20, 2010, that assumption will be revised, and BOEM will take steps to incorporate catastrophic risk analysis going forward." Council on Environmental Quality, Report Regarding the Minerals' Management Service's National Environmental Policy Act Policies, Practices, and Procedures as they relate to Outer Continental Shelf Oil and Gas Exploration and Development 27 (2010), *available at*

Thus, although NEPA requires MMS/BOEM to analyze the environmental effects of offshore drilling at various stages of the planning, leasing, and exploration and development process, and to prepare environmental impact statements (EISs) where those effects are expected to be significant, the onus is on *other* federal agencies to comment on the EISs and press their concerns with MMS/BOEM. MMS/BOEM, however, has no legal obligation to respond to federal agency comments. These other federal agencies may be resource constrained, making it challenging for them to participate in the evaluation of environmental impacts to the extent envisioned by NEPA. And while they may possess significant expertise (e.g., scientific knowledge about the marine environment), they may not possess all of the expertise necessary to evaluate MMS/BOEM's technical analyses and risk assessments. Moreover, the timing of interagency input in practice often comes too late to be of maximum benefit—for example in the form of after-the-fact comments on analyses that have already been substantially designed or completed.

Ideally the NEPA process would serve as a forum for pooling federal government expertise on the best strategies for protecting the marine environment, improving safety, reducing operational risk related to drilling, and assessing industry oil spill response plans. To that end, it may be appropriate to recommend reforms to the NEPA process along the lines suggested by the Chair of the Council on Environmental Quality and others who have testified before this Commission.[12] Yet NEPA is inherently limited because it is a procedural statute that requires only disclosure.

Beyond the NEPA process, there are limited opportunities for other federal agencies to coordinate with MMS/BOEM on its technical research on drilling operations and its risk assessment methodology related to oil spill and oil spill response, among other things. DOI's OCS Safety Oversight Board, created on April 30, 2010 by Secretary Salazar, concluded among other things that U.S. Coast Guard officials rarely review Oil Spill Response Plans and are not notified of new submissions, and that EPA currently has no role in the OSRP process.[13] Currently, MMS/BOEM's Technology Assessment and Research Program (TAR)[14] supports research on operational safety and pollution prevention as well as

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http://www.whitehouse.gov/sites/default/files/microsites/ceq/20100816-ceq-mms-ocs-nepa.pdf [hereinafter CEQ Report].

[12] CEQ Report, *supra* note 11, recommends a number of reforms including more site-specific analysis, tracking mitigation commitments, ensuring greater transparency, and reconsidering the use of categorical exclusions. In her testimony to the Commission on August 25, 2010, Meg Caldwell, Executive Director of Stanford University's Center for Oceans Solutions, recommended the following: 1) Amend OCSLA to make safeguarding and restoration of ecosystems a priority; 2) Designate EPA, NOAA, NMFS, NFWS and the Coast Guard as cooperating agencies under NEPA; 3) Amend OCSLA to strengthen interagency consultation requirements, including requirements to consult with sister agencies early and to respond in writing to comments BOEM disagrees with; 4) Amend OCSLA to require more comprehensive environmental review; 5) Amend OCSLA to eliminate or extend the 30-day review deadline for exploration plans; 6) Cease using categorical exclusions; 7) Give the scientific arm of BOEM autonomy.

[13] Outer Continental Shelf Safety Oversight Board, Report to the Secretary of the Interior Ken Salazar (Sept. 1, 2010), *available at* http://www.doi.gov/news/pressreleases/loader.cfm?csModule=security/getfile&PageID=43677.

[14] http://www.boemre.gov/tarphome/

oil spill response and cleanup capabilities, largely by contracting out studies.[15] There appears to be a lack of institutionalized mechanisms for coordinating its research program with the Department of Energy (DOE) and its national labs, the USGS (even though it is also housed in DOI), and other agencies with potentially relevant expertise, such as the U.S. Coast Guard. Plus, as discussed below in the section on bolstering independent outside oversight, there appears to be no independent outside review of this technology program, or how its findings factor into regulatory requirements. The Outer Continental Shelf (OCS) Science Committee (which reviews research sponsored by MMS/BOEM's Environmental Studies Program) does not review the TAR program, and no other outside body with relevant engineering expertise appears to do so.

Options for improving interagency input into MMS/BOEM decision making include: (1) integrating and institutionalizing the current collection of legally required consultation requirements, (2) adding more robust consultation requirements to increase the leverage of outside agencies with relevant expertise, and (3) exerting more centralized White House review of MMS/BOEM OCS decisions. These options are discussed in detail below.

B. Options for Improvement

1. *Integrate and Institutionalize Existing Consultation Requirements.* The MMS/BOEM offshore leasing process stands to benefit from integrating existing interagency consultation requirements in a more coherent fashion, and institutionalizing them through inter-agency agreements such as Memoranda of Understanding. Ideally, this would help to improve the quality and consistency of the input by describing how it occurs, clarifying mutual obligations and enhancing accountability. It might also help to identify gaps in expertise, which might be filled by agencies not currently part of the process or by closer and perhaps earlier cooperation with agencies that are. If nothing else, it would improve transparency if MMS/BOEM were to describe in a single comprehensive document all of the current interagency interactions currently required by law or conducted pursuant to informal practice; identify the stage of leasing at which they occur; and specify their purpose, scope and impact. Without this comprehensive understanding, it is hard to conclude that the combination of these requirements adequately allows interagency input into the full range of environmental, safety and engineering issues raised by offshore drilling, especially in deep water, where risks are greater and technology is still evolving. Notably, institutionalizing current agency practice through MOUs or the equivalent does not require new legislation.

2. Impose More Robust Consultation Requirements. Congress sometimes burdens agencies with more than one statutory mission, or with multiple obligations that can conflict.[16] This is true of OCSLA.[17] This is frequently the case with resource management agencies, which

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[15] Established in the 1970's, the program's aim is to ensure that industry operations on the OCS incorporated the use of the Best Available and Safest Technologies (BAST), which were subsequently required through the 1978 OCSLA amendments. TAR operates through two branches: Operational Safety and Engineering Research (OSER) and Oil Spill Response Research (OSRR). Like the agency's Environmental Studies Program discussed later, TAR contracts out research projects to universities and private companies.

[16] J.R. DeShazo and Jody Freeman, *Public Agencies as Lobbyists*, 105 COLUM. L. REV. 2217 (2005).

[17] The Deputy Director of MMS/BOEM has testified that: "The OCS Lands Act mandates that the 5-Year Program must balance the priorities of meeting national energy needs, ensuring environmentally sound and

find they must adapt their primary pro-production mission to accommodate new environmental protection requirements imposed later by Congress in subsequent amendments or new separate legislation.[18] Historically, agencies faced with multiple and conflicting mandates have tended to prioritize one (usually the pro-production mission) and minimize the other (usually the environmental protection or conservation mission) in the absence of a clear declaration from Congress that they are equally important. For example, the Federal Energy Regulatory Commission (FERC) long ignored its more recent legal obligations to consider environmental impacts when licensing dams, instead prioritizing its original pro-power mission under the Federal Power Act. This changed only when Congress gave the agencies charged with environmental protection and species conservation the right to participate directly in FERC licensing decisions; obligated FERC to provide an explanation when it chose to ignore their recommendations; and required FERC to establish a dispute resolution process to mediate disagreements with other agencies.[19] Thus, one way to encourage an action agency to pay greater attention to secondary mandates like environmental protection is to increase the leverage of outside agencies with relevant expertise (for which these mandates are a priority) to play a more robust role in the action agency's decisions.[20] This may be especially important when an agency is faced with additional legislative mandates and incentives to favor its pro-production mission over other non-production values. This appears to be the case with DOI, which in addition to OCSLA must comply with the Deepwater Royalty Relief Act of 1995 and the Energy Policy Act of 2005 (both of which provide incentives for deepwater drilling).[21]

The list of options below represents a continuum of requirements that provide escalating leverage to the outside or "interested" agency. (Statutory examples of each type of provision are noted parenthetically and described in more detail in the appendix.)

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safe operations, and assuring receipt of fair market value to the taxpayer." Environmental Stewardship Policies Related to Offshore Energy: Hearing before the S. Committee on Energy and Natural Resources, 111th Cong. 2 (2009) (testimony of Walter Cruickshank, Deputy Director, Minerals Management Service).

[18] *See* DeShazo and Freeman, *supra* note 16 ; Eric Biber, *Too Many Things to Do: How to Deal with the Dysfunctions of Multiple-Goal Agencies*, 33 HARV. ENVTL. L. REV. 1 (2009).

[19] DeShazo and Freeman, *id.* at 2226 (citing relevant provisions of the Energy Conservation Policy Act of 1986).

[20] Under OCSLA, it is declared to be the policy of the United States that, "the outer Continental Shelf is a vital national resource reserve held by the Federal Government for the public, which should be made available for expeditious and orderly development, subject to environmental safeguards, in a manner which is consistent with the maintenance of competition and other national needs." OCSLA § 3(3); 43 U.S.C. § 1331. The Secretary of Interior must prepare a five-year OCS leasing program that "will best meet national energy needs." OCSLA § 18(a); 43 U.S.C. 1331. The timing and location of leasing must be based on a consideration of "relative environmental sensitivity" as one among eight considerations with no specification as to the appropriate balance. OCSLA § 18(a)(2)(G); 43 U.S.C. 1331. The Secretary is obligated to select timing and location of leasing, "to the maximum extent practicable, so as to obtain a proper balance between the potential for environmental damage, the potential for the discovery of oil and gas, and the potential for adverse impact on the coastal zone." OCSLA § 18(a)(3); 43 U.S.C. 1331.

[21] The full variety of incentives that favor production over environmental protection are beyond the scope of this memorandum but may include legislation, executive orders (*see, e.g.,* Exec. Order No. 13,211, 3 C.F.R. 767 (2002), *reprinted in* 42 U.S.C. 13,201 (2006)), announced national policies (*see, e.g.,* National Energy Policy Development Group, National Energy Policy (2001)), government accounting rules, private sector financing regimes, and other formal and informal drivers.

Types of Consultation Requirements

a. Action agency may consult with interested agency (Federal Insecticide, Fungicide and Rodenticide Act (FIFRA))

b. Action agency must consult with interested agency (Outer Continental Shelf Lands Act, Surface Mining Control Act)

c. Action agency must consult and coordinate with interested agency to maximum extent practicable (Coastal Zone Management Act (CZMA))

d. Action agency must consult with and respond to interested agency (FIFRA)

e. Action agency must consult with and provide reasons for deviating from recommendations of interested agency (Federal Power Act)

f. Adoption of recommendations of interested agency is the structural default, unless action agency gives reasons why doing so is inconsistent with its legal duties (Federal Power Act)

g. Interested agency has authority to set standards on a specific topic (Nuclear Waste Policy Act)

h. Interested agency must concur before action agency can proceed with proposed or pending action (Endangered Species Act, Solid Waste Disposal Act, Natural Gas Act)

i. Action agency and interested agency are instructed to work jointly to carry out statutory mission (with concurrent and equal say) (CZMA, Federal Public Lands Act)

j. Same options as above but exercised through a panel of federal agencies

More robust provisions provide additional leverage for outside agencies not only during the policy process but later, upon judicial review. If action agencies ignore recommendations with no explanation—in violation of a requirement that they provide one—courts may strike down the decision as arbitrary or capricious. In this sense, a strong consultation provision makes the treatment of outside agencies a relevant consideration for judicial review, and judicial review can in turn strengthen the leverage of the outside agencies. (See the example of the Clean Air Science Advisory Committee and its role in judicial review of CAA standards in the Appendix).

Ideally, such provisions would be adopted through legislation rather than through agency rulemaking. Statutory requirements provide greater stability over time, limit the action agency's discretion and allow for congressional oversight. Nevertheless, DOI has the authority to voluntarily adopt enhanced consultation or leverage-creating requirements through rulemaking.

3. Centralize Oversight through White House Review

OCSLA requires the Secretary of the Interior to submit a proposed final five-year plan for offshore drilling to the President (as well as Congress) sixty days before it is finalized.[22]

[22] OCSLA § 18(d)(2); 43 U.S.C. 1331.

Before this point, the statute requires no formal review by the White House. Currently, the Office of Information and Regulatory Affairs (OIRA) in the Office of Management and Budget (OMB) does not appear to review five-year plans, lease sales or individual permitting decisions under Executive Order 12,866.[23] This may be because none of these actions are considered by OIRA to be "regulatory actions."[24] Under Executive Order 12,866, all economically significant regulatory actions (defined as potentially having an impact on the economy of $100 million) and other "significant" regulatory actions by executive branch agencies must be submitted for OIRA review before becoming final.[25] This review mechanism affords the White House a measure of centralized oversight of regulatory actions that could have a significant impact on the economy, or otherwise present issues of special legal or policy significance. The most rigorous review is reserved for *economically* significant regulatory actions for which agencies must submit a detailed cost-benefit analysis, including underlying analyses (including assumptions and data), and an assessment of reasonable alternatives.[26]

Most relevant for the Commission's purposes, the OIRA-led review process under Executive Order 12,866 affords White House policy offices and councils as well as interested agencies an opportunity to comment on, and propose revisions to, other agencies' rules.[27] Thus, the OIRA review process can be a high-level executive branch forum for federal agencies to raise concerns about actions being contemplated by their sister agencies.

Arguably, OIRA already possesses the authority under Executive Order 12,866 to review DOI five-year plans. Five-year plans conceivably fall within the Order's broad definition of "regulatory actions" that are expected to lead to "regulation." By way of precedent, the General Accountability Office has classified similar agency actions—such as National Forest Land and Resource Management Plans—as regulations subject to the Congressional Review Act (which adopts virtually the same definition of "regulation" as Executive Order 12,866).[28] And if five-year plans are regulatory actions under the terms of the Executive Order, they are surely economically significant and thus subject to full cost-benefit analysis.

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[23] A review of OMB's website (www.reginfo.gov) finds no indication that OMB reviews five-year plans or leasing and permitting decisions.

[24] Exec. Order No. 12,866 § 3, 3 C.F.R. 638 (1994), *reprinted as amended in* 5 U.S.C. § 601 (2006) defines regulatory actions as "expected to lead to the promulgation of a final regulation" The Order defines a Regulation as "an agency statement of general applicability and future effect, which the agency intends to have the force and effect of law, that is designed to implement, interpret, or prescribe law or policy." A "significant" regulatory action is defined as "likely to result in a regulation that may: (1) Have an annual effect on the economy of $100 million or...(4) Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set out in this Executive Order..." The D.C. Circuit treats five-year plans as a separate category of action from traditional rulemaking or adjudication, and reviews them under a special hybrid standard of review. *See, e.g., Ctr. for Biological Diversity v. U.S. Dep't of Interior*, 563 F.3d 466, 484 (D.C. Cir. 2009).

[25] Exec. Order No. 12,866, *id.* at § 6(a)(3)(A)-(C).

[26] *Id.* at § 6(a)(3)(C).

[27] OIRA's duty under the executive order is to "provide meaningful guidance and oversight so that each agency's regulatory actions are consistent with applicable law, the President's priorities...and do not conflict with the policies or actions of another agency." *Id.* at § 6 (b).

[28] *See* Morton Rosenberg, Cong. Research Serv., Report No. RL30116, Congressional Review of Agency Rulemaking: An Update and Assessment of the Congressional Review Act after a Decade 26-27 (2008), http://www.fas.org/sgp/crs/misc/RL30116.pdf (discussing agency actions referred to the Comptroller General for determinations as to whether they were "regulations" subject to congressional review under the CRA).

Pursuant to Executive Order 12,866 and under subsequent OMB Circulars, Bulletins and Memos, OIRA has asserted expansive discretion to review a broad category of agency actions. Even if reviewing five-year plans were considered beyond the scope of OIRA's current regulatory review authority, a new Executive Order could address it.

There are pros and cons to extending the well-established OIRA regulatory review process to DOI planning regarding the OCS. Such review could serve as a useful vehicle for (a) better coordinating interagency consultation on the impacts of offshore drilling, and (b) improving the underlying analytic basis of MMS/BOEM decisions. Yet is could also be resource-intensive and politically contentious.

II. INDEPENDENT OUTSIDE EXPERTISE

A. The Current System

At the same time, MMS/BOEM could benefit from greater input and oversight from non-governmental bodies with relevant expertise on technical and engineering aspects of offshore drilling. MMS/BOEM currently consults with three advisory committees chartered under the Federal Advisory Committee Act—the Outer Continental Shelf Science Committee (Scientific Committee),[29] the Outer Continental Shelf Policy Committee (Policy Committee),[30] and the Royalty Policy Committee.[31] Yet only one of these—the Scientific

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[29] http://www.boemre.gov/mmab/ScientificCommittee/ocssc.htm

[30] The Policy Committee provides advice to the Secretary of Interior, through the Director of the MMS, related to the discretionary functions of MMS under the OCSLA.http://www.boemre.gov/mmab/PolicyCommittee/pcnew.htm; *see also* OCSPC: Annual Committee Report, FACA Database, *available at* http://www.fido.gov/facadatabase/search.asp (Committee name must be input manually). It is comprised of three federal members from DOI, and one each from DOC, DOD, DOE, State, EPA and USCG. Non-federal members include representatives of each state with offshore oil and gas interests, and up to seven members representing a variety of stakeholder constituencies, six of which are from the oil and gas industry. OCS Policy Committee Members (as of March 1, 2010), *available at* http://www.boemre.gov/mmab/PDF/OCSPCMembershipList.pdf; *see also* OCSPC: Annual Committee Report, *supra.*

[31] There are other advisory committees providing advice on offshore drilling to both the Coast Guard and DOE, but their role is constrained due to the narrow scope of their charge, their composition, or both. For example, the National Offshore Safety Advisory Committee (NOSAC) makes recommendations, performs studies, and produces reports that influence the development of DHS and Coast Guard regulations and policies affecting the offshore industry. *See* NOSAC website, http://www.uscg.mil/hq/cg5/cg522/cg5222/nosac.asp. This year NOSAC submitted seven recommendations to the USCG on topics related to the safety of offshore vessels, including final reports on Evacuation and Medical Treatment of Injured Workers from OCS Facilities. NOSAC is comprised of up to 15 members with expertise, knowledge and experience regarding the technology, equipment and techniques that are used, or are being developed for use in the exploration for and the recovery of offshore mineral resources. Fourteen of its fifteen members are appointed as "representatives"—meaning they are not subject to conflict of interest reviews. Nearly all members represent industry (Transocean, Caterpillar, and Global Industries are among the represented). *See* NOSAC website, *supra*; NOSAC: Annual Committee Report, FACA Database, *available at* http://www.fido.gov/facadatabase/search.asp (Committee name must be input manually). The Ultra-Deepwater Advisory Committee (UDAC) advises the Secretary of Energy on development and implementation of programs related to ultra-deepwater oil and gas drilling (deeper than 500 meters). Its mission is focused on promoting off-shore drilling. Section 999 of the Energy and Policy Act of 2005, under which UDAC was created, explicitly charges DOE with "maximiz[ing] the value of natural gas and other petroleum resources of the United States, by increasing the supply of such resources...." 42 U.S.C. § 16372. While DOE is to do so "while improving safety and minimizing environmental impacts," id., the starting point of the committee is to facilitate, not impede, drilling. Membership on UDAC is comprised largely of industry representatives (e.g.,

Committee—consists of members with scientific expertise drawn primarily from academia,[32] and its duties are narrowly limited to evaluating the quality of research proposals eligible for funding by the agency's Environmental Studies Program.[33] Notably, the Scientific Committee does not review research produced by MMS's TAR program. Thus, there appears to be no wholly independent expert check on a number of important and highly consequential decisions made by the agency as it prescribes performance standards; specifies prescriptive standards; determines what qualifies as "best and safest technology;" engages in risk assessment; and evaluates industry proposals to ensure compliance with relevant rules, among other things. DOI's Outer Continental Shelf Safety Oversight Board concluded among other things that MMS/BOEM's regulations lag behind available technology, and that oil spill response plans are not adequately assessed by the agency.[34]

Options for Improvement

1. Establish an Expert Advisory Board

The Commission may wish to recommend the creation of a new independent advisory board (Advisory Board) consisting of experts on engineering, safety and risk assessment, with the authority to review and make recommendations regarding MMS/BOEM planning, leasing and permitting decisions on the OCS, including the agency's standards for operational safety. The Board might be designed in a variety of ways, but ideally would be structured to ensure maximum independence and integrity. There are useful models for such an Advisory Board, including the Nuclear Waste Technical Review Board, the Clean Air Science Advisory Committee, and the independent National Transportation Safety Board, which are described in detail in the Appendix. Below are salient design features that emerge from a review of these and similar boards.

Shell, ExxonMobil, and Transocean) with no discernible representation of environmental interests. http://fossil.energy.gov/programs/oilgas/advisorycommittees/UltraDeepwater.html; *see also* UDAC: Annual Committee Report, FACA Database, *available at* http://www.fido.gov/facadatabase/search.asp (Committee name must be input manually).

[32] Twelve of sixteen committee members are from academia, including five experts in socio-economics and seven in oceanography and related sciences. The remaining four members are MMS's Associate Direct of OMM (ex officio), the Director of Conservation Advocacy at the American Bird Conservancy, a representative of the State of Alaska's Wildlife Conservation program, and a research associate at ExxonMobil. Outer Continental Shelf Scientific Committee: Members, Revised October 6, 2009, *available at* http://www.boemre.gov/mmab/PDF/OCSScientificCommitteeMembership100609Rev2.pdf..

[33] The Environmental Studies Program was initiated in 1973 to support DOI's offshore oil and gas leasing program. *See* http://www.boemre.gov/eppd/sciences/esp/index.htm. ESP engages in a broad variety of ocean research projects, some of which are conducted in conjunction with NOAA. See the ESP Information System, available at https://www.gomr.mms.gov/homepg/espis/espisfront.asp, for summaries of research projects and full research reports. The Science Committee reviews and advises MMS on the feasibility, appropriateness, and scientific value of proposed research topics. *See* OCSSC website, *supra* note 29. Almost all ESP projects are then contracted out to other entities. A 1990 review of the program by the National Research Council (notably prior to the dramatic expansion of deepwater drilling between 1995 and the present) concluded that ESP research would benefit from improved modeling, verification in light of field studies, and peer review. National Research Council, Assessment of the U.S. Outer Continental Shelf Environmental Studies Program, Volumes I-III (1990, 1992), *available at* http://www.nap.edu/catalog.php?record_id=1609 (Volume I), http://www.nap.edu/catalog.php?record_id=1963 (Volume II), and http://www.nap.edu/catalog.php?record_id=2062 (Volume III).

[34] OCS Safety Oversight Board report, *supra* note 13 at 25.

Key design features for effective technical/scientific advisory boards:

- Members chosen based solely on relevant subject matter expertise
- Independence from agency and other political control
- Independent staff and budget[35]
- Tailored charter[36]
- Authority to take up matters of own initiative
- Authority to review draft work product
- Reports to agency head and Congress
- Conflict of interest requirements, waivable in rare circumstances
- Agency required to respond
- Exempt from some FACA requirements

The design features above are characteristic of advisory boards that, according to available information, have significant independence and technical expertise and are widely regarded as relatively effective.

One key consideration in designing review boards is whether to exempt them from the Federal Advisory Committee Act (FACA).[37] FACA applies to all committees formed by statute, the president or by federal agencies to advise the executive branch, with some exceptions.[38] Committees must have a defined purpose; "fairly balanced" membership; exercise independent judgment; and have specified durations, reporting dates, appropriations, and publication details.[39] Unless Congress provides otherwise or a FOIA exemption applies, all committees must be open to the public; keep minutes; make minutes, drafts, and other committee materials available to the public; and be chaired, attended, and approved by a member of the federal government.[40]

The National Academy of Sciences (NAS) and National Academy of Public Administration committees were added to FACA in 1997 and are exempt from some of these requirements. Pursuant to FACA section 15, NAS committees are not under government control.[41] In addition, NAS must make its best effort to avoid member conflicts of interest; committee membership must be fairly balanced; and the committee is to exercise independent

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[35] It may be advisable to insulate the board's budget from political vulnerability e.g., allocate budget as a percentage share of appropriations for a popular program or as share of overall departmental budget.
[36] For example, the charge might specify that the committee's purpose e.g., "to ensure that the agency's regulations remains consistent with technological developments, that oil spill response plans are adequately assessed and that risk assessment methodologies are sound."
[37] FACA, 5 U.S.C. APP. 2 §§ 1-16 (2008).
[38] *Id.* at §§ 3(2), 4.
[39] *Id.* at §§ 5(b)(1-5), 5(c).
[40] *Id.* at § 10.
[41] *Id.* at § 15.

judgment.[42] NAS committees are not subject to the full set of transparency requirements imposed on other advisory committees. Meetings to gather data from outside of the Academy are generally open to the public (unless exempt under FOIA) as are the materials presented at such meetings. For meetings that are not "data gathering" meetings, the Academy provides only a summary of the meeting to the public.

FACA has been praised for, among other things, improving public access to government advisory bodies; exposing regulatory agencies to a broad set of viewpoints; producing consensus decisions; and bolstering credibility.[43] Yet FACA requirements also have been subject to a number of criticisms. For example, the mandatory balancing of interests in committee composition can undermine committee expertise by prioritizing the search for institutional/group affiliation over the search for the best qualifications.[44] Agencies have been criticized for doing an inadequate job of avoiding bias in appointments, which jeopardizes committee credibility.[45] Under GSA regulations, committee members may be appointed as "special government employees" (SGEs) or as "representatives." Representatives are aligned with particular stakeholder groups and are expected to present a biased account and they are not screened for conflicts of interest. By contrast, SGEs are experts expected to provide their best judgment and must pass a conflict review. Studies suggest that stakeholder representatives have been inappropriately appointed to scientific and technical advisory committees.[46] Agencies have also been criticized for failing to adequately screen members for conflicts of interest.[47]

While open meetings have certain benefits, they also have been faulted for creating an atmosphere that stifles debate—indeed this was a central contention of NAS when seeking exemption from FACA.[48] Open meetings may impact ability to recruit committee participants. Interviews with NAS committee members confirmed that they would be less likely to serve if NAS meetings were required to be open.[49] Appointments by agencies or the President may increase the likelihood that the committee will be influenced unduly by the authorizing entity (this was a central objection of NAS when seeking exemption from FACA—NAS thought sole authority to appoint members was necessary for independent work product).[50] NAS has also expressed concern about the FACA mandate that each

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[42] *Id.*

[43] *See* Sidney A. Shapiro, *Public Accountability of Advisory Committees,* 1 RISK: ISSUES HEALTH & SAFETY 189 (1990); Kevin D. Karty, *Membership Balance, Open Meetings, and Effectiveness in Federal Advisory Committees,* 35 AM. REV. PUB. ADMIN. 414 (2005).

[44] *See* Shapiro, *supra* note 43 at 194; Karty, *supra* note 43 at 418.

[45] U.S. Government Accountability Office (formerly the General Accounting Office), Federal Advisory Committee Act: Issues Related to the Independence and Balance of Advisory Committees (2008), *available at* http://www.gao.gov/new.items/d08611t.pdf [hereinafter U.S. GAO 2008].

[46] *Id.*

[47] U.S. General Accounting Office, Federal Advisory Committees: Additional Guidance Could Help Agencies Better Ensure Independence and Balance (2004), *available at* http://www.gao.gov/new.items/d04328.pdf [hereinafter U.S. GAO 2004].

[48] U.S. General Accounting Office, Federal Research: The National Academy of Sciences and the Federal Advisory Committee Act 2 (1998), *available at* http://www.gao.gov/archive/1999/rc99017.pdf [hereinafter U.S. GAO 1998].

[49] *Id.* at 6.

[50] *Id.* at 2.

committee be chaired by a government employee who must be present at and approve every meeting, and can adjourn meetings at will.[51]

The Nuclear Waste Technical Review Board (NWTRB) is a useful example of an independent expert committee, comprised of members screened by NAS, selected solely for their technical expertise, and not subject to all of FACA's requirements (see detailed description in Appendix).

2. Enlist the National Academy of Engineering

The Commission may wish to recommend an ongoing review and advisory role for the National Academy of Engineering (NAE) in particular. Any such role would need to be carefully structured to ensure consistency with the congressional charter for the National Academies.[52]

The NAE is a private, independent non-profit organization comprised of 2000 peer elected members. Among the purposes listed in its Articles of Organization is to "advise the Congress and the executive branch of the government, whenever called upon by any department or agency thereof, on matters of national import pertinent to engineering."[53] In addition, the NAE conducts independent studies on important topics in engineering and technology (including several section areas related to energy and the environment).[54]

The NAE advises the government through committees of its members (who are uncompensated). These committees are subject to § 15 of FACA, which includes requirements that the committee composition be subject to notice and comment; that the committee be fairly balanced and designed to avoid conflicts of interest; that "data gathering" meetings be open to the public; and that for all other meetings a summary of activities be made public, as noted above.

On May 11th, Secretary Salazar announced the formation of an NAE committee to study the Deepwater Horizon oil spill.[55] The NAE committee is tasked with "conduct[ing] an independent, technical investigation to determine the root causes of the Deepwater Horizon

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[51] U.S. GAO 2008, *supra* note 45 at 4; U.S. GAO 1998, *supra* note 48 at 6-7; U.S. General Accounting Office, Federal Advisory Committee Act: Overview of Advisory Committees Since 1993 (Testimony before the Subcommittee on Government Management, Information, and Technology Committee on Government Reform and Oversight House of Representatives) 6 (1997), *available at* http://www.gao.gov/archive/1998/gg98024t.pdf.

[52] An Act to Incorporate the National Academy of Sciences, 12 Stat. 806 (1863), *text available at* http://www.nasonline.org/site/PageServer?pagename=ABOUT_incorporation.

[53] Articles of Organization of the National Academy of Engineering, Article II(3), *available at* http://www.nae.edu/cms/7874.aspx.

[54] The National Academy of Sciences (NAS) established the National Academy of Engineering (NAE) as an independent organization on December 5, 1964. *See* Article II, Section 9 of the NAS Constitution; Cochrane, Rexmond C., *The National Academy of Sciences: the first hundred years, 1863-1963* 571 (1978). Both academies now operate under the original 1863 Congressional charter signed by President Lincoln, *see supra* note 52. All current committees functioning under the auspices of the national academies are listed and described at www8.nationalacademies.org/cp/.

[55] *See* the May 11, 2010 press release, *available at* http://www.doi.gov/news/pressreleases/Salazar-Launches-Safety-and-Environmental-Protection-Reforms-to-Toughen-Oversight-of-Offshore-Oil-and-Gas-Operations.cfm.

disaster so that corrective steps can be taken to address the mechanical failures underlying the accident."[56] Its first report is due to DOI by October 31, 2010. The second and final report is due June 1, 2011.

It is possible to imagine the NAE providing ongoing independent review of MMS/BOEM's technical and engineering analyses relevant to offshore drilling. NAE might be asked to compose a committee that would periodically identify and recommend available technology, industry best practices, best available standards, and other measures both in the U.S. and worldwide that would help reduce operational risk and avoid future oil pills. The committee's charter might be framed more narrowly or more broadly. Either the Director of MMS/BOEM or the Secretary of the Interior might be required to consider the recommendations, respond to them, and/or justify deviations from them.

National Academies committees currently in effect do not serve as perfect models for such a role. Most have durations between 6 and 24 months, with very few extending beyond that; none appear to be of indefinite duration.[57] Most committees focus on discrete subjects or provide site-specific analyses.[58] One potential model is the Research and Technology Coordinating Committee, which advises the Federal Highway Administration. Rather than focusing on a discrete problem, issue or location, the committee is tasked with providing "guidance on highway research and technology programs and activities and mak[ing] broad-based research priority recommendations" to the FHWA.[59] There are a variety of options for framing the scope of the work—an appropriate charge could presumably be developed in consultation with the NAE.

3. Bolster Internal Engineering Capacity of MMS/BOEM

There may be more direct mechanisms for bolstering internal MMS/BOEM expertise on operational safety, which do not rely on input from other agencies or outside experts. For example, higher pay, more senior level government appointments, stronger professional criteria and ongoing training would help to increase the engineering competence within the agency so that it is closer to par with industry. In addition, MMS/BOEM functions might be

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[56] Specifically, the committee will begin by examining the technologies and practices "involved in the probable causes of the explosion." After that inquiry, the committee is tasked with identifying and recommending "available technology, industry best practices, best available standards, and other measures" both in the US and worldwide that will help avoid future spills. This project is being implemented through the NRC and is intended to supplement the USCG and MMS investigations. *See* Project Information: Analysis of Causes of the Deepwater Horizon Explosion, Fire, and Oil Spill to Identify Measures to Prevent Similar Accidents in the Future, *available at* http://www8.nationalacademies.org/cp/projectview.aspx?key=49246.

[57] Non-academy advisory committees appear, on average, to be renewed indefinitely. *See generally* GSA's FACA Database, *available at* www.fido.gov/facadatabase/search.asp.

[58] *See, e.g.,* Project Information: Evaluation of a Site-Specific Risk Assessment for the Department of Homeland Security's Planned National Bio- and Agro-Defense Facility in Manhattan, Kansas, *available at* http://www8.nationalacademies.org/cp/projectview.aspx?key=49194.

[59] The committee's broad scope also includes technology transfer, ways to increase state/local/private participation in highway research, and "economic, social, energy, and environmental issues as they influence highway research policy and programs." The committee meets three times a year. It typically produces "letter reports" to the FHWA, though on occasion it produces more extensive reports. *See* Project Information: Research and Technology Coordinating Committee, *available at* http://www8.nationalacademies.org/cp/projectview.aspx?key=154.

restructured or reallocated to enable the engineering staff to focus on operational integrity to the exclusion of other tasks, and free of political interference. Some have suggested removing some or all of MMS/BOEM's current responsibilities from DOI and housing them in a new independent agency. There are pluses and minuses to creating independent agencies. These agencies are typically structured as multi-member boards or commissions that make decisions by majority vote; members cannot be removed by the president except for cause. As a result, they are not subject to executive control. It is also possible to insulate an expert body *within* an executive agency to enhance its independence. The relative strengths and weaknesses of different bureaucratic structures now being proposed for the several MMS/BOEM functions is beyond the scope of this memorandum, but regardless of the structure chosen, engineering competence and independence is a crucial issue.

APPENDIX

Examples of Provisions Affording Outside Agencies Leverage

a. Action agency may consult with interested agency

The Federal Insecticide Fungicide and Rodenticide Act (FIFRA): Administrator of the EPA is authorized to consult with other federal agencies in making labeling and classification decisions regarding pesticides. 7 U.S.C. 136a(f) ("the Administrator may consult with any other Federal agency").

b. Action agency must consult with interested agency

Outer Continental Shelf Lands Act (OCSLA): The Secretary of the Interior must "invite and consider suggestions from any interested Federal agency" in its preparations for a proposed leasing program. 43 U.S.C. 1344(c)(1).

Surface Mining Control and Reclamation Act: the Secretary of the Interior "shall...consult with other agencies of the Federal Government having expertise in the control and reclamation of surface mining operations..." 30 U.S.C. 1211(c)(6).

c. Action agency must consult and coordinate with interested agency to the maximum extent practicable

The Coastal Zone Management Act (CZMA): In carrying out approval of coastal zone management plans, the Secretary of Commerce "shall consult with, cooperate with, and to the maximum extent practicable, coordinate his activities with other interested Federal agencies." 16 U.S.C. 1456(a). The statute is silent as to what constitutes an "interested" agency.

d. Action agency must consult with and respond to interested agency

FIFRA: In addition to soliciting the views of the Secretary of Agriculture and the Secretary of Health and Human Services before publishing regulations under FIFRA, 7 U.S.C. 136s(a), the Administrator of the EPA must publish all such comments and a response to those comments in the Federal Register along with the proposed or final regulation. 7 U.S.C. 136(a)(2). This requirement may be seen as ensuring that the action agency (here the EPA) actually give some weight and consideration to the views submitted by consulting agencies.

e. Action agency must consult with and provide reasons for deviating from recommendations of interested agency

Federal Power Act (FPA): In granting an exemption from the requirements of 16 U.S.C. 823a (a), FERC "shall include" terms and conditions proposed by FWS and NMFS to avoid species loss. 16 U.S.C. 823a(c).

f. Adoption of recommendations of interested agency is the structural default, unless action agency gives reasons why doing so is inconsistent with its legal duties

FPA: Before issuing a license, FERC "shall solicit recommendations" from federal agencies. 16 U.S.C. 803(a)(3). If FERC believes the recommendation conflicts with its legal duties, it may decline to adopt a recommendation, but only by publishing its findings and a "statement of the basis for each of the findings." 16 U.S.C. 803(j)(2).

g. Interested agency has authority to set standards on a specific topic and action agency must ensure their criteria are "not inconsistent."

Nuclear Waste Policy Act: EPA must promulgate "generally applicable standards" for environmental protection from "offsite releases from radioactive materials in repositories." The standards and criteria set by the Nuclear Regulatory Commission for approving repository applications must not be inconsistent with the EPA standards. 42 U.S.C. 10141.

h. Interested agency must concur before action agency can proceed with proposed or pending action.

Endangered Species Act (ESA): a federal agency may not take, authorize, or fund any action that the Secretary of the Interior determines will likely jeopardize the continued existence of a listed species, or adversely modify such a species' critical habitat. 16 U.S.C. 1536(a).

Solid Waste Disposal Act (SWDA): "The Secretary [of the Interior] shall, with the concurrence of the Administrator [of the EPA], promulgate such regulations as may be necessary" regarding integration of the Solid Waste Disposal Act and SMCRA. 42 U.S.C. 6905(c)(2).

Natural Gas Act: Before authorizing siting or construction of liquefied natural gas facilities that may affect military installations, the Federal Power Commission must "obtain the concurrence" of the Secretary of Defense. 15 U.S.C. 717b(f).

i. Action agency and interested agency are instructed to work jointly to carry out statutory mission (with concurrent and equal say)

CZMA: Under 16 U.S.C. 1455(c)(1), the Secretary of Commerce and Administrator of the EPA "shall jointly review" state coastal protection programs. Both agencies must concur in order for a program to be approved. *Id.*

Federal Public Lands Act: 43 U.S.C. 1712(f) states that the Secretary of the Interior and the Secretary of Agriculture "acting jointly" should development and submit a wildfire management strategy to Congress.

j. Same options as above but exercised through a panel of federal agencies

SWDA: SWDA establishes an Interagency Coordinating Committee on Federal Resource Conservation and Recovery Activities, which "shall have the responsibility for coordinating all activities dealing with resource

conservation and recovery" carried out by federal agencies authorized to do so under the act. 42 U.S.C. 6911(b). The Committee is chaired by the Administrator of the EPA, which is the principal action agency for the statute. The statute grants the Committee less of an advisory role over the principal agency's actions, and more of an organizational role.

Toxic Substances Control Act (TSCA): The interagency committee established by TSCA is explicitly assigned an advisory role: "to make recommendations to the Administrator [of EPA] respecting the chemical substances and mixtures to which the Administrator should give priority consideration for promulgation of a rule." 15 U.S.C. 2603(e)(1). The committee consists of one member of the EPA, and members of seven other federal agencies. 15 U.S.C. 2603(e)(2)(A).

ESA: The Endangered Species Committee (ESC) established by 16 U.S.C. 1536(e) provides greater influence than the TSCA or SWDA committees because it allows a multi-agency committee to grant a wholesale exemption from the protections of the statute as administered by the action agency (here, the DOI). However, the ESC does not entirely remove the action agency from the decision-making process, because the Committee itself includes the Secretary of the Interior. Further, decisions to grant an exemption are made based on a report prepared by DOI. 16 U.S.C. 1536(g)(5).

Examples of Advisory/Independent Boards

Nuclear Waste Technical Review Board

Mission: The NWTRB was created by the Nuclear Waste Policy Amendments Act of 1987 (NWPAA) and charged with evaluating the technical and scientific validity of DOE's plans for disposing of civilian spent nuclear fuel and defense high–level radioactive waste.[60]

Salient Design Features:

- Independent
- Members appointed by the president from list supplied by the NAS
- Not subject to FACA's open meetings requirement[61]

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[60] The NWPAA directed DOE to focused on Yucca Mountain so the NWTRB has until recently been concerned almost exclusively with reviewing and making recommendations for that site. In practice, the Board's activities include meeting with DOE, DOE contractors, and Board panels; small group fact-finding focused on in-depth technical topics; review of critical technical documents provided by DOC and contractors, pre-closure safety analyses, contractor reports, analysis and modeling reports, and design drawings and specifications; and visits to Yucca Mountain to observe progress at the site. *See* NWTRB Fiscal Year 2008 Performance and Accountability Report (PAR) 1-2 (Nov. 17, 2008), *available at* http://www.nwtrb.gov/plans/fy2008par.pdf; *see generally* www.nwtrb.gov.

[61] The Board has no statutory requirements with regard to open meetings or public documents, 42 U.S.C. §§ 10261-10270, but information on the NWTRB suggests that its meetings are open to the public and its reports,

- Members must be "eminent" in science or engineering, and selected "solely" on basis of established records of distinguished service[62]
- Must represent broad range of relevant scientific and engineering disciplines (rather than balance of stakeholders typical of FACA committees)
- Members may not be employees of DOE, a national lab under contract with DOE, or an entity performing nuclear waste disposal under contract with DOE
- Reports to the Secretary of DOE and Congress
- Independent staff and budget[63]
- Requirement that Secretary provide the Board with records as may be necessary, including draft work product

Evaluation: Anecdotal evidence suggests that the NWTRB is generally well-regarded. The NWTRB itself acknowledges that it cannot compel DOE to act. Its annual report evaluates its performance by asking whether it undertook the work necessary to evaluate the technical and scientific validity of relevant DOE activity, and whether the results of the NWTRB's evaluation were communicated in a timely, understandable, and appropriate way to Congress, the Secretary of Energy, and others. The year-end report noted where both criteria were met; the review was largely favorable. A 2001 law review article noted that the DOE prepared its report, "Principles and Guidelines for Formal Use of Expert Judgment by the Yucca Mountain Site Characterization Project," at the recommendation of the NWTRB.[64] Stanford professor, and former committee member, D. Warner North noted in comments on OMB's proposed guidelines for peer review that NWTRB (along with the EPA's Science Advisory Board and the National Research Council) do an "exemplary job of meeting the need for federal agency peer review."[65] Finally, media and non-governmental organizations appear to take the Board seriously: Public Citizen called the NWTRB "a rare source of unbiased technical review of the controversial Yucca Mountain proposal, which in other respects has been highly politicized and inappropriately influenced by the powerful nuclear industry lobby."[66] The Las Vegas Review-Journal referred to the Board as "highly regarded as an independent voice in nuclear waste science debates."[67]

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correspondence, meeting transcripts and other materials are publicly available on its website, *see* www.nwtrb.gov.

[62] 42 U.S.C. § 10262(C)(i).

[63] The Act allows the Chairmen to appoint clerical staff as necessary and up to 10 professional staff. 42 U.S.C. § 10266.

[64] Patricia Fleming, *Examining Recent Expert Elicitation Judgment Guidelines: Value Assumptions and the Prospects for Rationality*, 12 RISK: ISSUES HEALTH & SAFETY 107, 109 (2001).

[65] D. Warner North, Comments on OMB Proposed Guidelines for Peer Review (submitted to OMB Oct. 28, 2003), *available at* http://www.whitehouse.gov/sites/default/files/omb/inforeg/2003iq/11.pdf.

[66] This arose in the context of a controversial Chair appointment whose expressed support for the Yucca Mountain plan was perceived to undermine the impartiality of the Commission; he eventually resigned. Lisa Gue, "New Chair of Key Nuclear Review Board Prompts Concerns About Objectivity on Yucca," Public Citizen, *available at* http://www.citizen.org/cmep/article_redirect.cfm?ID=8903.

[67] Steve Tetreault, "Reid targets nuke board chief," Las Vegas Review-Journal, Jan. 29, 2003, *available at* http://www.reviewjournal.com/lvrj_home/2003/Jan-29-Wed-2003/news/20576601.html.

Clean Air Scientific Advisory Committee (CASAC)

Mission: The Clean Air Act (CAA) requires that every five years, the CASAC complete a review of the national ambient air quality standards for the six criteria air pollutants regulated by EPA under the Act, and provide its advice and recommendations to the EPA Administrator.[68]

Salient Design Features:

- Although one of ten standing committees administered by the EPA Science Advisory Board,[69] CASAC is independently chartered and so reports directly to the EPA Administrator
- Subject to FACA
- Members chosen by EPA Administrator with input "invited" from the White House
- Membership drawn largely from universities and independent research laboratories, though the statute requires that one be a member of NAS, one be a physician, and one represent state air control agencies
- Meets on average six times per year, with work regularly orchestrated through its subcommittees (which hire paid consultants from universities and labs to supplement membership)[70]

Evaluation: GAO has noted that in structuring its committees, EPA does not select individuals with known biases or positions[71] and does a better job than most agencies of collecting information on potential committee members to inform the selection and conflict review processes.[72] Among EPA committees, CASAC is particularly well-regarded.[73]

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[68] CAA § 109(d)(2), 42 U.S.C. § 7409(d)(2) (2008).

[69] EPA's Science Advisory Board (SAB), established in 1978 under the Environmental Research, Development, and Demonstration Authorization Act, provides independent peer review and advice to EPA on a wide range of scientific and technical aspects of environmental problems, and research needs. *See* SAB website, http://www.epa.gov/sab/. The Board gives advice fives ways: reports (peer reviews of agency documents), advisories (review of agency works-in-progress), commentaries (extensive original reports on topics important to environmental protection), consultations (meeting with agency members in the "earliest stages of development of a project"), and workshops (in which the Board sponsors meetings between the Agency and non-SAB experts on a given topic). U.S. EPA Science Advisory Board, Overview of the Panel Formation Process at the Environmental Protection Agency Science Advisory Board 4 (2002), *available at* http://yosemite.epa.gov/sab/sabproduct.nsf/WebFiles/OverviewPanelForm/$File/ec02010.pdf. Members are appointed by the EPA Administrator after federal register notice to solicit nominations. *See* SAB Website, *supra*. A 2004 GAO report commended the SAB for adopting procedures designed to monitor conflicts of interest, ensure balance, and maintain integrity and independence. U.S. GAO 2004, *supra* note 47 at 44-46.

[70] While the CAA dictates that CASAC review the new NAAQS and make recommendations for revisions, "[i]n practice, EPA staff, not CASAC, have prepared these reviews, drafting Criteria Documents, which review the science and health effects of criteria air pollutants, and Staff Papers, which make policy recommendations. CASAC's role has been to review and approve these EPA documents before they [go] to the agency's political appointees and the Administrator for final decisions." Congressional Research Service, CRS Report for Congress: Air Quality Standards and Sound Science: What Role for CASAC? 19 (2007), *available at* http://www.ncseonline.org/nle/crsreports/07Oct/RL33807.pdf [hereinafter CRS-CASAC report].

[71] U.S. GAO 2004, *supra* note 47 at 5, 29, 32-33.

[72] U.S. GAO 2008, *supra* note 45 at 8.

CASAC's influence has been bolstered by judicial review— when evaluating the rationality of agency rules, courts look to see whether EPA has adhered to CASAC's recommendations.[74] This is a result of the prominent position given to CASAC in the CAA,[75] which requires EPA, when proposing new air quality standards, to summarize recommendations by CASAC and the National Academy of Sciences and provide reasons when deviating from their recommendations in any important respect. Some features of CASAC may diminish its independence, however: it depends entirely on EPA officials for its budget and staffing, and it functions under at least nominal control of the designated government official.

National Transportation Safety Board (NTSB)

Mission: The NTSB was established in 1967 within the Department of Transportation and was made independent by the Independent Safety Board Act of 1974.[76] It is charged with determining the probable cause of transportation accidents, promoting transportation safety, and assisting victims of transportation accidents.[77] In 2000, the agency embarked on an initiative to increase employee technical skills by establishing the NTSB Academy, now called the NTSB Training Center.

Salient Design Features:

- Independent agency
- Not subject to FACA
- Members appointed by the president with advice and consent of the Senate
- No more than three members to be appointed from a single political party

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[73] CRS-CASAC report, *supra* note 70. CASAC has been singled out as a model of "knowledge assessment," one of a handful of advisory groups considered to be "credibility specialists," which display intense concern for their actual and perceived independence from particular vested interest and can point to procedural guarantees o that independence. *See* Lawrence McCray, *Doing Believable Knowledge Assessment for Policymaking: How Six Prominent Organizations Go About It* (2004) (draft publication), *available at* http://web.mit.edu/cis/pdf/McCray-DoingBelieveableKnowledgeAssessment.pdf.

[74] In 2006, EPA for the first time promulgated National Ambient Air Quality Standards (NAAQS) that were not consistent with CASAC's recommendations. In 2009, the D.C. Circuit held that the Administrator's proposed NAAQS were impermissible, in large part because they diverged from CASAC's recommendations and "[t]he EPA failed adequately to explain its reason for not accepting the CASAC's recommendations." *See Am. Farm Bureau Fed'n v. EPA*, 559 F.3d 512, 521 (D.C. Cir. 2009).

[75] CAA § 307(d)(3), 42 U.S.C. § 7607(d)(3) (2010).

[76] Independent Safety Board Act of 1974, 49 U.S.C. § 1111 (2010).

[77] The Board "investigates accidents, conducts safety studies, evaluates the effectiveness of other government agencies' programs for preventing transportation accidents, and reviews the appeals of enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and the U.S. Coast Guard (USCG), as well as the appeals of civil penalty actions taken by the FAA." Based on its studies and the results of its investigations, the NTSB makes recommendations about transportation safety to government agencies (at all levels) and to industries and organizations, though it works primarily with the FAA and USCG. Its investigations and recommendations cover aviation, highways, marine activities, pipelines, and railroads, as well as the transport of hazardous material. NTSB, Background, Mission, and Mandate, http://www.ntsb.gov/Abt_NTSB/history.htm.

- At least three to be appointed on the basis of technical qualifications and expertise in accidents, safety and transportation
- Independent staff and significant annual budget[78]

Evaluation:

The NTSB reports that it has investigated more than 132,000 aviation accidents and thousands of surface transportation accidents. The Board also operates a "Most Wanted List of Transportation Safety Improvements" that highlights safety-critical actions that should be taken by the Department of Transportation, the Coast Guard, and other agencies Since its inception the NTSB has issued some 13,000 safety recommendations to 2,500 different agencies, industries, and organizations. In 2008, the NTSB reported that 67 of its recommendations were implemented, largely in the aviation industry; the average "acceptance rate" for recommendations in 2008 was estimated at around 82%.[79] NTSB is well regarded for its independence and, in particular, its probing investigations. The GAO has called the NTSB "a relatively small agency that has gained a worldwide reputation as a preeminent investigator of transportation accidents."[80] The GAO also noted that the NTSB continues to make progress on GAO recommendations to improve its Board's training and management.

[78] The Board has about 400 staff and a yearly budget of almost $100 million. U.S. Government Accountability Office, National Transportation Safety Board: Issues Related to the 2010 Reauthorization 1 (2010), *available at* http://www.gao.gov/new.items/d10366t.pdf [hereinafter U.S. GAO 2010].

[79] One scholarly article confirms this estimate, at least with respect to the aviation industry. Mark C. Niles, *On the Hijacking of Agencies (and Airplanes): The Federal Aviation Administration, "Agency Capture," and Airline Security*, 10 AM. U. J. GENDER SOC. POL'Y & L. 381, 417 (2002).

[80] U.S. GAO 2010, *supra* note 78 at 1.

Structural Options for Improving MMS/BOEM Decision Making on Offshore Drilling

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Interagency Consultation – Overview

- **OCSLA**
  - Weak
- **Other Statutes**
  - Narrow scope
- **NEPA**
  - Procedural only

OCSLA

- **Five Year Plan**
  - Must respond to DOJ but not other agencies
- **Lease Sale Stage**
  - Consultation requirement weak
- **Development and Production**
  - No requirement to respond to comments

Other Statutes

- **Clean Air Act**
  - PSD permit required from EPA
- **Clean Water Act**
  - NPDES permit required from EPA
- **Marine Mammals Protection Act**
  - Incidental take permit required from NMFS
- **Endangered Species Act**
  - No jeopardy consultation with FWS and NMFS
- **Magnuson Stevens Fishery Conservation and Management Act**
  - Essential Fish consultation required with NOAA
- **Coastal Zone Management Act**
  - Consistency review required with states

NEPA

- Umbrella requirement
- Procedural statute - no substantive obligations
- Onus on agencies to comment
- No mitigation required
- No worst case analysis required

More Robust Requirements

1. Action Agency must consult and respond
2. Action Agency must provide reasons
3. Default = adopt recommendations of outside agencies
4. Concurrence of outside agency required before proceeding
5. Outside Agency has joint authority to implement program

OMB/OIRA Regulatory Review

- Executive Order 12866
- Cost-Benefit Analysis for "economically significant regulatory action"
- Arguably Covers OCS 5 Year Plans
- Forum for Inter-Agency Input
- Review of Analytic Basis for Action

Outside Expert Advice

- Environmental Studies Program
  - Reviewed by Science Committee
- Technology Assessment and Research Program
  - No outside review

Advisory Committees – Key Design Features

- Members chosen based solely on expertise
- Independent from agency and other political control
- Independent budget and staff
- Tailored charter
- Authority to take up matters of own initiative
- Authority to review work product
- Reports to agency head and Congress
- Conflict of interest requirements
- Agency required to justify departing from recommendations
- Exempt from FACA

National Academy of Engineering

- Ongoing review and advisory role
  - Available technology, best practices, operational integrity
- Recommendations to MMS/BOEM or Secretary
- Report to Congress
- DOI obligation to respond or explain deviation

Examples of Advisory/Independent Boards

- **Nuclear Waste Technical Review Board**
  - Members screened by NAS
  - Appointed solely for expertise
  - FACA exempt
- **Clean Air Scientific Advisory Committee**
  - Appointed based on technical qualifications
  - Conflicts of interest checked
  - Reports directly to EPA Administrator
- **National Transportation Safety Board**
  - Independent agency
  - Independent staff and significant budget
  - Members chosen for technical qualifications

Summary of Outer Continental Shelf (OCS) Safety Oversight Board Report and BOEMRE's Implementation Plan in response

On April 30, 2010, Interior Secretary Ken Salazar created the Outer Continental Shelf Safety Oversight Board, comprised of Wilma A. Lewis, Assistant Secretary for Land and Minerals Management, Chair; Mary L. Kendall, Interior Department Acting Inspector General; and Rhea S. Suh, Assistant Secretary for Policy, Management and Budget. The Secretary charged the Board "with providing recommendations to improve and strengthen the Department's overall management, regulation, and oversight of OCS operations, including undertaking further audits or reviews, and reviewing existing authorities and procedures."

The report is based on interviews conducted with over 140 BOEMRE employees, online surveys of over 230 employees; and review of statutes, regulations, policies, procedures, and guidance. The Board engaged in a detailed review of its findings with former and current senior officials. A draft report was provided to senior officials within Interior, including Director Bromwich, for comment. Following a review and discussion of comments received, the Board finalized the report, dated September 1, and publicly released on September 8, 2010.

The analysis and recommendations cover six areas of activity: Permitting; Inspections; Enforcement; Investigations; and Environmental Stewardship. These areas are summarized below with bulleted examples of salient points made in the report:

Permitting: Resources and Protocol for Permit Review

Gulf of Mexico (GOM) district offices are challenged by the volume and complexity of permit applications and the lack of a standardized engineering review protocol. In addition, the Pacific Region's permitting staff is facing significant succession issues.

- GOM district offices do not have a standard practice to address operators who "shop around" for regulatory approval for their oil and gas operations and who contact district offices outside the appropriate jurisdictional area.

Inspections: Program Structure, Training, Personnel and Resources, Management Support

Certain challenges affect the overall effectiveness of the inspection program. Specifically, inspectors (a) are part of a program structure that is ineffective in facilitating the elevation of issues or concerns up the management chain; (b) begin and continue their jobs with no standardized training, testing, or certification; (c) operate with minimal resources; and (d) sometimes operate without strong management support.

- BOEMRE does not have a formal, bureau-wide compilation of rules, regulations, policies, or practices pertinent to inspections, nor does it have a comprehensive handbook addressing inspector roles and responsibilities.
- Almost half of the inspectors surveyed do not believe that they have received sufficient training.
- BOEMRE does not have an oil and gas inspection certification program.
- The Pacific Region employs a ratio of 1 inspector for every 5 facilities, and the GOM employs a ratio of 1 inspector for every 54 facilities.
- Most inspectors interviewed stated that industry often exerted pressure on them to minimize reporting violations during inspections.

Enforcement: Financial Penalties and Incentives for Safety Compliance
The current level of civil penalty fines and incentives, as well as the processing time afforded, do not make them an effective deterrent to violations of OCS regulations.

- The civil penalty process may take almost one year.
- Industry employees have limited whistleblower protection for disclosing safety violations.
- Of the 2,298 Incidents of Noncompliance (INCs) issued in 2009, only 50 follow-up inspections were conducted to ensure compliance.

Environment: Environmental and Cultural Resources Protection
An apparent emphasis on lease sales and permitting may create an imbalance in how BOEMRE fulfills its dual mandate to responsibly develop OCS resources, while protecting the environment and cultural resources.

- Several BOEMRE managers have changed or minimized the scientists' potential environmental impact findings in National Environmental Policy Act (NEPA) documents to expedite plan approvals.

Post-Accident Investigations
BOEMRE's accident investigation program lacks adequate protocols for basic investigation techniques, sufficient full-time accident investigation personnel, a well defined management chain staffed with experienced leadership at the highest levels, and an effective system for ensuring that safety and other recommendations resulting from accident investigations are implemented. In addition, accident reports submitted by operators often lack sufficient detail to allow meaningful analysis by investigators.

- Inspectors sometimes lack the necessary experience, training, and time to perform adequate investigations.

Environmental Stewardship: Regulatory Framework, OSRP Review, OSRP Content
BOEMRE must serve a pivotal role in fostering a new culture of safety and environmental stewardship. One challenge facing BOEMRE is that promulgating regulations may lag behind the development of new and emerging offshore technologies. In addition, BOEMRE's review of Oil Spill Response Plans (OSRP) does not ensure that critical data are correct or that other relevant agencies are involved in the review process. Also, OSRPs do not adequately address the calculation for worst-case discharge scenarios and fail to include measures for containing and controlling hydrocarbon discharges.

- Regulations that specifically address deepwater activities exist, but are scattered throughout BOEMRE regulation subparts and are not comprehensive, resulting in gaps and inconsistencies in interpretation.
- BOEMRE references less than 80 of the approximately 240 API standards related to exploration and development in its current regulations.
- BOEMRE is responsible for reviewing OSRPs, while the U.S. Coast Guard is responsible for the execution of the plans. USCG officials often do not review OSRPs and are not notified when new OSRPs come in for review. EPA is not involved in the OSRP review process.

The report provided specific recommendations for each of these six areas of activity. However, several themes were evident across each section of recommendations, the need to:

- Determine and ensure that technical expertise and resources necessary for staff to conduct responsibilities are available
    - Undertake a comprehensive workforce and workload analysis
    - Develop a standardized training program to ensure that staff are knowledgeable in all pertinent regulations, policies, and procedures
    - Ensure staff have appropriate technology, resources, and management support
- Develop ethics rules to avoid conflicts of interest
- Develop management system to minimize conflict of interest within the organization
- Develop policies and procedures for particular responsibilities and review protocols
- Develop a comprehensive and current handbook to compile and standardize policies and practices
- Better track and analyze the data collected through various systems currently in place

Simultaneous to the Safety Board's release of its report, Director Bromwich released an Implementation Plan dated September 4, 2010 in response. The BOEMRE Implementation Plan "concur[s] with the Safety Oversight Board's recommendations" as "both relevant and timely" and "responds to the 59 recommendations by the Safety Oversight Board that are contained in the [September 1] report." The BOEMRE Implementation Plan outlines steps already taken by the Bureau as part of its overall reform efforts that pertain to the recommendations made by the Safety Board, although specific information is not provided in every instance.

In his transmittal letter to Secretary Salazar, Director Bromwich highlights the actions completed by BOEMRE since he became Director on June 21, 2010 as follows:

- Moved our reorganization efforts into high gear with the retention of McKinsey & Company and an ambitious schedule for meeting with BOEMRE personnel and seeking their assistance in making sure the reorganization succeeds;
- Conducted all-hands meetings in New Orleans, Herndon, Camarillo, Anchorage, and Washington, DC, to keep our personnel up to date on the reorganization and answer any and all questions, including questions submitted anonymously, on any subject;
- Taken the steps necessary to ensure the separation of the royalty and revenue function and the creation of the Office of Natural Resource Revenue (ONRR) as of October 1;
- Created the Investigations and Review Unit (IRU), which is taking the lead on the Vermilion fire investigation, and staffed it with personnel from the private sector and the Department of Justice;
- Held five of eight forums around the country to gather information relevant to your decision on the deepwater drilling moratorium, focusing on drilling and workplace safety, spill containment, and spill response;
- Requested the preparation of reports by BP on lessons learned from the Deepwater Horizon explosion and spill;
- Persuaded the American Petroleum Institute (API) to make those of its standards incorporated by reference in BOEMRE regulations truly public for the first time;
- Issued tough new conflict of interest/recusal rules for offshore drilling inspectors and related personnel.

Director Bromwich also assures that BOEMRE "will be issuing an interim final rule that requires additional drilling safety measures and issuing a SEMS rule that will for the first time require industry to establish comprehensive safety and environmental management systems." NTL 2010-05 and NTL 2010-06 were issued following the *Deepwater Horizon* incident to address immediate safety concerns.

The BOEMRE Implementation Plan includes key initiatives to reorganize the responsibilities and functions of the former Minerals Management Service, obtain additional resources for BOEMRE, reform ethics, and improve inter-agency coordination.

Reorganization of the MMS into BOEMRE began with Secretarial Order No. 3299 issued by Secretary Salazar on May 19, 2010, "which assigned the responsibilities and functions of the former Minerals Management Service to three new organizations – the Office of Natural Resource Revenue (ONRR), the Bureau of Ocean Energy Management (BOEM) and the Bureau of Safety and Environmental Enforcement (BSEE). Among other things, the implementation of the reorganization will involve:

- building new systems for processing and analyzing data and performing risk assessments in permitting and environmental reviews;
- designing and implementing a robust, effective, and aggressive safety and environmental enforcement regime based on rigorous analysis of best practices and the challenges presented by industry;
- creating new policies and guidance for both federal personnel and industry;
- developing training programs and curricula;
- recruitment of scores of new professionals;
- establishing efficient, modern information systems; and
- developing management structures and systems appropriate to the scale and missions of the new organizations."

The BOEMRE Implementation Plan recognizes that obtaining additional resources "in the form of funding, personnel, equipment, and information systems" will be essential to the reorganization and implementation of the recommendations.

Additionally, BOEMRE has also already begun a push for ethics reform through the creation of the Investigations and Review Unit (IRU), which duties include "promptly and aggressively responding to allegations or evidence of misconduct or unethical behavior by BOEMRE employees or members of industry and aiding the Director in overseeing and reviewing the Bureau's regulatory and enforcement programs." In addition to the IRU, ethics reform at BOEMRE also includes a new policy regarding "Interference with the Performance of Official Duties and Potential Conflicts of Interest. This policy focused on BOEMRE's offshore inspections program because that is where the most difficult and common issues have arisen."

Finally, BOERME in attempting "to improve inter-agency coordination with respect to offshore energy development" through initiatives "that include the development of mechanisms to take advantage of expertise, resources, data, and information in the hands of various federal agencies – including the National Oceanic and Atmospheric Agency (NOAA), the Environmental Protection Agency (EPA) and other agencies – and which relate specifically to environmental science, environmental protection and enforcement, and the mitigation of the environmental effects of offshore energy development. The Bureau also is collaborating with the United States

Coast Guard (USCG) and other relevant agencies on the issues of oil spill response and requirements relating to oil spill response plans (OSRPs)."

The remainder of the Implementation Report "discusses the specific recommendations offered by the Safety Oversight Board and the Bureau's plans for evaluating and implementing those recommendations within the broader context of our reform efforts, including topics such as permitting, inspections, training, enforcement, accident investigation, and environmental stewardship in format consistent with that of the September 1 OCS Safety Oversight Board's Report. While some of recommendation-implementation detail is more concrete such as team assignments to study specific topics with scheduled, deliverable reports (e.g. a team study on the current state of inspector training and near-term recommendations for improvement, due November 2010), other recommendation-implementation detail is more generalized considering analysis of the best way forward is ongoing and the results are pending.

In the BOEMRE Implementation Plan's conclusion, it states that the Board's Report "is only one among a large number of studies, reviews, and investigations being conducted by various entities of the former MMS. This obviously creates a risk that because the results of these reviews will continue to flow in over time, and they are based largely on the state of affairs within MMS as of April 20, 2010, the view of BOEMRE will continue to be frozen in the past and will not keep up with the reform efforts that are currently in full-swing. That is misguided and unfair. It is critically important that as these reform efforts continue, the Department and the outside world acknowledge them and recognize the enormous transformation the agency is undergoing."

OFFICE OF THE SECRETARY
U.S. Department of the Interior

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News Release

Salazar: OCS Safety Board Report a "Blueprint" for Next Steps on Internal Reforms of Offshore Energy Oversight

Bromwich Develops Implementation Plan for Recommendations

09/08/2010

Contact: Kate Kelly, DOI (202) 208-6416

WASHINGTON – Secretary of the Interior Ken Salazar today announced that a team led by senior officials in the Department of the Interior, including Interior's Inspector General, have completed a review of offshore oil and gas oversight and regulation and have delivered a set of recommendations that reinforce and expand on ongoing reforms being carried out by Bureau of Ocean Energy Management, Regulation, and Enforcement (BOEMRE) Director Michael R. Bromwich.

The report of the Outer Continental Shelf (OCS) Safety Oversight Board, which Secretary Salazar established immediately following the explosion of the Deepwater Horizon rig, provides recommendations to strengthen permitting, inspections, enforcement and environmental stewardship. Director Bromwich announced today that BOEMRE has developed an implementation plan for the recommendations, many of which are already underway or planned.

"I tasked the OCS Safety Board with taking a hard, thorough look – top to bottom - at how this department regulates and oversees offshore oil and gas operations and provide me their honest and unvarnished recommendations for reform," said Secretary Salazar. "The report is what I was looking for: it is honest; it doesn't sugarcoat challenges we know are there; it provides a blueprint for solving them; and it shows that we are on precisely the right track with our reform agenda. We are absolutely committed to building a regulatory agency that has the authorities, resources, and support to provide strong and effective regulation and oversight – and we are on our way to accomplishing that goal."

"The goal of our efforts is a culture of safety, in which protecting human life and preventing environmental disasters are the highest priorities, while making leasing and production safer and more sustainable," said Assistant Secretary Wilma Lewis, who chaired the Safety Oversight Board. Mary L. Kendall, Acting Inspector General of Interior and Rhea S. Suh, Assistant Secretary for Policy, Management and Budget, also served as members of the Board.

"My mandate from the President and Secretary was explicit– reform the way the agency does business in managing and regulating offshore energy development on the nation's Outer Continental Shelf," said BOEMRE Director Bromwich, who noted that the initiatives are consistent with the reform agenda he has been developing and implementing. "Many of the Board's recommendations will be addressed through initiatives and programs that are already in process and are central to our reform agenda."

The Safety Oversight Board's findings and recommendations provide a framework to build upon reforms to create more accountability, efficiency and effectiveness in the Interior agencies that carry out the Department's offshore energy management responsibilities. The recommendations address both short- and long-term efforts that complement other ongoing reports and reviews, such as the Secretary's May 27 report to the President, the Presidential inquiry into the

Deepwater Horizon oil spill and the U.S. Coast Guard-Interior investigation into the causes of the incident.

The recommendations range from improved consistency and communication of BOEMRE's operational policies to technology improvements and day-to-day management in the field. Strengthening inspections and enforcement – from personnel training to the deterrent effect of fines and civil penalties – is a major focus of the recommendations.

BOEMRE's implementation plan outlines the initiatives and programs that the Bureau is undertaking which address the report's recommendations, including: reorganizing MMS to address real and perceived conflicts between resource management, safety and environmental oversight and enforcement, and revenue collection responsibilities; seeking additional resources in the form of funding, personnel, equipment and information systems; ethics reforms that include the establishment of an Investigations and Review Unit and a new recusal policy to address potential conflicts of interests within BOEMRE and industry; and Inter-Agency coordination with federal agencies related to oil spill response and the mitigation of environmental effects of offshore energy development.

The OCS Safety Oversight Board Report is online at http://www.doi.gov/news/pressreleases/loader.cfm?csModule=security/getfile&PageID=43677

The BOEM Implementation Plan is online at http://www.doi.gov/news/pressreleases/loader.cfm?csModule=security/getfile&PageID=43676 (signed) and http://www.doi.gov/news/pressreleases/loader.cfm?csModule=security/getfile&PageID=43879 (text-PDF)

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DRAFT Staff Working Document

MEMORANDUM

To: **Commissioners**

From: **Staff**

RE: **Comparison of Regulatory Regimes for Offshore Oil and Gas Development**

A review of offshore oil and gas regulatory systems in key OECD countries outside the U.S., conducted through research and interviews with the managing regulators, provides insights to inform Commission deliberations.

A series of major tragedies with significant loss of life in the 1980s led Norway, the United Kingdom (U.K.), Australia and the Canadian Maritime Provinces to reconsider their approaches to regulating the industry.[1] Common to all was the conclusion that a solely prescriptive approach was inadequate for regulating activities with process safety risks, given that the industry and technology would always be ahead of the regulations.

The Piper Alpha accident in the U.K. North Sea and the subsequent investigation led by Lord Cullen, referred to as the Cullen Report[2], had a transformational impact on U.K. regulation of offshore oil and gas activities. The previous prescriptive regulatory approach evolved into one where regulations were supplemented with a requirement for companies to demonstrate that they had undertaken a thorough assessment of risks associated with an activity. Plans would have to include a safety management strategy to minimize accident risks for workers, including contractors, and to ensure compliance with all regulations. Fundamental to this new paradigm was the shift in primary burden for identifying and managing risk from the regulator to the company seeking permission to exploit national resources.

All foreign regulators had tried the sort of prescriptive regulatory approach used in the U.S., but over time and hard experience concluded the shift to a risk-based approach was essential to accommodate changing technology, geology, and location. The prescriptive *regulation with inspection model* was fundamentally reactive rather than serving to drive continuous improvement. The model engendered hostility between the parties and put the risk, both legal and moral, onto the regulator. Each regulator now requires companies, before being allowed to begin operations, to assess the risks associated with offshore activities and positively demonstrate that each facility has the policies, plans, and systems in place to manage those risks. The risk management model requires proactive engagement of all parties: operators, contractors, and labor, as well as the regulator. Rather than approve, the regulator either consents or not to an operation proceeding. In addition to ongoing supervision, all such risk

[1] Norway- the Alexander Kielland, a floating platform for off-duty workers, capsized in the North Sea in 1980 killing 123 people. Canada - the Ocean Ranger semi-submersible drilling rig sank off the coast of Newfoundland while operating the Hibernia oil field during a major storm killing 84 crewmembers in 1982. U.K. - the Piper Alpha platform exploded and sank in 1988 while drilling in the North Sea in a field operated by Occidental Petroleum killing 167 workers.

[2] The Public Inquiry into the Piper Alpha Disaster, Cullen, The Honourable Lord, HM Stationery Office, 1990.

management plans, sometimes referred to as a *safety case*, are subject to thorough review and reassessment by the regulator at least every 3-5 years.

All regulators insisted, however, that under the risk management approach, the responsibility is squarely on the operator. The regulator's role is to:

1. set performance objectives with regulations and supplemental guidance, often referencing industry standards,
2. require a demonstration in the form of a safety case, safety plan, or certification that the operator has thoroughly evaluated risks and committed adequate resources to planning and developing the necessary equipment, practices, and safety management systems to manage those risks,
3. review, supervise, and inspect to ensure the operator is implementing those safety plans,
4. reserve the right to deny or rescind permission to operate.

Common Themes

Governance/Regulatory Organization – The safety regulators have no responsibility or influence over revenue matters other than limited assessments to cover regulatory costs. All have final authority to consent to or prohibit drilling plans and production operations. Regulators in the U.K. and Norway are part of ministries of labor. The Australian safety regulator is under the Department of Energy but has independent authority. None of the three has leasing/licensing authority. The Canadian joint federal-provincial boards in Newfoundland, Labrador, and Nova Scotia manage the leasing as well as operations and safety oversight. Both boards have a designated Chief Safety Officer with authority to shut down operations in the interest of safety or environmental protection. The authority in safety matters appears in all cases to be absolute and not appealable.

Risk Management/Safety Case – Under all regimes, operators are required to demonstrate that comprehensive assessments of risks and plans to manage such risks have been developed and are being implemented on a continuous basis. Regulations and guidance, often in the form of references to industry standards or other benchmarks, underpin risk management requirements. Still, simple compliance with the individual regulations and guidance does not meet the burden of demonstrating risk management. Well integrity, structural and process integrity, maintenance management, the natural environment, emergency and spill preparedness, management systems and human factors must all be integrated. Effective use of information and communication technology is fundamental, especially given the nature of the offshore work environment, with shift rotations and multiple companies performing different contract services, often simultaneously.

Discrete Focus on Facilities - All jurisdictions require a safety case, risk management plan, or operating certification for all facilities. The *duty holder* is the lessee operator for producing facilities. Drilling ships/mobile offshore drilling units (MODUs) are treated as distinct facilities equally subject to regulatory obligations. Attention to facilities that would otherwise be considered vessels by maritime authorities mitigates the potential for a gap in safety assurance. Application of these rules evolves with industry practices. All facilities are required to have coordinating plans with other parties in an operation.

Supervision/Audit Practices – All regulators view their roles as one of continuous supervision with audits rather than "inspections." A team approach is used, with an emphasis on continuity and familiarity with specific projects/platforms. Rotating a part of the team serves as a safeguard to avoid "capture." Audits are planned, staffed, and scheduled based on scope of activities, often determined through initial meetings onshore to review previous audits and incident experience. Without exception, the audits use a systems approach to assess performance rather than a checklist. Inspections of some equipment may occur, but most regulators require specialized third party certification of the integrity or fitness of equipment. All have 3-5 year cycles for comprehensive risk reassessments.

Personnel and Training – All of the regulators have the hiring authority and benchmarked salary scales to compete for specialized, professional staff. The emphasis is on advanced degrees in engineering and/or experience in high-risk industries, including but not limited to oil and gas. The approach is to hire technical experts and then train them to be regulators; some regulatory bodies have the national police provide seminars on investigation techniques. Continuous and specialized training is a high priority. All of the regulators have their own technical programs, but personnel often attend training programs certified by industry organizations. All seemed to be working toward more tailored training and certification programs, with an emphasis on evolving technology and necessary knowledge base and skill sets.

Tri-partite Engagement – The North Sea industry is largely unionized, whereas Canada and Australia have some union presence. Labor has a voice in all of these regimes, whether through unions or statutorily guaranteed worker safety representatives. The U.K. and Australia have specific statutory requirements for elected worker safety representation. Canadian law is even more direct, with all workers having the right to refuse any task "which they believe is dangerous to their health and safety, or the health and safety of another person at the workplace." All require operators to have documented safety and environmental management systems and actively promote labor engagement in industry efforts to improve safety management. All of the regulators are vigilant in their efforts at maintaining heightened awareness within the industry – companies and offshore workers – as to the need for workplace safety and environmental protection.

Statistics and Data Analysis – Annual reports with detailed summary statistics and trend analyses on injuries and lost work time, incidents by type and severity, root cause investigations, inspections, and enforcement actions are actively publicized and reviewed with industry. All uncontrolled hydrocarbon releases are categorized as "dangerous occurrences" requiring special attention and reporting. Hydrocarbon releases of a certain size are always investigated as leading indicators for potential safety incidents – loss of well control to uncontrolled fires. Public disclosure of specific details related to individual inspections and enforcement action varies.

The decision to open offshore areas to oil and gas development is addressed at a higher level within the political process. Environmental considerations, project specific stipulations, and permitting are handled differently in each country.

Norway

Management of offshore activities is divided among a number of entities within the Norwegian government. Under the Ministry of Petroleum and Energy, the Norwegian Petroleum Directorate (NPD) is responsible for negotiating lease concessions under a system in which companies compete on technical competence. The Petroleum Safety Authority (PSA), created as a separate entity under the

Department of Labor in 2004, participates in the evaluations. Companies must be approved by the PSA, which sets standards and limits on participation depending on the location. Deepwater and frontier areas require partnering with an experienced operator; companies new to the region or lacking experience are only accepted as part of an experienced team. Projects are always joint ventures, managed collectively, with all parties liable. The joint venture licensees are considered the "board" with collective responsibility; the operator is the manager.

The NPD approves development plans to ensure efficient and optimal recovery of resources, but the PSA must review and consent to drilling and development plans. Both agencies must and do agree; in practice only environmental disputes reach the ministerial level. The PSA reconsiders the competency of the licensees individually and collectively prior to commencement of development projects. The Norwegian system is unique in that the NPD participates on the management committee of each drilling and development project and has access to all data and plans, which are shared with the PSA. As a result, the PSA puts less emphasis on receiving a comprehensive set of documents.

The Norwegian regulatory system was significantly reformed in 1985 following the Alexander L. Kielland accident. According to Magne Ognedal, the director general, prior to 1985 the industry was reactive, waiting for inspectors to direct action. The culture was one of suspicion and distrust between the industry and regulator. As the PSA recognized that its rules were always lagging industry on technology and production systems, the system evolved to functional risk-based regulations that describe *what* must be achieved, not *how* it must be.[3]

Under the current regime, regulations and guidance documents reference codes and standards that are considered acceptable. If a standard is not listed, it does not meet the minimum requirement. The PSA staff participates in all activities: development of regulations, audits and verification of industry operations offshore. The PSA also requires drilling rigs/MODUs to obtain an Acknowledgement of Compliance (AOC) certification. A rig owner must go through a detailed application process to demonstrate that "the technical condition of a mobile facility and the applicant's organization and management system are considered to be in compliance with relevant requirements in Norwegian shelf." If the rig leaves the Norwegian North Sea, it must continue to operate under all terms and conditions of the AOC or it will have to go through an extensive recertification process upon return.

Four weeks prior to any drilling activities, a company must file a consent application that includes use of an AOC rig, spill response plan, specific drilling plans. The regulatory process is one of consent, not approval; if the PSA is not convinced the industry has adequately considered all risk, a project is not allowed to proceed.

The agency sets priorities in its annual supervision plan for audits and verifications. The supervision plan is a strategic document not disclosed to the public or industry. Inspections are prioritized based on risk measures, including recent experience and trends with accidents and incidents, expected industry plans (including their own audits), and input from other cooperating agencies, including the Climate and Pollution Agency and consequences of new or revised regulations. Audits and inspections of individual operators are planned based on the overall set of risk-based priorities. Audit reports are public and posted on the PSA website. The PSA visits each facility at least once every three years.

[3] Interview with Director General Ognedal and PSA Staff.

The health and safety environment in general and recent incident and spill experience is reviewed with industry for the purpose of focusing industry efforts on improving performance. An annual report on trends in risk level is released in April at a meeting with the industry Safety Forum, where the producers and rig operators associations are then tasked with follow up strategies to redress negative trends and improve overall outcomes. Workplace conditions in the rough climate in the North Sea are a special consideration for the PSA. The PSA conducts a biennial confidential survey of industry workers as a cross check to assess their experience related to health, safety and environmental factors.

United Kingdom

Offshore oil and gas activities in the U.K. are managed by the Department of Energy and Climate Change (DECC) and the Health and Safety Executive (HSE). The office of Oil and Gas Licensing, Exploration and Development reports to the Director for Energy Development within DECC. The Offshore Environment and Decommissioning, which is responsible for environmental consultation and permissions during the licensing and development stages, also reports to the same director. DECC assesses the suitability of companies based on financial and technical expertise and evaluates development plans from the perspective of optimal resource recovery. Oversight of safety and risk management are the responsibility of the offshore office within the HSE, a division of the Department for Work and Pensions. HSE is responsible for setting standards for all drilling and production activities.

HSE requires a "safety case" for facilities – from rig/MODU operators for exploratory wells and from the operator for production facilities. HSE encourages duty holders to begin consultation at the initial design stage, as the safety case must eventually be presented and defended to a review team prior to commencement of any activities. Once drilling is planned, the operator must notify HSE at least 21 days prior to the planned drilling date to have the well design reviewed. A third party evaluation is required for well designs and all safety critical elements of the project, including equipment, such as blow out preventers. HSE reviews focus on major hazards safety (process safety).

Responsibility for regulating the offshore industry was brought under HSE after the Cullen Report found that the "comparatively small size of the Safety Directorate appears to have been a factor restricting the scope of the in-house expertise." Moving the responsibility for offshore safety into the larger HSE allowed the program to draw on a pool of expertise relating to fire protection and management of hazardous industries ranging from chemical manufacturing, gas storage and transportation, to mining, diving and explosives. The offshore program within HSE has a strategy to recruit experts, and then train them to be regulators. Recruitment emphasis is on advanced degrees in technical fields and/or extensive experience.

In the spirit of the Cullen Report, safety culture is at the crux of the management of all offshore risks. The system is one of industry responsibility for demonstrating risk assessment and risk management with an underpinning of minimum requirements often based on industry standards. Documented safety management systems are required. The regulations require the operators as "duty holders" to coordinate with all others to ensure the health and safety of all personnel on an installation.

The safety case requires a demonstration by each duty holder that all hazards that could cause a major accident have been identified, all major accident risks have been evaluated, and measures have been, or will be, taken to control the major accident risks to ensure compliance with the relevant statutory provisions. The standard is to manage risks to a level *as low as reasonably practicable* (ALARP). HSE issues extensive guidance for risk assessment and the development of safety cases. "These guidelines

describe a framework that is intended to help decision-makers assess the relative importance of codes and standards, good practice, engineering judgment, risk analysis, cost benefit analysis, and company and societal values when making decisions. They aim to encourage the development of transparent decision making processes, thereby helping duty holders meet their regulatory obligations."[4]

Offshore supervision is planned based on the activities and past experience at a specific facility. Manned platforms are subject to inspection 3-4 times per year, drilling units at least once per year. Pre-meetings are held with the companies prior to the offshore visits. Surprise inspections are not considered useful, as the intent is to test and validate the key elements of the safety case. Each facility's safety case is thoroughly reviewed at least once every five years. "Safety Case is not like a magic toad you wave over a platform like a blessing. It's a living document," noted Steve Walker, Head of the Offshore Division, HSE.[5]

HSE encourages offshore workers, especially through the trade unions, to become involved in managing their own health and safety. The Offshore Installations (Safety Representatives and Safety Committees) Regulations of 1989 provides the explicit legal framework for safety representatives among the workforce who are independent of the management. These safety representatives have independent powers to investigate complaints, potential hazards and accidents, and to make representations to management and the HSE on behalf of the workforce. To ensure the system is working as intended, HSE set up a Workforce Involvement Group (WIG). A priority for 2010 is to assess the level of compliance with the safety representatives' regulations and to develop training plans to better equip them for the role. The intent is for the WIG examples of good practice regarding workforce involvement to be developed into industry guidance.

Step Change in Safety was established in 1997 by the oil and gas industry trade associations to reduce the offshore injury rate through development and sharing of best practices. The original plan to measure safety performance in relation to *Lost Time Injury Frequency* on offshore installations has been expanded to include aviation safety[6], marine safety and the prevention of major accidents. The membership has also expanded to include HSE and the trade unions. HSE considers Step Change to be a critical part of maintaining the safety culture.

Australia

With the exception of safety, the offshore industry in Australia is managed by the state and territorial governments in near coastal waters and by the federal Department of Energy, Resources and Tourism in waters beyond the three nautical mile seaward baseline. Management and supervision of offshore activities are handled by the state and federal authorities under a joint Authority/Designated Authority arrangement. The National Petroleum Safety Authority (NOPSA) is the safety regulator in federal as well as in the state and territorial waters where there is oil and gas activity. NOPSA's safety approach emulates the U.K. HSE system in large measure, including requiring a safety case with active worker involvement in safety culture. NOPSA is under the Department of Energy, Resources and Tourism, but is an independent agency authorizes to carry out its responsibilities without interference.

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[4] Offshore Installations (Safety Case) Regulations 2005 Regulation, Health and Safety Executive, http://www.hse.gov.uk/offshore/is2-2006.pdf

[5] Interview with Steve Walker.

[6] Helicopter accidents have been the leading cause of offshore fatalities in recent years.

As in the U.K. system, all facilities – drilling ships, MODUs, and platforms – must have a safety case. Unlike the U.K. HSE, NOPSA is not engaged in the safety review process until after the production design plans under the safety case have been developed. In the case of the Montara blow out in August of 2009 that lasted 74 days, the authorities of the Northern Territory were responsible for the approval of the operator's safety case. The final report from the Montara Commission of Inquiry has not yet been released, but on September 23, 2010, Martin Ferguson, Minister for Resources and Energy, announced several actions to ensure more effective oversight of offshore worker safety and environment, including a commitment to adequate resourcing and recruitment of people with technical skills in offshore oil and gas exploration and development. NOPSA's authority will be consolidated with all "responsibility for the structural integrity of pipelines, wells and well related equipment including the environmental aspects of petroleum development." The intent is to have one regulator responsible for safety and environment from exploration to decommissioning. [7]

NOPSA recruits staff trained in engineering, oil and gas, petrochemicals, and/or pipeline operations. The agency has developed a training program tailored to its specific needs and has developed competency-based academic qualifications in cooperation with a university with a focus on the petroleum industry, as well as health and safety in the engineering sector. The level of unionization is low in the Australian offshore; however, there is a specific provision in the occupational health and safety legislation that provides some specific authority and protection for non-management workplace safety representatives. Incident reporting is kept confidential to encourage compliance, but a move to greater transparency is under consideration. The industry association has an annual "Stand Together for Safety" event and requires new personnel to participate in the Common Safety Training Program.

Maritime Canada

The Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB) and Canada Nova Scotia Offshore Petroleum Board (C-NSOPB) are joint federal–provincial independent boards that lease and manage all aspects of offshore oil and gas development, except revenue collection. Unlike the North Sea and Australian models, leasing and safety and environmental protection are managed by the same entity. The law also requires consideration for "industrial and employment benefits from the development of Atlantic offshore oil and gas for Canada in general and for the Maritime Provinces in particular." Prior to any work being carried out, a "benefit plan" must be prepared "for the employment of Canadians and, in particular, members of the labour force of the province; and for providing manufacturers, consultants, contractors, and service companies in the province and other parts of Canada with a full and fair opportunity to participate on a competitive basis in the supply of goods and services." (In the early days of exploitation in the North Sea such "local content" type requirements were in place in Norway and the U.K.)

While not called a safety case, "the Operations and Safety Department has an established safety assessment process to review Operators' applications in a systematic manner prior to the Board issuing a work authorization. This process considers the safety of the activity as a whole and its component parts including the installation, its facilities, personnel and procedures. This process also provides confidence that each Operator has an appropriate system in place to manage risk to personnel both from major hazards and from day to day occupational hazards. As part of the safety assessment process,

[7] Remarks made to the 2010 South East Asia Australia Offshore Conference. Some of the changes will require parliamentary action.

Safety Officers may visit installations or vessels to conduct a safety audit or safety inspection."[8] As in the North Sea and Australia, individual safety plans are required for facilities: drillings ships, MODUs and production platforms.

Oversight and inspections are managed essentially as in the North Sea with comprehensive reviews of each facility's safety plan once every three years. The Board meets with the industry quarterly for a thorough review of activities and incidents, including a review of lessons learned.
The Boards use the same training matrix as the Canadian industry, supplemented with conferences on investigations put on by the Royal Canadian Mounted Police

The Boards are independent and operate at arms-length from the Federal and Provincial Ministers of Natural Resources. Ministers cannot easily countermand the decisions of the Chief Executive. In addition, each Board has designated a Chief Safety Officer with complete authority to shut down operations based on unacceptable safety or environmental risk. Max Ruelokke, the Chair and CEO of C-NLOPB, described the role of the offshore workforce in maintaining safety culture as one of authority and responsibility.[9] There is an obligation to shut down operations where safety or environmental protection is at risk.

International Collaboration

Norway and the U.K. are members of the *North Sea Offshore Authorities Forum (NSOAF)*[10], which was formed in 1999 by governmental authorities in charge of supervision of offshore petroleum activities. The organization has working groups on drilling and well control, health safety and environment programs, and safety training. The organization recently carried out a multi-national audit, NSOAF, Multi-National Audit "Supervision" 2007-2009, across regulators and facilities, with a particular focus on management systems within the industry. Another objective was to assess the "consistency of approach by individual Regulators in the North Sea." According to Steve Walker, HSE, it is important for industry to see that regulators are working collectively and sharing experience to develop best practices. The findings were positive with respect to company management systems, but better management of contractors and their management of operations pose a significant challenge. This is compounded by the demographic and manpower situation, specifically a shortage of skilled and experienced supervisors. The management challenge applies not just to personnel, but also to process safety.

Beyond the North Sea, the International Regulators Forum on Global Offshore Safety (IRF), of which the U.S. was an instigator and founding member, serves a similar role. The group recently held "the first extraordinary meeting convened in the Forum's 17-year history ... called specifically to address issues related to recent offshore oil and gas incidents, particularly the loss of well control related to the Montara well off Australia and the Macondo well in the Gulf of Mexico." Initial outcomes of the meeting included the development of an international protocol for blow out preventer (BOP) integrity

[8] http://www.cnlopb.nl.ca/safe_assess.shtml
[9] Interview with Max Ruelokke and Stuart Pinks, CEO, C-NSOPB.

[10] NSOAF membership includes Norway: Petroleum Safety Authority (PSA), Denmark: Danish Energy Agency, Faroe Islands: Ministry of Petroleum, Germany: Landesamt für Bergbau, Energie und Geologie (LBEG), Ireland: Department of Communications, Marine and Natural Resources, The Netherlands: State Supervision of Mines, Sweden: Svenska Geologiska Undersøkning, UK: Health and Safety Executive

and operational issues with a more extensive strategic agenda to strengthen sharing of regulatory practice and experience, to be further developed at its October conference in Vancouver, Canada. The International Committee on Regulatory Authority Research and Development (ICRARD), an adjunct of the regulators' forum, serves as the mechanism for sharing research in the areas of health, safety and environment in the petroleum sector.

Reducing Accidents in the Oil and Gas Industry

Prof. Nancy Leveson, MIT

leveson@mit.edu

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

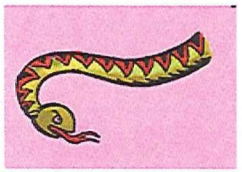
Background

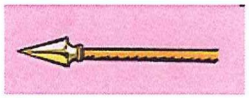
- Practicing and teaching system safety engineering for 30 years.
- Own a 20 year-old company doing safety engineering (Safeware)
- Experience in almost all industries, e.g.,
  - Aerospace (aviation and space exploration)
  - Defense
  - Transportation (automobiles, trains, air traffic control)
  - Oil and Gas, Chemicals
  - Nuclear Power
  - Medicine
- Member of the Baker Panel on the BP Texas City oil refinery explosion (2005-2007)
- Instructor: BP-MIT Management Education Program (2007-2010)

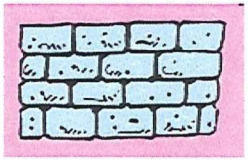
Topics and Major Ideas

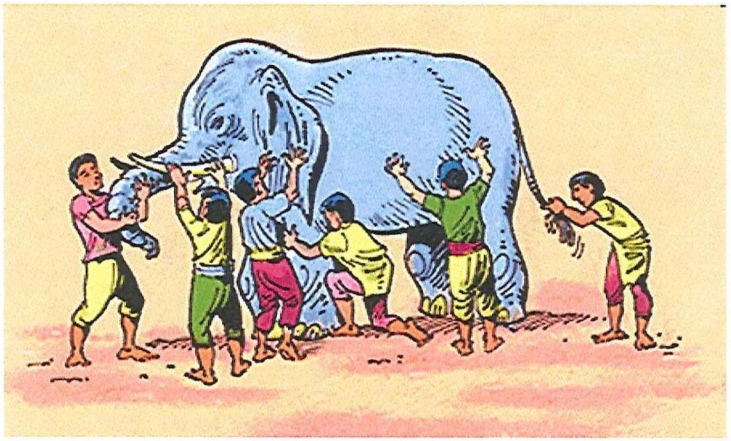
- Basic concepts in accident causality
- Common factors in major accidents (including DWH)
- Safety as a control problem
- Establishing appropriate controls to prevent more offshore oil spills

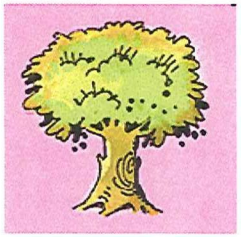
To understand and prevent accidents, must consider system as a whole











And so these men of Hindustan
Disputed loud and long,
Each in his own opinion
Exceeding stiff and strong,
Though each was partly in the right
And all were in the wrong.

John Godfrey Saxe (1816-1887)

Jerome Lederer (1968)

"Systems safety covers the total spectrum of risk management. It goes *beyond the hardware* and associated procedures of systems safety engineering. It involves:

- Attitudes and motivation of designers and production people,
- Employee/management rapport,
- The relation of industrial associations among themselves and with government,
- Human factors in supervision and quality control,
- The interest and attitudes of top management,

- The effects of the legal system on accident investigations and exchange of information,
- The certification of critical workers,
- Political considerations
- Resources
- Public sentiment

And many other non-technical but vital influences on the attainment of an acceptable level of risk control. These non-technical aspects of system safety cannot be ignored."

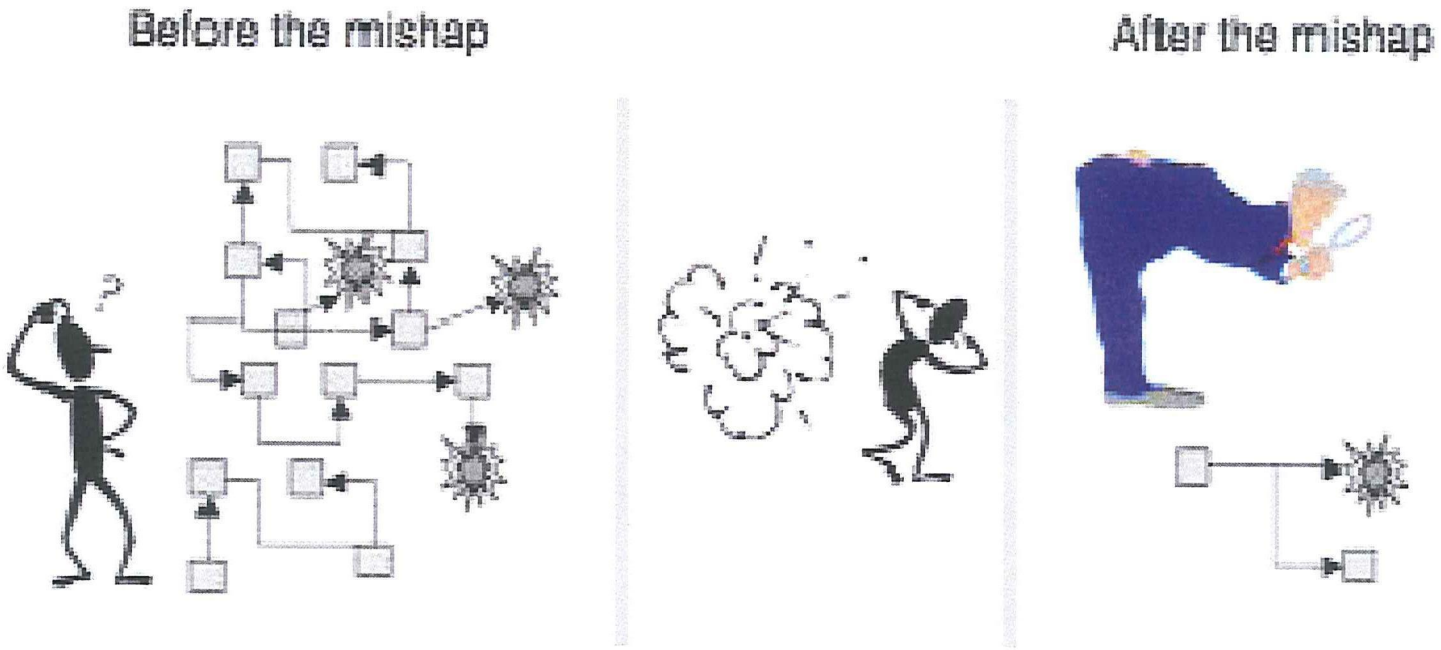
Common Traps in Causal Analysis

- Root cause seduction
- Hindsight bias
- Narrow views of human error
- Blame is the enemy of safety
- Physical design vs. operations

Root Cause Seduction

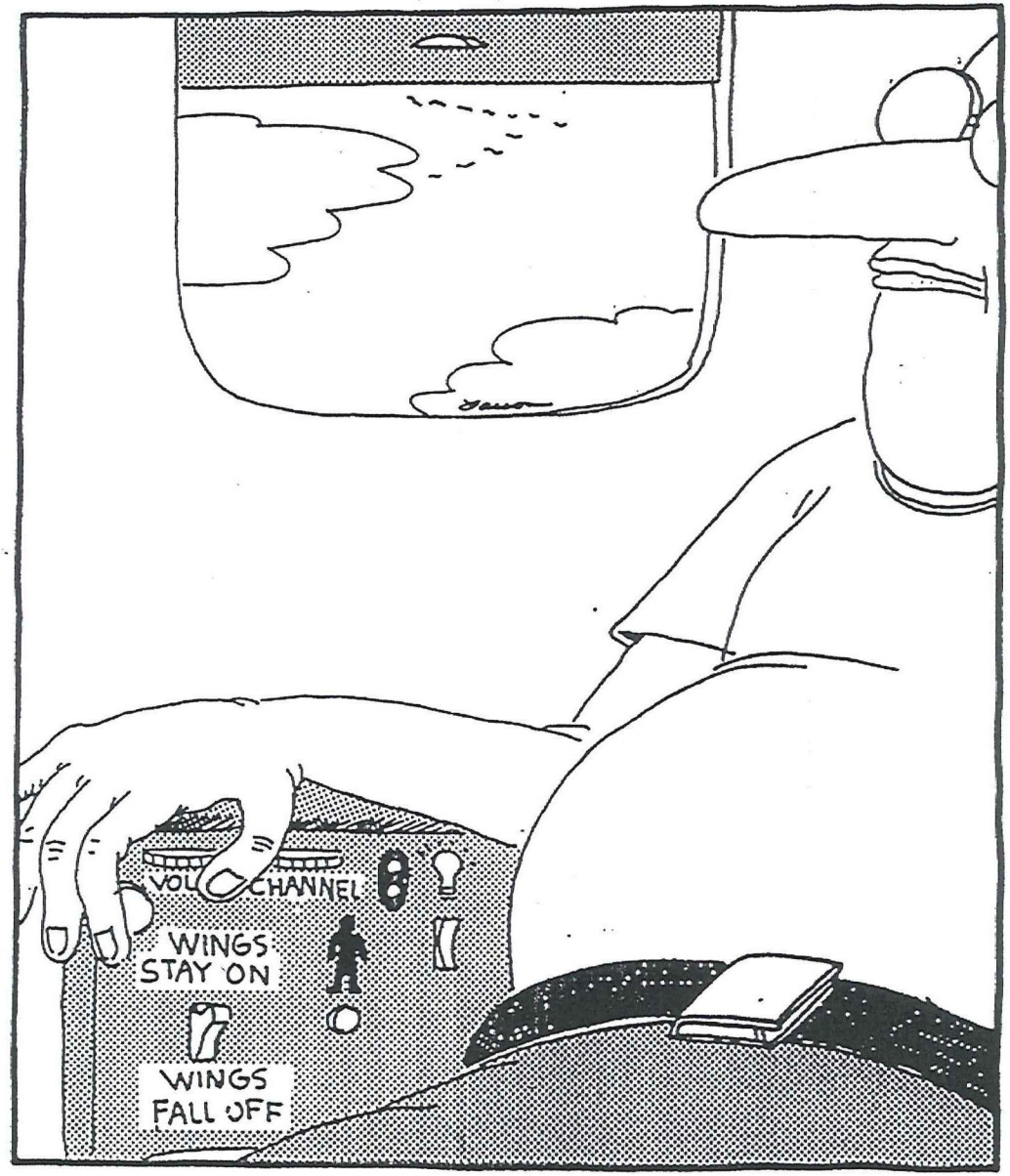
- Assuming there is a root cause gives us an illusion of control.
  - Usually focus on operator error or technical failures
  - Ignore systemic and management factors
  - Leads to a sophisticated "whack a mole" game
    - Fix symptoms but not process that led to those symptoms
    - In continual fire-fighting mode
    - Having the same accident over and over

Hindsight Bias



(Sidney Dekker, 2009)

"should have, could have, would have"



Fumbling for his recline button Ted unwittingly instigates a disaster

Human Error: Old View

- Human error is cause of incidents and accidents
- So do something about human involved (suspend, retrain, admonish)
- Or do something about humans in general
  - Marginalize them by putting in more automation
  - Rigidify their work by creating more rules and procedures

Human Error: System View

- Human error is a symptom, not a cause
- All behavior affected by context (system) in which occurs
- To do something about error, must look at system in which people work:
  - Design of equipment
  - Usefulness of procedures
  - Existence of goal conflicts and production pressures

Ref: Sidney Dekker, Jens Rasmussen

"Blame is the Enemy of Safety"

- To prevent accidents in the future, need to focus on why it happened, not who to blame
- Blame is for the courts, prevents understanding what occurred and how to fix it.

Physical Design vs. Operations

- ALL accidents are caused by "human error" (except "acts of God," like hurricanes)
- Almost always there is:
  - Operator "error"
  - Flawed management decision making
  - Flaws in the physical design of equipment
  - Safety culture problems
  - Regulatory deficiencies
  - Etc.

Baker Panel Findings

- Corporate safety culture
  - Leadership
  - Open, trusting environment
  - Adequate resources provided
  - Proper assignment of responsibility, authority, accountability
- Process Safety Management Systems
- Performance evaluation, corrective action, corporate oversight

Common Factors in Major Accidents

- Flaws in safety culture
  - Culture is the shared values and norms on which decisions are based
  - "Culture of Denial"
    - Our industry is just more risky (President of API)
    - Accidents are inevitable
      - "Stepping off a curb and being hit by a car" (Dudley)
    - Unrealistic risk assessments
    - Only hear good news, arguments that safety is improving
  - "Compliance Culture"
    - Impact of moratorium?

Common Factors in Major Accidents (2)

- Lack of real commitment to safety by leaders
  - Think accidents are the price of production
  - Don't see long term impacts of accidents on the bottom line, that safety pays
  - Most important factor in distinguishing safe companies from unsafe ones.
  - More than mere sloganeering is required
- Confusion between occupational safety and system safety
  - Using "days off from work" as a measure of system safety
  - Managing to the wrong feedback

Common Factors in Major Accidents (3)

- Confusion between occupational safety and system safety (only this industry)
  - Personal safety focuses on
    - Changing individual behavior
    - Controlling injuries to employees on the job
  - Using "days off from work" as a measure of system safety
  - Managing to the wrong feedback

Common Factors in Major Accidents (4)

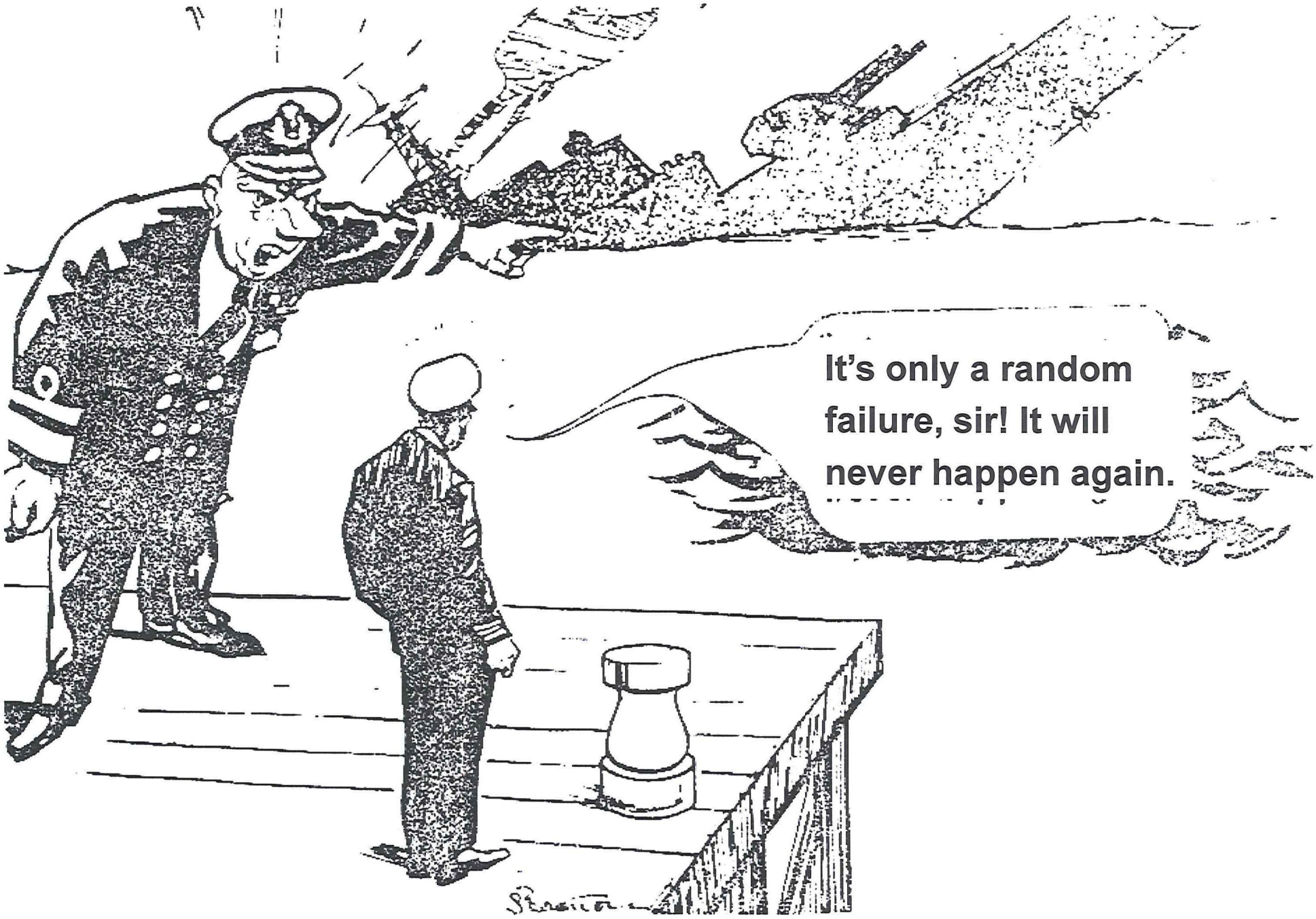
- Inadequate hazard analysis and design for safety
  - Focus on recovery after adverse events
- Flawed communication and problem reporting systems
- Management of change procedures not followed
- Focus on changing humans rather than changing the system in which humans work
- Inadequate causal analysis of incidents/accidents and learning from them

One Additional Misconception

"High-consequence, low-~~probability~~" accidents

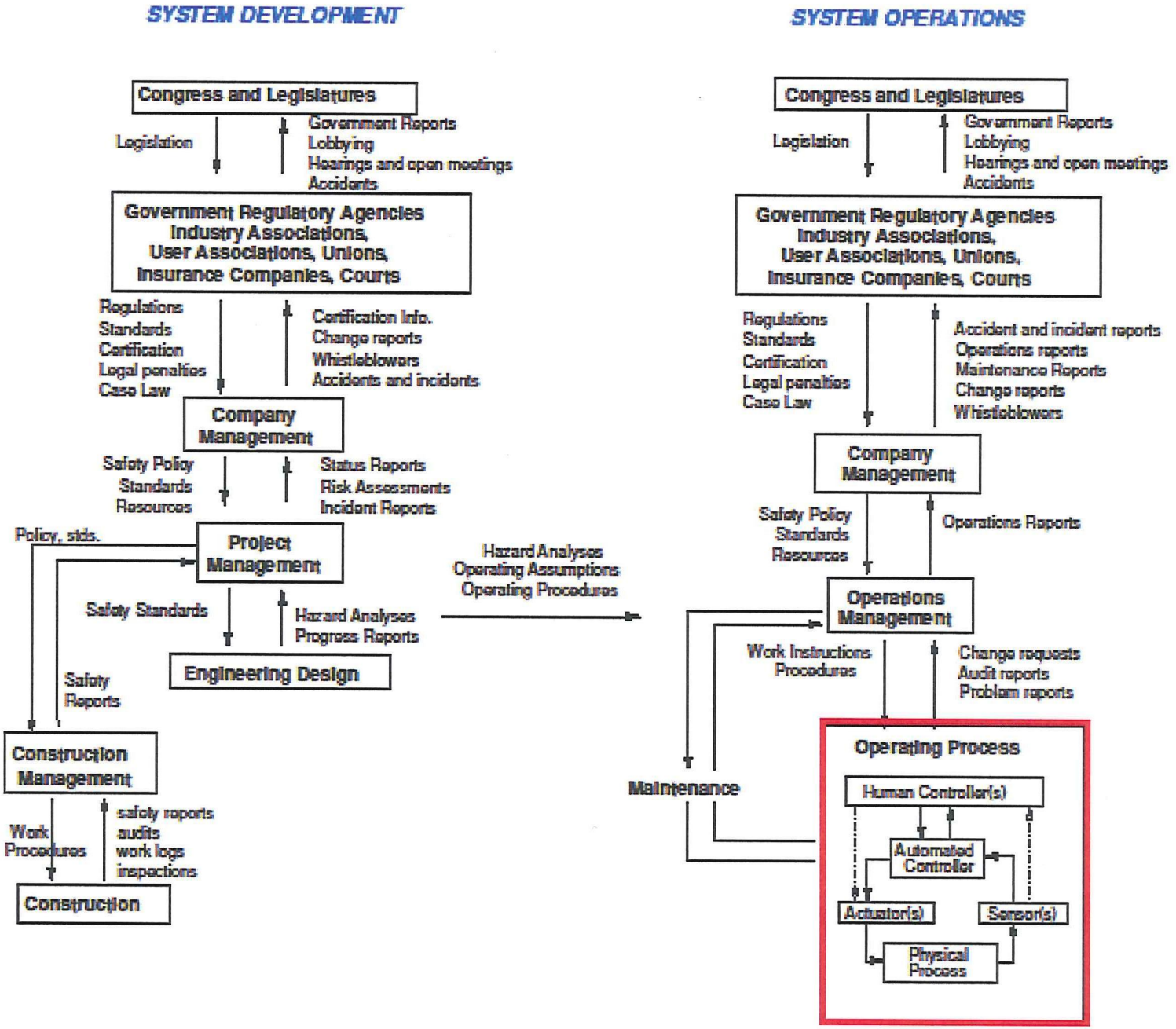
frequency

- Major losses occur because operating under conditions of high risk
  - Not a matter of "if" but only "when"
- Complex systems migrate toward states of high risk
- Accidents take a while to happen, so readjust our estimates of likelihood down over time although risk probably increasing.


It's only a random failure, sir! It will never happen again.

A System View of Safety: Overview

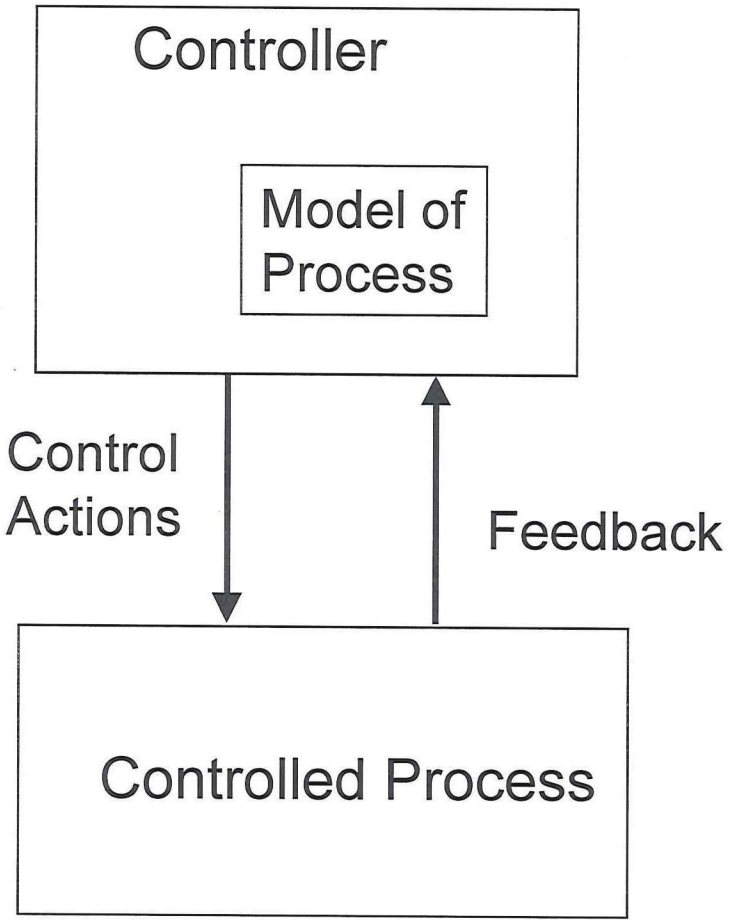
- Safety is a control problem
  - Accidents occur when the system design does not enforce constraints on safe behavior
    - O-ring did not control propellant gas release by sealing gap in field joint of Challenger Space Shuttle
    - Public health system did not adequately control contamination of the egg supply with salmonella
    - Financial system did not adequately control the use of financial instruments
    - DWH design did not adequately control high-pressure gas in the Macondo well
- Events and failures are the result of the inadequate control
  - Result from lack of enforcement of safety constraints in system design and operations


SYSTEM DEVELOPMENT
SYSTEM OPERATIONS
Congress and Legislatures
Legislation
Government Reports
Lobbying
Hearings and open meetings
Accidents
Government Regulatory Agencies
Industry Associations,
User Associations, Unions,
Insurance Companies, Courts
Regulations
Standards
Certification
Legal penalties
Case Law
Certification Info.
Change reports
Whistleblowers
Accidents and incidents
Company Management
Safety Policy
Standards
Resources
Status Reports
Risk Assessments
Incident Reports
Policy, stds.
Project Management
Safety Standards
Hazard Analyses
Progress Reports
Engineering Design
Safety Reports
Hazard Analyses
Operating Assumptions
Operating Procedures
Construction Management
Work Procedures
safety reports
audits
work logs
inspections
Construction
Accident and incident reports
Operations reports
Maintenance Reports
Change reports
Whistleblowers
Operations Reports
Operations Management
Work Instructions
Procedures
Change requests
Audit reports
Problem reports
Maintenance
Operating Process
Human Controller(s)
Automated Controller
Actuator(s)
Sensor(s)
Physical Process

Safety as a Control Problem

- Goal: Design an effective control structure that eliminates or reduces adverse events.
- Controls may be:
  - Physical design
  - Processes
  - Social (cultural, policy, individual self-interest)
- Human error is a symptom of a system that needs to be redesigned

Accidents as a Control Problem



Accidents occur when models do not match process and

- Incorrect control commands given
- Correct ones not given
- Correct commands given at wrong time (too early, too late)
- Control stops too soon

Components of an Effective Safety Management System

- Leadership and commitment
- Strong safety culture (shared values and norms on which decisions are made)
- Hazard analysis and design for safety
  - Physical system
  - Social system and controls
- Reporting systems and communication
- Focus on system in which humans work, not changing humans

Components of an Effective Safety Management System (2)

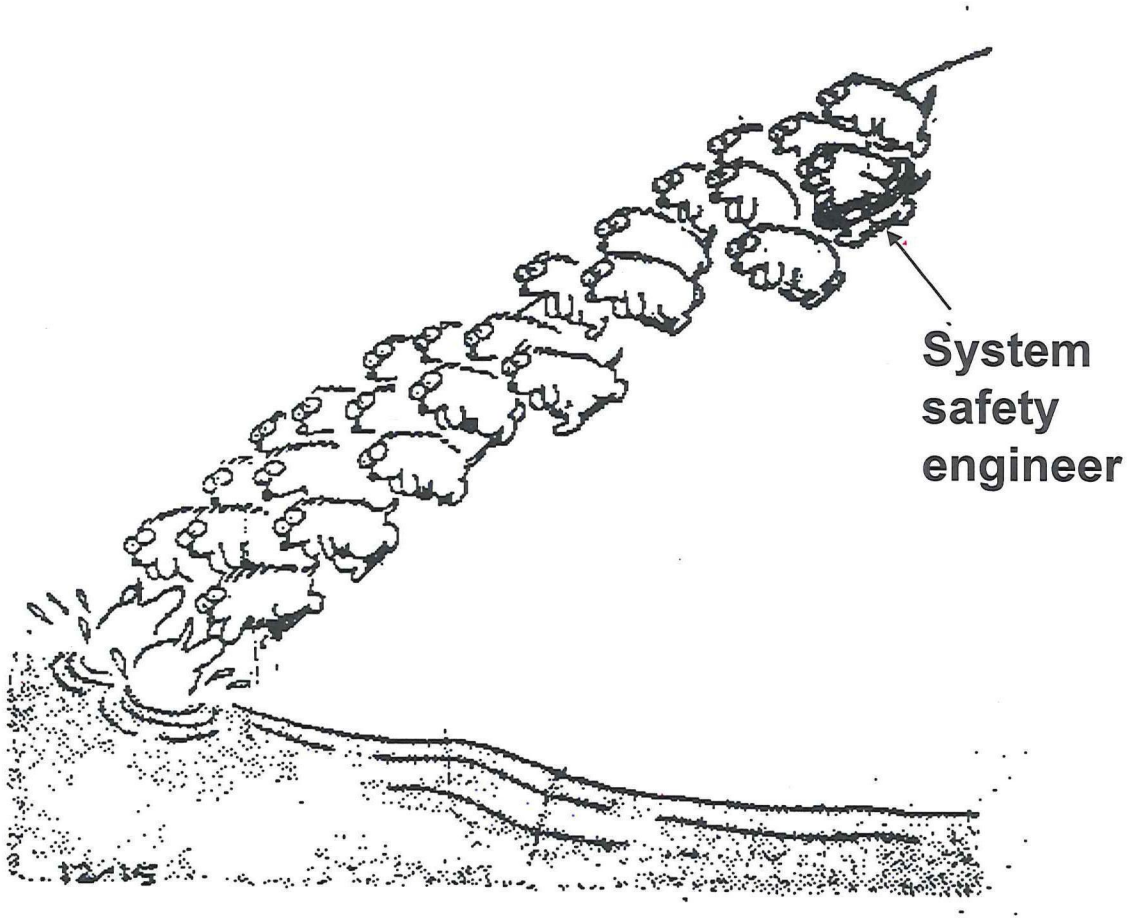
- Management of change
  - Perform regular audits of performance and use to improve system
    - Start from the assumptions in the hazard analysis. Still true?
    - Perform hazard analyses on changes over time (environmental, user, physical systems)
- Feedback and continual improvement/learning
  - Comprehensive accident/incident analysis and re-design of socio-technical system from results
    - Not just the superficial "causes"
  - Look at why safety control structure was ineffective in preventing the loss

Designing Controls over Oil Exploration and Production

- Government
- Industry
- Company

The Far Side

By Gary Larson



Additional information in:

Nancy Leveson, *Engineering a Safer World*

http://sunnyday.mit.edu/safer-world

(to be published by MIT Press, end of 2010)

Reducing Accidents in the Oil and Gas Industry

Prof. Nancy Leveson, MIT

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  - Oil and Gas, Chemicals
  - Nuclear Power
  - …
- Member of the Baker Panel on the BP Texas City oil refinery explosion

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  - Using "days off from work" as a measure of system safety
  - Managing to the wrong feedback
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A Systems Approach to Safety

Nancy Leveson, *Engineering a Safer World:* MIT Press, 2010 (?)

Download draft from:

http://sunnyday.mit.edu/safer-world

National Commission on the

BP DEEPWATER HORIZON OIL SPILL AND OFFSHORE DRILLING

Attachment 1

Agenda

National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling

AGENDA

4th Meeting

Wednesday, October 13, 2010
The Westin Grand Hotel
2350 M Street, NW
Washington, DC 20037

12:00 pm	On-site Registration
1:00 pm	Co-Chair Opening Statements
1:15 pm	Subcommittee on Offshore Drilling: Report on Potential Findings Regarding Offshore Drilling & Commissioner Discussion
2:30 pm	Break
2:45 pm	Subcommittee on Regulatory Oversight: Report on Potential Findings Regarding Regulation of Offshore Oil Drilling & Commissioner Discussion
4:00 pm	Break
4:15 pm	Public Comment
4:45 pm	Adjourn

APPROVED:

Christopher A. Smith, Designated Federal Officer

10/13/10
Date

National Commission on the

BP DEEPWATER HORIZON OIL SPILL AND OFFSHORE DRILLING

Attachment 2

Meeting Transcript

1

NATIONAL COMMISSION ON THE
BP DEEPWATER HORIZON OIL SPILL
AND OFFSHORE DRILLING
- - - - - - - - - - - - - - x
FOURTH MEETING :
Transcript of Proceedings :
- - - - - - - - - - - - - - x

Wednesday, October 13, 2010
Westin Grand
2350 M Street, NW
Washington, DC 20037
(202) 429-0100
1:03 p.m.

Job No.: 5718
Pages: 1 - 130
Reported by: Janet A. Hamilton, RDR

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National Oil Spill Commission meeting held before:

SENATOR BOB GRAHAM, CO-CHAIR
WILLIAM K. REILLY, CO-CHAIR
FRANCES G. BEINECKE, MEMBER
DONALD BOESCH, MEMBER
TERRY D. GARCIA, MEMBER
CHERRY A. MURRAY, MEMBER
FRANCES ULMER, MEMBER
And
CHRIS SMITH, Designated federal official

Pursuant to Notice, before Janet A. Hamilton, Registered Diplomate Reporter and Notary Public in and for the District of Columbia.

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C O N T E N T S

4

P R O C E E D I N G S

MR. SMITH: My name is Christopher Smith, and I am the designated federal official for the BP Deepwater Horizon Oil Spill and Offshore Commission.

This meeting is being held in accordance with the Federal Advisory Committee Act which calls for a very high level of transparency and openness, so as such we're holding this public deliberation in this public forum and it's being fed live via webcast.

I'll go over the agenda for this afternoon. We're going to be hearing deliberation on two of the subcommittees which are handling portions of the report for the committee. The first will be the Offshore Drilling Subcommittee, and we'll be deliberating on the report on potential findings regarding the offshore drilling. This will be from 1:15 to 2:30.

After a short break we will reconvene at 2:45, and we'll be hearing deliberations on Regulatory Oversight Subcommittee, our report on potential findings regarding the regulation of offshore oil drilling.

After a short break from 4:00 to 4:15 there

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will be a public comment period from 4:15 to 4:45. So during that time we will be hearing comments from the public, and if any individual should desire to send in a written comment, the Commission receives written comments at the website which is www.oilspillcommission.gov. Again, it's www.oilspillcommission.gov, and with that I'll hand it over to our Co-Chair Honorable William Reilly.

CO-CHAIR REILLY: Thank you, Chris. Welcome to this session of the Oil Spill Commission. I should say that as we have these episodic public conversations, it sometimes may not be apparent how much has gone on behind the scenes, how many interviews we have conducted and how much research has been done to prepare for them, but I will begin by turning this over to Senator Graham, Co-Chairman, and then take it back to me. Bob.

CO-CHAIR GRAHAM: Thank you, Mr. Reilly. This Commission stemmed from the tragic Deepwater Horizon explosion and oil spill April 20th of this year. It was formed as a nonpartisan independent group to examine the relevant facts and circumstances

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concerning the multiple causes of the Deepwater Horizon explosion and to develop options to guard against potential offshore oil spills in the future.

We should not forget that this tragic accident took the lives of 11 men. The Gulf was flooded with gushing oil for almost three months. The economy of the entire region was badly impacted once again just five years after the destruction of Hurricane Katrina.

The work of this Commission has now arrived at its halfway point. We began with our first public hearing in New Orleans on July 12th. Before that meeting ever began my fellow commissioners and I fanned out on trips throughout the Gulf states meeting with a variety of people in the region listening to the stories of how this catastrophe affected them and their families and their communities.

After that our investigators and our hearings explored topics that included how we regulate and oversee offshore drilling. How can we improve the culture of drilling industry and look at the effectiveness of the response and how best to restore

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the damaged ecosystem.

All in all we've held a total of five days of public meetings with over 70 panels. We've heard from federal, state and local officials, business and environmental leaders, scientists, energy experts, historians and citizens from the Gulf and listened to comments both inside and outside the hearing from scores and scores of citizens.

Today's deliberative meeting is the first opportunity for the commissioners to have had to sit down together as a group and discuss our possible findings. Today we take an important step towards developing these important recommendations which will be the core of our final report. I'm especially glad that this meeting is taking place in a way that allows the public to view our discussions. We are doing this in an open forum, consistent with our commitment to transparency, a commitment which has guided us from the beginning.

Today's meeting, like all our public meetings, will have a portion devoted to public comments. If you cannot make it in person, we can also

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give your comments thought through our website, oilspillcommission.gov., oilspillcommission.gov. We have received hundreds of messages and many excellent suggestions and ideas through this source.

Chairman Reilly will now go over where we go from here.

CO-CHAIR REILLY: Thank you, Bob. As Senator Graham just said, we are subject to law, the Federal Advisory Committee Act, which has not permitted us thus far to meet as a group of seven without full public conversation which we will undertake today. So this is really the first time the commissioners have actually come together to discuss among all seven the preliminary findings that you will certainly hear described.

A lot of work has been done to date thanks to the good efforts of commissioners and the staff, and today we begin our very important discussions about what our final report should say and what we should recommend.

On the agenda is a set of candidate findings from the Commission's Offshore Drilling Subcommittee

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and also from the Regulatory Oversight Subcommittee.

By way of background, our subcommittees provide the organizing structure for the Commission's work. They help set our agenda, identify panelists for our meetings, oversee staff research efforts and most, most importantly develop the set of candidate findings and recommendations for consideration by the full Commission.

We have a total of six subcommittees. Besides those we're considering today they include ones on the Macondo well disaster on responding to oil spills, on damages from the incident and on restoration.

The Offshore Drilling and Regulatory Oversight Committees played a strong role in shaping our August 25th hearing where we heard from experts on offshore drilling and industry safety as well as from current and past government officials, notably three former directors of the Minerals and Management Service. Much of what we heard in those meetings is reflected in the findings that we will be discussing shortly.

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I have my own thoughts about how well we as a country and our government's regulators have overseen this complex, even occasionally dangerous yet vitally important activity, namely, offshore drilling in deep waters, and I look forward to hearing my fellow commissioners' views. I expect along the way we will readily find some areas of consensus, many areas of general agreement and perhaps even a few areas about which we don't yet have full agreement.

These first discussions are intended to help clarify where we are as a commission and what we need to do to bring closure to the President's assignment.

As for the road ahead, our chief counsel, Fred Bartlett, will present the findings of the Commission's investigative team on November 8th and 9th. This will I believe be the clearest and most comprehensive account yet offered to the American people of what happened on the Deepwater Horizon.

After that we plan at least one more set of hearings in early December where we will close on the Commission's findings and recommendations. We will then present our first final report to the President in

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early January, just a little under three months from today. Having been involved in many reports in my career, I can honestly say this time table, six months from our initial hearing to the end, has presented a daunting challenge to finish our work, to gather the facts, to stay on schedule, and it's a really great credit to the fine staff and to a number of other people associated with us who have appeared before us and talked to us either in these public meetings or in meetings in private that we have come so far so fast.

We expect to deliver our report to the President on time and with solid content to advise him on the future of offshore drilling in the United States waters. Now we begin a very important step toward that finish line.

I will turn it over now to begin the discussion of the findings, the potential general findings of the Subcommittee on Offshore Drilling. The three members of that committee are Senator Graham, Dean Cherry Murray and Chancellor Fran Ulmer, and Senator Graham will lead off with finding number one.

CO-CHAIR GRAHAM: Thank you, Bill. We have

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divided the 11 recommendations of this subcommittee into three groups. I will lead the discussion of the first group which is recommendations 1 through 4, Dean Murray the second group 7 through 8, and Chancellor Ulmer the final group 9 through 11. I would suggest that we roughly allocate 25 minutes to each of these three subject matters. So, Chris, if you would keep your always attentive clock running on this.

Group A talks about issues of the importance of offshore drilling to our nation. I will start by saying it seems to me that the kinds of questions that are raised under the category group A, 1 through 4, require a context to be effectively addressed, and the context is what is our national energy policy and how does this set of recommendations as to the subset of our offshore energy policy relate to that? I don't think that and it would be feasible and certainly beyond our charter for us to try to describe what that national energy policy should be, but I think we could make a contribution if we were to suggest what some of the important elements of that national energy policy should be.

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So I guess the first question is: Do we believe that we can focus exclusively on issues relating to offshore oil or do we need to have some context of a broader energy policy within which to have the offshore oil discussion?

So I open it for comments to the commissioners.

MS. BEINECKE: Senator, I'll agree with that. I think that the offshore program has operated over many decades not in a context of a national energy plan. Virtually I think every president has called for a national energy plan but it still hasn't happened, and I think all of us might have a different view about what that consists of, but I do think it's very important for the report to put offshore oil in the context of not only what our current energy needs are but where they are expected to go and how they can change.

Oil goes largely into the transportation sector. There are a lot of initiatives in transportation: Electric cars, more efficient vehicles, public transportation. Putting it in the

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context of those other approaches to transportation I think would be very important for the report.

CO-CHAIR GRAHAM: Let me ask -- excuse me. Let me ask a question. The recommendations, are they being presented to our audience that is viewing this? Bill suggested that I should read the four recommendations that we are considering --

MS. BEINECKE: That's a good idea.

CO-CHAIR GRAHAM: -- so that those that don't have access to it in hard copy.

MS. ULMER: Mr. Chairman, can I just note that there's a difference between the findings and recommendations. It's a minor point, but it may turn out to be a major point, and these are really findings that come out of the various hearings. So for the listening or viewing audience I think we aren't to the recommendation phase yet. This is more or less what we have evolved from statements that we have heard and testimony and research that has been done. So I just want to --

CO-CHAIR GRAHAM: And we're fortunate to have a strong disciplined academic administrator on the path

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and with the right nomenclature, but we are discussing potential general findings, and the four findings that relate to this topic commence.

(1) The nation is currently and will be in the foreseeable future highly dependent on offshore drilling in the outer continental shelf, including in deep waters.

(2) The oil and gas industry developed highly innovative and advanced technologies to explore oil and gas reserves increasingly deeper and further offshore.

(3) Offshore production has helped offset declines in production elsewhere in the US, moderated dependence on foreign imports, thereby contributing to national security and reduction of the trade deficit.

(4) Offshore oil production is part of a broader picture that includes strategies for managing demand, the role of alternative fuels, and the availability of domestic reserves for future generations.

Do you believe that that number 4 adequately captures the concept of doing this within the context

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of making our findings relative to offshore oil within a broader context? Miss Ulmer.

MS. ULMER: Mr. Chairman, I would almost recommend reversing the order of the findings, that number 4 should really be number 1, because you sort of go from the general more to the specific. That helps to set the context. I suspect that in the report itself a little more of what Frances was talking about could go into that first point about how this fits together as a whole with other sources of energy, with other strategies for increasing efficiency and for getting to a future which is not just what are we doing today or next year but what are we doing 10 or 20 years out and how this, and then you get to the more specific of how offshore production has helped to offset, and then you get to, yes, they have developed new technologies which has been helpful, but then you get to group B where it says, you know, the technology isn't the only piece of the puzzle to be safe and some of the other technologies which hasn't advanced needs to.

So I think it's a re-ordering that helps to

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achieve some of what you were talking about in terms of this bigger picture that, yes, we aren't responsible for devising an energy policy, but to look at this outside of the context of the whole would be perhaps misleading.

MR. BOESCH: Yes. Just picking up on what Chancellor Ulmer has --

CO-CHAIR GRAHAM: This is Don Boesch, Commissioner Boesch.

MR. BOESCH: -- said, I certainly agree that that's the context on which the other findings need to be placed and that we need to look at this within the context of our national, evolving national energy policy, and specifically, although I don't think it needs to be in the short one-sentence finding, it needs to be stated I think that our nation, our President representing our nation has, and with other nations of the world, many of the major nations of the world, both developed and developing nations, has agreed to this Copenhagen accord which sends us on a collective path towards reducing our carbon emissions and that by, you know, there be some specific targets by 2020, but in

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the out-years the very important implications of that we're going to have to reduce our emissions by 50 to 80 percent by the year 2050.

Why that's important to our specific findings is that finding number 1 as presently worded talks about the dependence on offshore oil for the foreseeable future. I think it depends on what the definition of foreseeable is. We have before us evidence gained by our staff mainly from the US Energy Information Agency which gives some projections of oil production, both domestic and imported oil, from now until year 2035, and if we -- and these projections basically assume level consumption rates. However, if we are going to be on a path to lead us to rather dramatic reductions by 2050, we will have had to put in place policies that begin to reduce our consumption of oil as a nation in that time frame.

So I think we need to be more specific in that regard about what foreseeable is and be talking about this transition. In fact, I think when the President formed this commission, he made it clear that this was in the context of national energy policy but

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we would have to make some major changes, but in the near term at least we will be heavily dependent on oil production, domestic oil production, largely offshore, but I would like to think that we could make this finding number 4 now but move it up to the front and put some of that context in it that we in the next 40 years will be having to make this fairly significant transition in our energy economy and that decisions made about the oil and gas resources and the offshore environments of the United States will have to be made in that context moving forward, and that may change some of the foreseeable use and demand in that same time frame.

MR. GARCIA: In reading findings 1 and 2 I wonder if we're giving a sufficient amount of emphasis to the fact that there's been a steady progression in offshore drilling to deep and the ultra deep and in the future that's the direction we're headed, and the challenge is we're going to increase accordingly, and I just don't get the sense from reading these two points that that is clear.

CO-CHAIR REILLY: The research we have

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certainly makes clear that we're headed toward a time when offshore will constitute the vast majority of domestic oil and gas production. We have those numbers, I've seen them --

MR. GARCIA: Right.

CO-CHAIR REILLY: -- and how fast that's expected to rise. So we can certainly say --

MR. GARCIA: We've all seen the line where shallow water drilling is decreasing and ultra deep water drilling is increasing which does have consequences for safety and environmental impacts.

CO-CHAIR REILLY: You would include something in the numbers?

MR. GARCIA: Well, I think we just need to somehow reference that this is a significant goal. We say that the technology's advanced but we don't really say that there is a steady progression into ultra deep water.

CO-CHAIR REILLY: Chancellor Ulmer's done the homework on that, so we can do that.

MS. BEINECKE: To follow up on that, I think the public would be interested to know that Deepwater

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Horizon's depth at 5,000 feet which doesn't seem it's actually deep was only half as deep as where a lot of the new operations were going. So to really indicate in the text what the transition has been and where it's expected to go and ensure that the system is designed for those areas is very important to answer.

MS. MURRAY: I would also say the hazards of ultra deep water need to be spelled out a little bit more in these findings.

CO-CHAIR REILLY: In the first four points or --

MS. MURRAY: Or somewhere.

CO-CHAIR REILLY: -- somewhere in there.

MS. MURRAY: Well, the fact that we're going more and more into deep water or there are other technologies that could help extract more oil from the land as well which is a point. It all depends on cost, and technologies can lower the cost dramatically, and it depends on the cost of oil as well.

CO-CHAIR REILLY: Do you have the sense that we're overassuming the importance of offshore, deep offshore development versus what might be available

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with new technologies on that?

MS. MURRAY: I have a sense that we should at least point out that there are other technologies that exist. We're right now extrapolating the near leap of what we have been seeing instead of saying, well, wait a minute, if oil prices go up way higher, we're going to go back to the land and pull out 50 percent of the oil still there, and you know, we just need to be a little more careful than pure extrapolation.

CO-CHAIR REILLY: Okay.

CO-CHAIR GRAHAM: And I would also raise the question: Are there factors that are other than market driven that would affect the sequencing of where we get our petroleum? If we are concerned as number 4, soon to be number 1, indicates about availability of domestic reserves for future generations, do we want to leave them only with those forms that are the most difficult and potentially represent even greater risk of environmental challenges than offshore oil drilling.

CO-CHAIR REILLY: The technology issue is really so important. If you look at what we're now told about how much natural gas we can expect to have

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in the future, five years ago those numbers would have been totally different. The technology developed so fast that now our reserves are much more significant.

Your point I guess is that the same could happen to half of 45 percent or whatever it is of oil that's still in the ground on the shore and it could be a new source of energy we don't now think is developable. Okay.

MS. MURRAY: And to Senator Graham's point, our national security does depend on us having a readily available energy supply, and do we want to leave that easily achievable? But how big do we want our petroleum reserves to be? That's a very good question. That's part of the national energy strategy that we need as a context.

CO-CHAIR REILLY: And you're not just referring to the storage down in the Gulf.

MS. MURRAY: No.

CO-CHAIR REILLY: You're talking nationwide.

MS. MURRAY: Nationwide.

CO-CHAIR REILLY: I -- go ahead, Bob. Sorry.

CO-CHAIR GRAHAM: I think there's an

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interesting historical example of what happened to Germany at the end of World War II. Germany had depended first on North Africa as a petroleum source. They lost that in '43. Then they were depending on the oil fields in Romania which they lost in '45, and then they were down to trying to create petroleum out of their domestic coal supply, and they could not maintain an effective military. Without editorializing on that those I think are the facts of the matter, and I would not like to leave to our children and grandchildren of America which is at the threat of not being able to defend itself and continue to assume all the international responsibilities which a great power with our set of values for the world represent not being able to carry out our security for our own people in addition to the world.

CO-CHAIR REILLY: But that intention is captured in availability of domestic reserves for future generations. Would you add to it?

CO-CHAIR GRAHAM: I would -- I think there needs to be a sense of -- we could say we are fulfilling that commitment to our future generations by

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leaving them with oil shale or other types, but is that the appropriate legacy that we want to leave to our children? And to Dean Murray's point, is that what we would want to have as our ultimate resource at a time of national emergency? But I think some discussion of where does exploration and extraction of the Gulf as one source of our energy put us into a long time horizon of wanting to have access over many decades? Where does it fit? Should we take it now or should we take some of it now and have a conscious national policy holding some of it for the future? I think those are the kind of questions that we ought to also have on our list.

CO-CHAIR REILLY: So the finding ends up we need to move forward in this field but not to the point of risking depletion of the resources for future generations.

CO-CHAIR GRAHAM: Yes.

MS. ULMER: Mr. Chairman, I think this is an extremely important point, and I'm glad you raised it, Senator, because I think it is something that tends to get lost in the debate over whether we need to drill

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more today for our national security or whether we think about national security as an issue in the context of multi generations or just even a few decades out.

One of the charts that I would like us to think about trying to include that would help put some context around this issue was something that I haven't seen yet. It actually looks at the percentage of United States consumption today, the percentage of United States production today and the percentage of US proved reserves, and if I look at the June 2009 Statistical Review of World Energy, what I see in there is that US is at 22 percent consumption of oil, 7.8 percent of production of oil, and only 2.4 percent of proved reserves in the world.

So the notion that we all carry around with our, you know, we talk about national security being independence, being energy independence, but when you look at the numbers of what the United States proved reserves are, and admittedly there's always the possibility that technology will change that number, but if you just look at it today, you get a very

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different picture of what national security means, both today and in the future.

So I think some sort of charting around that would help to put into perspective for people the notion of how much we're consuming, how much we're producing and how much we think we have in the ground to produce today and in the future.

CO-CHAIR REILLY: The only point I would make though is if the template is independence, thus we're hugely dependent, and probably in the energy economy always will be trading back and forth, and if that is the measure, we're not going to come close.

MS. ULMER: Exactly.

MS. BEINECKE: Mr. Chairman I do think though that's why putting it in a context of --

CO-CHAIR GRAHAM: This is Commissioner Fran Beinecke.

MS. BEINECKE: -- yes, why we need to look at not only what our current production is but what our future transportation policies are because this is largely focused on transportation and look at what the strategies are that are under consideration like more

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fuel efficient vehicles, that there are recommendations that are currently being considered that will decrease our oil use significantly as those get enacted over time, and more, higher percentage of electric vehicles, and the other transportation strategies that are under discussion because the extent to which those are adopted will over time affect what our oil needs are, and if they're not, you know, we'll be on a similar trajectory that we're on now.

But that's just the contextual content that we ought to be delineating in the report, not that we're going to have the answers for that but for the reader that they look at what the tradeoffs are for this program compared to other strategies that are existing.

MR. SMITH: One point of order. Could I just ask the group to talk a little bit closer to the microphones to make sure that the live feed can pick them up.

MS. BEINECKE: She can read it back.

CO-CHAIR GRAHAM: Are there other comments on these first four proposed general findings?

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MR. GARCIA: Just to be a bit of a devil's advocate. I agree with what's been said, but I do think we need to be careful about how far we take that discussion on national energy policy. We've got a lot on our plate, and it's good to put it into context, it's good to know that this is what's driving offshore drilling, but at the end of the day we're looking at how do we prevent or mitigate future incidents. So I just think we need to keep that in mind, and certainly our audience needs to keep that in mind what it is we're trying to do.

CO-CHAIR GRAHAM: This is Commissioner Terry Garcia.

CO-CHAIR REILLY: Certainly the President had it in mind when he said don't write me a new energy policy.

CO-CHAIR GRAHAM: If there are no other comments on the four items that constitute group A, Dean Murray.

MS. MURRAY: Yes. That was the perfect segue to the next set of four potential general findings which you're talking about industry, technology and

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management systems. So let me read them.

Potential finding number 5, and I call these potential because they are not wordsmithed, and we don't want to wordsmith them here. We just want to make sure we get the general ideas.

Despite the impressive technology developed for offshore drilling, there were not comparable developments in the technologies that provide safety in the challenging new environments in which the industry operated.

Number 6: Offshore rigs have complex management problems because of the combination of prime operators, subcontractors and equipment manufacturers needed to make them work.

Number 7: Some companies in the Gulf of Mexico failed to apply process safety measures to provide unified coordination of the range of complex technical tasks on large rigs and the diversity of companies working on them.

And finally number 8: The entire oil and gas industry failed to provide adequate contingency plans, including the availability of adequate

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containment systems, for a major well blowout in the Gulf of Mexico, or to advance technologies for oil recovery should a blowout occur.

So we have heard a number of -- both the staff and the subcommittees have heard a number of and talked to a number of people, have heard a number of testimony from the companies themselves as well as for the formerly MMS or BOEM of the regulator, and in particular it was quite evident to at least our subcommittee that there were incredible developments in the technology to extract oil in deeper and deeper waters.

For reasons that we could go into in great depth, but I won't here, the technologies that provide safety were not as far developed. I would say safety or containment as we saw in the case of the Deepwater Horizon, as BP and the rest of the industry in a major hurry had to develop containment systems that were not anticipated, they actually did a reasonable job. We would have liked to have those ahead of time.

So part of the issue here is what is the safety culture of the entire industry, and what is it

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that we need to expect of the entire industry. So I will open it up for discussion then. Questions.

CO-CHAIR GRAHAM: Commissioner Don Boesch.

MR. BOESCH: I think these four findings are particularly important. You know, much of the focus of the work of the Commission will be dealing with government and government responsibilities and management of resources and regulations and the like, but I think these, all four of these, point to the primary responsibility that in order to address the actions taken to minimize this risk in the future, those are going to be fundamentally industry responsibilities to implement.

So I think all four, yes, you could point to some failings that not only individual companies but maybe the industry as a whole needs to take stock of and develop some solutions for. So I think these are quite appropriate findings.

MS. MURRAY: Yes. I would say they also point to opportunities for the industry to, which we're going to come to later, but there are many opportunities to take a new look at the safety culture

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and what we need to have in the future.

CO-CHAIR GRAHAM: One thing that we'll have to deal with not only in these potential general findings but elsewhere is the correlation of what's going to be the text in our report and the findings, and these reflect a desire for the findings to be fairly sparse and not very elaborate. I think in the text we need to surround these findings with things that catch the public's attention and imagination.

For instance, the comment that Bill, Co-Chair Bill Reilly, who was the EPA administrator during the Exxon Valdez has made on several occasions his surprise that there have not been greater advances in safety and containment in the 20 years since. That's a quotation that captures the spirit of what we're talking about with these general findings.

CO-CHAIR REILLY: You bring up a very good point, to include insofar as we can without making them voluminous specific examples, sort of what you just described. The skimmers don't work in the open ocean. The booms all break. The technology that's been invested in them has been negligible by the industry

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and by the government. R and D is hardly extant in the government on this whole enterprise. That's really got to change.

It's encouraging that the industry is going to create a containment enterprise that will begin to focus on some of those things, but we're not there now, and we certainly weren't there on April 20th.

MS. MURRAY: Well, the other thing to point out is that the containment systems that eventually killed the well were there at the icstock. So we did not learn, we as a globe, did not learn from 20-year-earlier well blowout in the Gulf of Mexico.

CO-CHAIR REILLY: Is that sombrero?

MS. MURRAY: Sombrero, yes.

MS. BEINECKE: I do think that --

CO-CHAIR GRAHAM: This is Commissioner Frances Beinecke.

MS. BEINECKE: I do think that point in the findings to put some of those dates particularly since the Exxon Valdez over the 20-year period there hasn't been an advancement in the spill cleanup technologies because -- you said that many times, that I think that

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has come, you know, to all of us as something of a surprise, and one of our challenges should be, now that we've identified it, is the continual improvement which clearly we didn't have in that case. So, you know, understanding that since the last big accident things have not advanced, and our recommendations hopefully will design a system that allows improvements.

CO-CHAIR GRAHAM: Commissioner Terry Garcia.

MR. GARCIA: Yes, thank you. You know, we've gone through an exercise now of dealing with a well at 5,000 feet, and maybe this is an assignment for later on for the staff, but to get some additional information on what would be the additional challenges say if you have a well blowout at 10,000 feet, how much more difficult would it be to address that because we've got 5,000 feet down now, but will we have another blowout at 5,000 feet?

MS. MURRAY: Well, we actually, we are 12,000 feet down now, and actually it's not just the depth of the water, although the depth of the water of course is important because that is the pressure --

CO-CHAIR GRAHAM: This is Dean Murray.

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MS. MURRAY: -- involved and temperature, but it's also the geologic formation, and it turns out that the challenges in the geologic formations which are very, very high pressure with a large amount of gas in the Gulf of Mexico in the deep, deepest waters are quite, they're quite challenging and, in fact, the balance between the weight of the mud and the hydrostatic pressure and the formation pressure is becoming a little -- they're becoming very close, and so it makes it even harder to do well control. But that depends on the geology and not just the depth. I mean the depth of course causes all sorts of other problems. If you have a lot of gas at low temperature of water, the gas comes out very hot. The gas is methane or a fluoroclastinate (phonetic) which we saw happening in the first containment effort, and there's also hydrogen sulfide which is highly toxic that can get on rigs.

So there are many hazards here that need to be mitigated, and they're risks, and the risks don't go away. The risks are there.

CO-CHAIR GRAHAM: I wonder if it would be

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appropriate to have either an expansion of one of these five points or a new general finding that we need to be more site specific. We have rules that say if you're more than 5,000 feet, you're extant, but the fact is, as Dean Murray just said, we're dealing with different geologies --

MS. MURRAY: Right.

CO-CHAIR GRAHAM: -- and other factors, and frankly we also are dealing with different levels of competencies of companies. Some have said that a company with a very spotty safety record ended up leasing what could be defined as one of the more dangerous sites in the Gulf of Mexico, linking the specific site safety risk that that poses with who are we going to give the responsibility for exploring and extracting in that site and the safety requirements in doing so on a much more specific basis than we have in the past I think will be an appropriate area to explore.

MS. MURRAY: That's certainly a good point, and the point of -- this is now getting to response -- but even in containment in the Arctic where it is very

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much colder with sea ice, it's very different from the Gulf of Mexico, and that needs to be, to your point, site specific.

CO-CHAIR REILLY: We have had this --

CO-CHAIR GRAHAM: This is Bill Reilly.

CO-CHAIR REILLY: We've had discussions of practices in Norway at least, possibly other places, where companies are actually certified to undertake particularly complex deep sea drilling based upon their previous history in that area, and if they've not got a history they have to partner with somebody who will be the operator who has.

I don't know whether we, if this is the place where findings should go, but we've certainly considered that in one of the subcommittees, and if it's not in this block, then I think we ought to provide for it because I think we pretty much all agree on that. I suspect we do.

MS. ULMER: Regulation.

MS. MURRAY: It's all regulation.

CO-CHAIR GRAHAM: I'd say one other item that we touched on is the fact that this is a global

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industry, and there were experiences as close as Mexico that could have provided us some valuable information on which we could have acted and maybe avoided this tragedy. The industry seems to be surprisingly insular given the fact that it is so global.

So ways in which we could encourage a greater sharing of best practices in an expedited basis on a worldwide stage might be another finding that would be appropriate for this section.

MR. BOESCH: Mr. Chairman, I'd like to also suggest that as we finalize these rewording of these findings we make sure as appropriate --

CO-CHAIR GRAHAM: This is Commissioner Don Boesch.

MR. BOESCH: Yes, as appropriate it makes reference also to production facilities because especially when in deep water environments we will be putting in place brand new technologies, and we have an expectation that they're going to perform for decades as we produce the oil, and so I think we ought to make sure that we are paying equal attention to production facilities and wells, the drilling, both exploratory

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and production well drilling as we, as we consider the safety issues in the industry.

CO-CHAIR GRAHAM: We have now reached the time, unless there are further comments on the five recommendations that constitute group B of potential general findings. We will move on to group C which will be led by Commissioner Fran Ulmer.

MS. ULMER: Thank you, Mr. Chairman. I'll go ahead and read the three remaining items of findings under this subcommittee.

The national interest requires the continuation of a strong and safe offshore drilling program, one with a better balancing of risk and with greater safety protections for human life, the environment and the economy.

And then I'm going to go to number 11 and read it as number 10 because I think that's where it fits. By forming a Marine Well Containment Company, some in the oil and gas industry are beginning to address the absence of a readily available containment system for the Gulf of Mexico. Many key decisions that will help determine the long-term viability and success

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of the organization, however, have yet to be made.

And finally, the oil and gas industry is planning for exploration developments in frontier areas outside the Gulf of Mexico, including the Arctic, which would introduce new safety challenges, many of which have not been fully analyzed.

So these three kind of taken as a group are I guess embracing the reality that we will be continuing this activity, but this new activity, particularly in new areas, may require some new ways of doing business and some new ways of thinking both from the standpoint of how the industry develops its R and D, for example, the containment company approach for the Gulf of Mexico, but also both the regulatory and industry activities in frontier areas like the Arctic. As Dean Murray was saying, it's the Gulf of Mexico and the Beaufort Sea and the Chechen Sea are wildly different places, and so to imagine that exactly the same kind of approach both from a standpoint of the industry technology, from the standpoint of the level of scrutiny from the government but also perhaps from the standpoint of whether we choose to require some

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additional protections given the nature of the special place. So those are on the table for discussion.

CO-CHAIR GRAHAM: Comments?

CO-CHAIR REILLY: Well, 9's certainly a no-brainer. We have so much research and so much background that supports these findings, I think that they're fine.

MS. BEINECKE: Well, I have a comment on number --

CO-CHAIR GRAHAM: This is Commissioner Francis Beinecke.

MS. BEINECKE: Thank you -- 11. 11, your new 11, Chancellor. The Arctic, it seems to me that they were not only introducing new safety challenges but also new environmental challenges because operating in a sea ice condition is very, very different than in the Gulf of Mexico. So I think we should add that provision there, and also that finding indicates that the oil and gas industry is planning for exploration and development of frontier areas, but they can only plan for that as the federal government actually proceeds with drilling in those areas. So I actually

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wonder if the finding shouldn't be the federal government is, you know, is evaluating whether to, because right now they are currently evaluating exploration development in frontier areas which would introduce new challenges.

CO-CHAIR REILLY: But there is a suspension now of any activity, right, by the federal government? So it's not even -- it's not even an ongoing plan at the moment.

MS. BEINECKE: It's under reevaluation is what it would be now, but I think the decision, I'm just making the point that the decision is actually the federal government's decision on whether or not to proceed. It's not the industry's decision, and I think we should make that finding.

MR. BOESCH: We could leave the --

CO-CHAIR REILLY: I suspect the industry knows that.

MS. BEINECKE: I'm sure they do.

MR. BOESCH: The one type of finding could be the same.

CO-CHAIR GRAHAM: Commissioner Don Boesch.

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MR. BOESCH: But I think in the narrative we need to be more specific about the exact stated point, that there actually aren't leases that have been granted but the exploratory drilling has been suspended and final determination, government determinations have not yet been made.

Also on that point, if I could just, again, you want to keep these findings as simple one sentences, but it would be certainly, if I were just reading them from an executive level, I would certainly might want to see a few examples about what we mean to be many of these risks have not been analyzed, for instance, three examples or something of that sort.

CO-CHAIR REILLY: I completely agree with that. To the extent we could do that with almost any of the findings without overburdening them with verbiage, I would say we ought to do it because coming to this without having had the background we have I think I would have a lot of questions about what in fact this commission is saying.

MR. GARCIA: I had a point. Maybe it's implicit --

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CO-CHAIR GRAHAM: Commissioner Terry Garcia.
MR. GARCIA: -- new safety and environment challenges. We discovered that with respect to the Gulf of Mexico and certainly with respect to the Arctic that we don't know enough about these systems at this point to be able to pronounce certainly in the Gulf what was the base line that we were dealing with when this thing occurred. So just the point that we don't know enough about these systems at this stage in addition to these safety and environmental challenges and that more science is going to be necessary so that we have a full understanding of what we're doing and where we're going.
CO-CHAIR GRAHAM: I don't want to be the skunk at the picnic party, but the first line of number 9, the national interest requires the continuation and expansion of a strong offshore drilling program. I am not prepared to accept that as a biblical statement of the proof. It seems to me that goes back to what we talked about in group A where we said we ought to first have some sense of what is the national energy policy, and then how does offshore fit into that policy as

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opposed to declaring extant a national energy policy that the nation is required to continue to expand its offshore drilling.
CO-CHAIR REILLY: Realistically though it seems to me that if you're now getting 30 percent of your domestic supply from offshore and the prospects are that that will increase very significantly in years ahead, you have to have some alternatives available before you clamp down and say more expansion or now we're actually going to increase production.
CO-CHAIR GRAHAM: Well, I think what we heard earlier today was that a dominant reason for the decline in onshore and an increase in offshore is that amounts we can achieve. Even at 9 or $10 a barrel people are willing to invest in offshore drilling. That's how economically advantageous it is. Are we going to say that our national policy is totally market driven, that there are no other considerations such as national security that ought to be part of the mix? Where do we go to get our oil?
MS. MURRAY: Or environmental protection. That's another national policy.

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MS. ULMER: Mr. Chairman, I might note that I read that differently. I read the continuation of a strong and safe offshore drilling program which was reflecting of my sentiments, and I believe it reflects many people's sentiment that just because something is today does not necessarily mean it will be tomorrow, and we all tend to, the point that was made earlier, we tend to think linearly. Because we see a trend line we think that there's nothing that can change that, and I just remind you that in the '90s President Clinton greatly spiked the development of offshore drilling by asking Congress and then Congress passing a law that forgave royalties for all practical purposes on these waters incentivizing additional investment.
So public policy can influence whether you see an additional investment in the technology on the shore or offshore, and that is a strategic choice. It isn't necessarily a given.
MR. GARCIA: Would you read your finding number 9 again.
MS. ULMER: The national interest requires continuation of a strong and safe offshore drilling

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program.
MR. BOESCH: Just by striking "and expanding."
MS. ULMER: And adding "and safe," but again we're not supposed to wordsmith, but I think this is an important conversation about sort of how much of what we're doing here is just assuming what's always been versus the point that the Senator raises about imagining what else is possible.
CO-CHAIR GRAHAM: And I recognize that what I am suggesting is that we insert some non-market considerations into this matter that I don't think it's in the nation's interest to have judgments on a product that is so sinful to our economy, our life style as well as our security to be made totally on market demand basis, that we have to move to assert some other considerations.
MR. BOESCH: Just to reflect on the data that we're presented by staff from the National -- from the US Energy Information Administration projections. Out to 2035 would assume, first of all, Mr. Chairman, that onshore production actually continues to dominate over

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offshore production, and through that time frame it grows more slowly than offshore production but that the assumptions of projecting offshore projection from 2008 to 2035 would almost require a doubling of that offshore production to comport to these projections.

CO-CHAIR REILLY: Well, I confess, I assumed based on all of the energy analysis that I have seen that through at least the 20s, 2020s, fossil fuels, hydrocarbons, particularly liquid hydrocarbons, not so clearly referring to coal here, are going to be essential to the US economy. I don't really think that's disputable based on anything we've seen. Now, technology I suppose could transform that, but certainly --

MR. BOESCH: Not in this time frame.

CO-CHAIR REILLY: -- based on what we know it seems unlikely that that could happen. The automobile industry could take 10 or 12 years to turn over and there's some credence to that. So I think we ought to be realistic about that in terms of making a recommendation that the President ought not to suggest something that really is inconsistent with the

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mainstream assumptions about projected supply and demand and technology that he couldn't take seriously.

MS. BEINECKE: I agree with that, Mr. Chairman. It would be useful. The EIA graphs didn't show what the anticipated changes would be from the new fuel efficiency standards for cars and the new ones that are being contemplated post 2016. So actually if the staff could provide a graph of what those changes actually result in I think it would help us in our determination of what we think we do have to put forth.

CO-CHAIR REILLY: I think it would help us, but we're still expecting to be importing more than 60 percent of so of our oil.

MS. BEINECKE: That would be just as interesting. I understand that.

MR. BOESCH: Absolutely. The other part of that in addition to the reality of how much more production would you have to get from the offshore in order to meet these projections is the other reality in terms of the likely reserves that I think many Americans believe that if we just get more progressive

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in producing oil offshore, we could substantially reduce our imports, and I don't think any of the data supports that at all.

MS. ULMER: Exactly. That's sort of the gap between the public perception perhaps encouraged by those of us who would love to imagine that reality versus reality, and everything we know about the numbers that gap cannot be filled regardless of how much we drill, baby, drill, and that's something that somebody has to kind of level with the American people about.

There is a certain amount of reality therapy that an independent commission is capable of that perhaps elected officials are not capable of in just kind of confronting these commonly held misperceptions based on hope more than numbers that we can somehow be independent, that we can reduce imports. It's not possible, and so given that, yes, of course we're going to have a continued oil and gas industry, absolutely, but to tell people that we can get to some imaginary goal of completely eliminating imports is so out of bounds from reality. Somebody has to state that.

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MR. BOESCH: Unless we go to alternative energy sources and greater efficiency.

MS. ULMER: All electric cars. This is a hypothetical situation. This would take decades. However, if you went to all-electric cars, that means that 70 percent of our oil usage would go away.

CO-CHAIR GRAHAM: I would suggest, and I will leave this with Richard, as to how we can do this, but we need to have a very data driven discussion on this matter. There are a lot of -- for instance, look back at number 3, the last phrase there, thereby contributing to national security and reduction of the trade deficit. Now that implies that we are in a position to be able to significantly change the equation of domestic versus foreign oil in the United States. I don't think that is reality under any circumstance, and again I think before we make statements like that we need to be sure that we've got the numbers that will support it.

CO-CHAIR REILLY: I read that as referring to the past: Offshore production has helped, and so forth, and certainly inarguably it has helped reduce

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the trade deficit in the past because if we'd not had it, we simply would have made it up with imports. That seems to be a fair statement of where we've been.

CO-CHAIR GRAHAM: Well, I read it as a future statement.

MS. MURRAY: Yeah. Projecting into the future is not clear.

CO-CHAIR REILLY: Well, oil production has helped offset declines in production elsewhere, moderated dependence on foreign imports.

MS. MURRAY: I would argue that those are economic. Because we have onshore oil production we won't import some of the most expensive. People can't raise these gas prices as much internationally because we'll just, you know, come up with our own.

CO-CHAIR REILLY: Well, I don't know if I'd agree with that. I think our international oil economy is something in which we are embedded and have very little price power, that those prices are set by an international market that given our production I don't think we could substantially alter.

MS. MURRAY: I think that's true now, but I

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don't think that's true in the past. I mean the point being it's this forward looking or backwards looking, and we should make that very clear.

MR. BOESCH: I think also even retrospectively if you look at this graph you would say, you would be hard pressed to say that it has reduced the trade deficit. It has kept the trade deficit from growing larger than it is.

MS. MURRAY: True.

MR. GARCIA: So where are we on 9?

CO-CHAIR GRAHAM: I think we -- my own feeling is we're comfortable with that. We're going to need serious data driven discussion.

MS. MURRAY: Yeah. I think there is a time frame. Obviously we can't change our energy sources quickly. It takes 30 to 50 years to change over to a new energy economy, and so what 9 says, that the national interest requires a continuation. Certainly in the short term it does because we're not just going to flip it off, but that doesn't necessarily mean that's going to be the case a hundred years from now.

MS. BEINECKE: Well, then maybe you would

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want to put that in a time frame, you know.

CO-CHAIR GRAHAM: And that time frame could be defined --

MS. MURRAY: Over the next decade or whatever.

MS. BEINECKE: Or as these fuel efficiencies kick in.

CO-CHAIR GRAHAM: To me the time frame is not in a number of years but rather in the achievement of an objective which is that we have become significantly less dependent on traditional hardened forms of energy.

MS. BEINECKE: Fuel, right.

CO-CHAIR GRAHAM: And when we've done that, we're going to be dependent on coal until we've made that transition which is probably, you know, at least one or two generations.

MS. MURRAY: Although you could say if we go to an electric fleet and it's powered by coal, we have to switch out carbons.

CO-CHAIR GRAHAM: Just how long is it going to take to do that?

MS. MURRAY: Yeah. It will take the time

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that it would take to switch over to a completely electric fleet, which again, on the 30- to 50-year, maybe even 20, 20- to 50-year time frame.

MR. BOESCH: That also requires the development of carbon capturing technologies. Otherwise you'd be more dependent on carbon than oil.

MS. MURRAY: I know. That's not a complete list. It's certainly true, but it's not completely.

MR. BOESCH: I think the point I think we're agreeing on is that there's -- I don't think anyone -- everyone has relisted that for the near term and measured in certainly a decade, arguably maybe two decades, we're going to be heavily dependent on oil for our transportation capabilities in particular, but that beyond that we envision and I think the nation envisions and the world envisions some transition to other energy sources in that horizon, and really that horizon is not so far out in terms of the decisions that the nation is making in terms of development of offshore resources.

So I think it, you know, we have to be a little bit more precise than saying foreseeable future

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these kinds of things and maybe be specific about transitions that we would envision and the role of oil and from the offshore environment.

CO-CHAIR GRAHAM: Commissioner Don Boesch.

CO-CHAIR REILLY: I think the President --

CO-CHAIR GRAHAM: Chairman Bill Reilly.

CO-CHAIR REILLY: -- I think we are invested in the transition and very much want to see it move forward to decarbonize the society. Certainly my own history is being very committed to that, but I think to create too close a connection between policies with respect to offshore oil and gas development and that transition may be stretching it a bit far, and it's not clear to me. Certainly we want to constrain offshore oil and gas development for reasons of overriding safety and the environmental concerns; we really do. We are prepared to curtail development, to constrain it with new regulations, to be much more careful than we have been, to require more safety practices by industry and better regulatory capabilities by the government, but it doesn't seem to me that that is directly going to play a significant role in moving us toward the

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transition. So I think as a commission for us to over emphasize the importance of the transition is a little bit of a distraction, and it's more than I suspect we can contribute as we look at offshore drilling.

MR. GARCIA: Well, maybe then on finding number 9, I mean it seems to me the key point as far as this commission is concerned is that the continuation and expansion of strong offshore drilling requires a better balancing of risk with greater safety protections for human life, the environment and the economy, without getting into the discussion of whether the national interest requires the continuation but the continuation of expansion will require a better balancing of risk.

CO-CHAIR REILLY: I think that's well said.

MS. BEINECKE: I would just add if we're going to do that, I think we ought to focus on continuation because continuation and the opportunity for the administration to ultimately decide whether that incorporates expansion, and I don't think that's a decision we have to make. We have to make sure that any offshore program has better standards, better

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environmental review, better safety provisions. So I would just eliminate the expansion part of it because that's what we don't want to discriminate and just assure that whatever the program is operate it in a fashion --

CO-CHAIR REILLY: I was just thinking a headline that says offshore drilling commission responding to the blowout in the Gulf recommends expansion of offshore drilling.

MS. BEINECKE: Exactly.

CO-CHAIR REILLY: I actually have no problem with that.

MS. BEINECKE: Let's not do that.

CO-CHAIR GRAHAM: Are there any further comments on group C? If not, that completes the review of the potential general findings under offshore drilling. Bill.

CO-CHAIR REILLY: All right. Thank you. They stood up pretty well. That's good committee work. Congratulations, committee members.

MS. MURRAY: We have to see what the revisions look like.

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MS. ULMER: These are the notes that I've taken in terms of changes that we need to make, so I'm not so sure. We have a little work to do.

CO-CHAIR REILLY: All right. Well, with that we will now take up the Subcommittee on Regulatory Oversight of which the members are Chancellor Ulmer and Miss Beinecke and myself, and groups A, 1 through 3, group B, 3 through 6, and group C, 7 through 10, and I will discuss the last group and Frances the second, group B, and Fran Ulmer will begin, and you might begin by reading them so that everybody has it.

MS. ULMER: Certainly. So group A has two points, two findings: Number one, roles and responsibilities; and number two, regulatory coordination.

(1) Roles and responsibilities: MMS had four distinct responsibilities requiring different skill sets and cultures. First of all, offshore leasing; secondly, revenue collection and auditing; and thirdly, permitting and operational safety; finally, environmental protection.

The language of the Outer Continental Shelf

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Lands Act, which we will refer to as OCSLA, has been interpreted as elevating the goal of expeditious and orderly development above the requirements of safety and environmental protection. Every former MMS director from the past 15 years has stated that the royalty issues have taken most of the director's time at the expense of other components of the offshore program.

Second finding, regulatory coordination: The regulation of high risk activities on the Outer Continental Shelf has been divided among a number of regulators, DOI, DOT, USGS, OSHA, for producing platforms, pipelines and different types of drilling rigs. The negotiation and renegotiation of multiple and sequential memoranda of understanding to coordinate and carry out these federal responsibilities has led to inefficiencies and gaps in oversight affecting worker safety and environmental protection.

It's a lot of words, but I think the bottom line here is that there are three fundamental problems. First of all, the ambiguity of OCSLA, the offshore -- the Outer Continental Shelf Lands Act. OCSLA has built

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into it the ambiguity of how best to balance between the development and the safety of the environment and the safety of workers, and in that ambiguity, in that gap has come from different administrations and different administrators different levels of interpreting how to strike that balance, and over time, particularly over the last 30 years, there has been an increasing balancing toward let's do as much and as fast as we possibly can partially driven by the desire for royalties, partially driven by the desire and political pressure to simply get those leases out the door.

The second major issue under roles and responsibilities and regulatory coordination is the lack of consultation, effective consultation with the other agencies that have some statutory responsibilities and some considerable expertise that could be brought to bear in how MMS regulates offshore drilling and a classic example of that I think and again I think perhaps it's best that we do include these kinds of examples is that you would think that the Coast Guard would play an active role in reviewing

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and making recommendations on oil spill response plans for drilling rigs, yet they don't. There is no requirement that they do so, and so the Coast Guard is often in the situation of having to do cleanup without having participated in reviewing, making recommendations and helping to formulate how those oil spill response plans should in fact be structured.

So that failure of effective consultation added to the ambiguity of OCSLA and the balancing of how quickly you do the development with how much environmental and safety protection there is, that's problem number one and problem number two, and I would say that the third issue is one, and I think we'll get into that a little bit later, I think the Chairman will talk about that, is when those two things are happening at the same time that you have an underresourced agency, an agency that cannot compete from the standpoint of knowledge, number of inspectors, capacity to interact with both the industry and the other agencies; you add all of that up and you get to where we are today which is a sense that the government has not been able to effectively regulate this industry in

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a way that protects either worker safety or the environment in a way in which we'd like it to.

As a nation we like to take pride in the fact that we do things right, that we do things well, as we look at how other nations, and I'll just use Norway as an example, have engaged in both the identification of the roles and responsibilities and how they regulate them, that we are not the best in the world even though we'd like to be.

So perhaps from this unfortunate tragic accident we can learn how to improve the law, how to improve the regulation, how to equip the regulators with kind of both the political capital and financial wherewithal to do a better job.

CO-CHAIR REILLY: Comments, questions on group A beginning with 1, roles and responsibilities?

MR. BOESCH: I would just think, this is the last sentence is an interesting observation, garnered from interviews with the former MMS directors about their preoccupation with the royalty issues, and I think that although the royalty issues have been there and it obviously demanded attention, I think asking the

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question as the complement: Why didn't they direct more attention to the leasing development, risk management issues? I think it's an important point, so if we have some findings related to that, why weren't they paying as much attention to those responsibilities as well as the royalty responsibility?

CO-CHAIR REILLY: I strongly suspect it was 18 billion dollars. I think that was the number of revenues in 2000 was it. It's hard to imagine people overlooking that either.

MR. BOESCH: I'm not suggesting that they should overlook it, but they have other responsibilities as well to attend to.

CO-CHAIR REILLY: I think as mentioned in those responsibilities it was a mistake, but I think that amount of money is just a stunning number, second largest revenue generator after the IRS, United States government.

CO-CHAIR GRAHAM: I wonder if, one, the first paragraph of general finding 1 just states a fact, that there are four distinct responsibilities. Do we want to make some finding as to what the significance of

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those four distinct responsibilities, or do we keep plotting that as a good model of the Administration or are there issues that relate to what we're concerned about, primarily safety and environmental protection that flow from that division, and then the second paragraph, it seems to me the second sentence would more appropriately come after the first paragraph since it refers not to the provision that it's in the Outer Continental Shelf Act, but rather it refers to an internal to MMS issue, that is, that their attention was so focused on the one issue of royalties that the others didn't get much attention just as a matter of clarity of the roles.

MR. BOESCH: I think the broader point is that they're obviously competing and maybe even conflicting.

MS. MURRAY: You know, one might consider certainly if that, that last sentence belongs with the first paragraph, but one might consider as a finding what other nations have done as a result of major catastrophes that, for example, permitting the offshore leasing, revenue collecting, safety and environmental

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protection are not all in the --

CO-CHAIR REILLY: Question for the staff: Do we not say that somewhere in the findings? If not in today's set, in the next set? I thought we did. I don't see it here, but I just read it. Shirley Neff.

MS. NEFF: These are just findings so far. We haven't made recommendations. We haven't spoken to clear findings on the offshore regulators yet. We have some background information.

CO-CHAIR REILLY: The point is, I think we all can agree, that a finding with respect to the experiences of other countries that have experienced catastrophes, for instance Norway and the UK, has led them to distinguish to separate for purposes of regulation finance, revenue reception than it has from leasing from safety and environmental regulation.

MS. NEFF: So you would like to develop that more fully towards the findings?

CO-CHAIR REILLY: Yes.

MS. NEFF: We can do that.

CO-CHAIR REILLY: Other comments on the -- all right, on number two, regulatory coordination.

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MR. BOESCH: Just a small observation, and Chairman Reilly, you might know better than I, but it seems to me BPA also has a role with respect to regulation of discharges, both water discharges and air, atmospheric conditions?

CO-CHAIR REILLY: It does, and permits are required for all of that, and that's surprising to me that there has been such a concentration and delegation of authorities among even these agencies which statutorily have the responsibility, that it pretty much, first of all, it's diffused authority de facto. We know that based on what we see and possibly partly because it's in some cases a hundred miles out in the Gulf, this rig and several rigs, and secondly, I guess I was very surprised that OSHA does not exercise authority on these rigs, and I still have not had an adequate explanation as to why they do not. It seems to me from what we have learned just this morning that the accident rate is four times, five times what it is the fatality rate on American rigs versus North Sea or UK experience. Well, who is paying attention to the safety as a primary concern? And I guess it's

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delegated we learned to.
MS. MURRAY: Coast Guard.
CO-CHAIR REILLY: -- to the Coast Guard which has delegated it further, or not? I thought they delegated it further to MMS. Isn't that correct? Yeah. Which -- well, we're not happy with that, so, all right. All right. I think we have a finding here. It's maybe --
MS. BEINECKE: They're not happy.
CO-CHAIR REILLY: That's right.
MS. ULMER: We think we can do better.
MS. MURRAY: One could say that in the UK their OSHA equivalent does have regulatory.
CO-CHAIR REILLY: Might be part of the same finding we were just talking about? Yeah.
CO-CHAIR GRAHAM: We, in the second sentence of number two, we sort of point to the negotiation and renegotiation of multiple and sequential MOUs as being the problem. I think the problem is that we haven't aligned agencies with competence to task and inform. OSHA clearly knows more about how to deal with worker safety than either the Coast Guard or MMS.

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CO-CHAIR REILLY: You know, as a former regulator I never thought I had the authority to delegate to another agency statutory responsibilities. I'm a little surprised that all of this is legit, but in any case that seems to me bad policy.
CO-CHAIR GRAHAM: Well, I agree, but it seems to me that we have understated the issue by just making that it's almost a paper shoveling MOU. The real problem is we don't have the right mission assigned to the right period.
CO-CHAIR REILLY: Well said.
MR. GARCIA: Should we also, and Commissioner Ulmer made this point, add a finding about the lack of the --
CO-CHAIR GRAHAM: This is Commissioner Terry Garcia.
MR. GARCIA: -- the lack of effective consultation under OCSLA? It's a question to --
CO-CHAIR REILLY: Don't we -- do get to that somewhere.
MR. GARCIA: I don't know. Is it here?
CO-CHAIR REILLY: Yeah, I think it's there.

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MS. ULMER: Under science for decision making.
MS. BEINECKE: Yeah, but the science, when you get there, is not yet completed, when it gets there. We haven't actually -- we don't have findings yet which articulate that, but that is an issue we have to address.
MS. ULMER: Hold that thought.
MR. GARCIA: Then I would ask that we address it.
MS. MURRAY: So actually to the point of the regulatory coordination finding number 2 --
CO-CHAIR GRAHAM: Commissioner Murray.
MS. MURRAY: -- it's not regulatory coordination so much but the mission of each regulator and expertise.
CO-CHAIR REILLY: Well, I think we got the point. I think we're going to have to consider how, in fact, one might efficiently realign these responsibilities, how one might allocate them, but the current alignment just doesn't look satisfactory to address the problem we have identified.

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MR. BOESCH: There's got to be some complexity to that because of other broader lines of jurisdiction. So for example, Coast Guard probably has responsibility because Coast Guard has responsibilities for maritime operations on vessels and that sort of thing. OSHA does, but it's a -- a mobile drilling rig's a vessel. Is a fixed platform a vessel? Who has the responsibility? You know, I think we have to look at that.
MS. MURRAY: There are complexities.
CO-CHAIR REILLY: Anything further on that? You're suggesting a break at this time?
MR. SMITH: If we take a break now, we would be on schedule to come back after the break.
CO-CHAIR REILLY: Everybody prepare to take a break and come back to address group B when we return. All right. So let's take -- how much time? Fifteen minutes?
MR. SMITH: Fifteen minutes.
CO-CHAIR REILLY: Fifteen minutes.
(A recess was taken)
CO-CHAIR REILLY: Okay. Let's resume. We

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will resume with discussion of group B findings 3, 4, 5 and 6, and Francis Beinecke will lead that conversation.

MS. BEINECKE: Thank you, Mr. Chairman. This is the findings from the Committee on Regulatory Oversight, and there are four findings in this area, and I will read them and then we can discuss them.

So the first is on technology and operational complexity. The federal approach to management and oversight of leasing and development of offshore resources has not kept up with rapid changes in technology, practices, and risks in different geological and ocean environments. The Safety Board Report acknowledged the lack of ongoing training for engineers and inspectors. That's number 3.

Number 4 is under risk management. MMS failed to embrace a proactive risk management approach to the oversight and regulation of offshore drilling. Neither the MMS nor the industry had systems in place to track and analyze offshore incident data for lagging and leading indicators and trends. The regulatory review and approval process for exploration plans,

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permits for deep water wells and oil spill response did not require adequate risk evaluation and management planning.

Number 5 on oil spill planning: MMS approved Oil Spill Response Plans and MMS developed oil spill risk analyses are integrated into the environmental review and consultation process at all stages of OCS oil and gas development. Underestimation of the worst case scenario for oil discharge in the Gulf of Mexico oil spill risk analyses distorted the estimations of potential environmental impacts in subsequent environmental reviews. The Oil Spill Response Plans were also problematic because they were included in some of the environmental reviews as a mitigation measure to address the threat of oil discharge. Although the BP Oil Spill Response Plan for the Gulf of Mexico met the MMS regulatory requirements for such a plan, it lacked rigor and specificity. The approval process for these plans also lacks transparency and fails to include either a process for interagency consultations or public review.

The final one in this section is science for

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decision-making, number 6: Although there is a significant amount of scientific research that has been conducted relevant to OCS oil and gas activities, there is a need to continue strengthening and expanding this science, as well as ensuring that it is relevant to decision-making and environmental review of oil and gas activities. And attached to this finding is a note: After ongoing staff research is completed, additional findings regarding the NEPA process, Environmental Studies Program and use of science in the OCS oil and gas decision-making process will be proposed.

And just to begin the discussion, I think here the subcommittee has been looking at both the structure of MMS and the procedures that they follow and the analysis they undertake in overseeing the offshore oil and gas leasing program and making an assessment of whether those are adequate under the current challenges that the OCS program is facing either in the deep water as we discussed earlier or potentially in the Arctic where there is some interest. So we've done a lot of analysis of what the current systems are, and I think one thing for the Commission

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to evaluate is whether our findings are focused specifically on how the agency was structured on April 20th and how it was operating or how to take into consideration the changes that are currently being undertaken and that would propose additional recommendations for changes in the future, but it is a moving platform of regulatory oversight.

So comments on any of these?

CO-CHAIR REILLY: Well, as far as item 3 goes, it seems to me we have had very extensive and very persuasive evidence with respect to the breath-taking advances in the technology of oil exploration and development and repeated reminders that the capability to contain and respond to spills as well as even to regulate or understand some of those technologies did not develop the pace.

MS. MURRAY: Well, I would also point out that it's important to have that kind of either reach-back or, even better, that kind of expertise, for example, cementing in the agency that's doing the regulatory -- regulation.

In discussing these regimes with other

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nations, that is what has happened in the North Sea, also what's going forward in Australia. The expertise action needs to be -- expertise and training needs to be in the regulator.

MS. BEINECKE: I'd say also on that that in number 3 where the observation is the federal approach has not kept up with rapid changes, so, you know, the challenge is not only how you get to the point of where the technology changes are, but you continue to have a system that evolves and keeps abreast of where the technology is going and how you incentivize that both to keep the industry pressing ahead but also to ensure that the regulator is on top of what those changes are and equipped to deal with it.

CO-CHAIR GRAHAM: Those last comments were by Commissioner Frances Beinecke, and I'd like to ask her a question. What would you say is an example of an area of enterprise that has kept pace with rapid changes in technology, practices and risk?

MS. BEINECKE: Well, I am not sure that I'm the best person to actually provide observations on that. I think earlier today when we heard from

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Professor Levinson she gave some examples of industries that had kept up. The aviation industry she identified and, you know, where she's actually looked in great detail. This is one where she didn't think that would happen.

CO-CHAIR GRAHAM: It would suggest as we have been using the nuclear power industry as a good example of where an industry has come together collectively, but it seems to me if we could find some examples of industries, like commercial aviation could be a good one, which have been able to keep up on the safety side with the changes on the, on the actual delivery of their service or activity side and why the difference between the offshore oil and commercial aviation what lessons can be learned from that.

MS. BEINECKE: Mr. Chairman, I think that's a good idea. Also here I think to look at examples where the regulator has kept up and not only in the industry; here for a variety of resources, and we'll get to findings in a moment on the lack of resources that equipment to do that, that's a very important aspects of it. This is a very lucrative program to the federal

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government. It's an important program, and yet the agency charged with providing oversight really didn't have the capacity to undertake what the public certainly expected them to be doing.

MR. GARCIA: I wonder if the last sentence of paragraph 3 actually is strong enough. Based on my reading of material --

MS. BEINECKE: It's more than that.

MR. GARCIA: Yeah. It's not just ongoing training, but it was a series like training, and there was a lot of on-the-job training and then interns which goes to your earlier point. So I would, I'd expand on that or just drop them.

CO-CHAIR REILLY: Well, what the interviews disclosed was only on-the-job training.

MR. GARCIA: Yeah.

CO-CHAIR REILLY: Which is extraordinary and two or three days of it. Okay. Don?

MR. BOESCH: If I could go to -- are we taking these in order or do we --

CO-CHAIR REILLY: We're still on 3.

MR. BOESCH: Okay. I'll hold on until we get

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to it.

CO-CHAIR REILLY: Okay. Moving on from 3? Moving on to 4, risk management. Were you going to comment on 4?

MR. BOESCH: No. I was going to comment on 5.

CO-CHAIR REILLY: Comment on 4?

MS. MURRAY: I'll comment on 4.

CO-CHAIR REILLY: Proactive risk management.

MS. MURRAY: Which is back after Three Mile Island the nuclear power industry realized they had to go into some more serious risk management and build up the expertise and probabilistic risk analysis that I would say there's no reason, though we've actually heard some input from people including the Department of Energy that this kind of thing could also happen in this industry.

So I would ask what -- maybe I'll ask Chris, our DOE government official, what can the Department of Energy do to help MMS? Could they have input on risk assessment, for example?

MR. SMITH: I'll field that question.

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CO-CHAIR REILLY: Please. Give us a different opinion if you would.

MR. SMITH: Okay. This is an issue that Secretary Chu spoke to I think just back on the 22nd of September when he had an engagement with Secretary Salazar around a containment company which I think some of you might have seen, and in those comments he expressed that the true challenge is not fixing a problem once it occurs. He specifically said that the way that you tackle accidents is you prevent them from happening in the first place, and so there is a lot of research that is done within DOE that has to deal with not only fossil energy but also in other areas that are relevant that we spoke about here today dealing with nuclear, dealing with nuclear propulsion systems, dealing with nuclear reactors.

So the issue we have with the deep water is that when there is an incident, you are having to deal with it remotely, and these are processes which have lots of analogies in other areas. So as we look at not only how do we, you know, how do we deal with an incident but also how do we quantify what the risks

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are? And we look at technologies that was developed for onshore applications. Then there's the shallow water to deep water, ultra deep. These are the types of projects that DOE manages not only in-house but through its system of national laboratories.

So there is one laboratory that's devoted specifically to fossil energy which is the National Energy Technology Laboratory in West Virginia, but in the response to this tragedy DOE has worked with all the national laboratories, with San Diego, with Los Alamos. So there's a pretty deep set of research capability which lies within the Department that could be I think used effectively.

CO-CHAIR REILLY: Which was used pretty effectively to determine flow rate and help determine technology to manage the blowout. This is Deputy Assistant Secretary of Energy Chris Smith and our official steward from the Department of Energy just speaking.

MR. SMITH: One other thing to mention that the Secretary Chu didn't mention in his comments were that as you develop this competency, obviously there

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was you saw some research and development that went on in real time in response to shutting off this leak and stopping it, but going forward the approach would be that this is something that's starting and stopping, starting and stopping, that there is the need to ensure that this is something we maintain on an ongoing basis and that's going to be part of the shift between government and industry.

MS. MURRAY: And I guess your point is that the national labs can have a good role in this. There is a -- having come from a national lab, I shall say for five years, the response to any kind of national incident involves particularly around either radiation or possibly a nuclear weapon incident has a national lab response capability. This could also be utilized and since there are pretty effective response capabilities and large numbers, I'll say hundreds, if not thousands, of national lab scientists were brought in to trying to figure out what to do about containment of this spill. Should that not be part of a response plan? I'll just throw out for the Commission to think about.

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CO-CHAIR REILLY: It's a very good point, and one question that I had looking at what we were told and presentations made to us in the hearings was whether the Energy Department had been consulted really at all in the major decisions affecting leasing and response plans and giving plans a rest. I gathered from the testimony that they had not been, which you may wish to comment on, Chris, but it surprised me.

MR. SMITH: Right. The DOE does comment on say the five year leasing plan, you know, as it goes to that process, but Department of Energy does not have a regulatory responsibility in that process.

MS. ULMER: I'd like to just note, I think that speaks in part to the earlier point we discussed about roles and responsibilities, consulting with and perhaps getting more than just advice but actually active engagement from those agencies that do have relevant expertise to improve the system which kind of goes back to possibly amending OCSLA.

The point I'd like to make on number 4, risk management, is I think it's missing a sentence that is important in terms of providing the context of what has

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been attempted in risk management that has not been successful, and it is that for at least three administrations, if I understand it correctly, there have been regulations proposed to adopt SEMPS, the Safety Environment Management Planning Systems, that other countries require, and in all of those years in which MMS proposed those regulations to increase safety the industry objected and the regulations were not adopted until last month or this month actually.

So I think in terms of explaining the context of risk management to just suggest that MMS hasn't done anything or the federal government hasn't recognized that this is an important area we're striking that balance between regulation and industry as an important one. I think we're not telling the whole story if we don't explain that has been on the table for over a decade.

MS. BEINECKE: Good point.

MS. ULMER: And it hasn't happened, and now it finally has.

CO-CHAIR REILLY: Okay. Anything further on number 4? Number 5, oil spill planning.

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MR. BOESCH: Okay. First of all --

CO-CHAIR REILLY: Mr. Boesch.

MR. BOESCH: -- let me observe that this is an area that we had a question by Commissioner Garcia that we parked, and that involves agency, multi-agency consultation. So this is an area where these Oil Spill Response Plans clearly merit further or meaningful consultation with the agencies that will have to be part of the response, be it Coast Guard, NOAA and a variety of those agencies.

The second comment I'd like to make, observation I'd like to make is it says here in the second sentence underestimation of the worst case scenario for oil discharge in the Gulf of Mexico risk analysis distorted the estimation for potential impacts. What we learned from research by the staff was that what we really meant here is not the volume of flow of the oil but the probability that there would be a disaster or a release, but then also the underestimation of how long it would go on. So that I think is an important distinction because those are two risks which were underestimated. And then put into

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perhaps more elegant models to determine where the oil might go and what the impacts may be which had no real capability of predicting this, helping with this particular scenario because the basic assumptions about the probabilities were not there.

And think the other important bit of information which I was actually quite surprised, again, just like Commissioner Ulmer talked about, the responsibility of government and responsibility of industry is that apparently the Oil Spill Response Plans that are to be prepared by the operator are filed and only updated on two-year intervals, and so as a result of that there was not specific response plan for the well drilled at Mississippi Canyon 252 by BP because they had an earlier response plan or more generic response plan, and I think when we think about this finding being translated to recommendations, we might want to consider some recommendations along those lines.

MS. BEINECKE: Yeah. I also think, although this focuses specifically on the BP Oil Spill Response Plan that response plan was typical of all response

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plans. So, you know, in this instance we shouldn't just target that specific plan because it's the entire process and requirements for what the oil spill response plans are generally. So it seems to me that finding should be a lot more general about system and not solely targeted at BP.

MR. BOESCH: I agree.

MS. MURRAY: And to our earlier warning discussion about tailored to the particular hazards of each operating, you know, where it is, what you're doing, the response plan has to be tailored; not a generic one.

CO-CHAIR REILLY: Any comments on the last sentence, fails to include either a process for interagency consultations or public review?

MR. GARCIA: Is that the case, or is it a failure to include effective, process for effective interagency consultations?

MS. BEINECKE: There is no consultation.

MR. GARCIA: None at all.

MS. BEINECKE: None at all.

CO-CHAIR REILLY: That's correct.

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MS. ULMER: Another stunning absence of a requirement that would allow the kind of careful reflection and scrutiny that might improve the ability not only for the response but for local people in a state or local government jurisdiction to be able to see how their efforts and responding to a spill might match up with what the company claims it will do in its oil spill response. So it has lots of implications so that there is no scrutiny and no public input required.

MS. BEINECKE: So therefore no preparation.

CO-CHAIR REILLY: Little or no consultation with the Coast Guard, right?

MS. ULMER: Correct.

CO-CHAIR REILLY: Which is --

MS. ULMER: Stunning.

CO-CHAIR REILLY: -- hard to believe.

MR. GARCIA: So then we have cases where there is no consultation, but in those cases where there is consultation we have found that that consultation generally is ineffective.

CO-CHAIR REILLY: Mm-hmm.

CO-CHAIR GRAHAM: In terms of influencing.

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MR. GARCIA: In terms of influencing the ultimate decision and incorporating suggestions by the consulting agencies.

MR. BOESCH: Yeah. I think we've heard examples on this and other areas where the consultation is limited to receiving a letter from another agency and said thank you very much and with no real response back to the agency about how those recommendations were incorporated into the final decisions or an explanation of why they were not incorporated into them. So I think again when we form a recommendation we have to keep this in mind.

CO-CHAIR REILLY: Incidentally, Fran, you mentioned EPA. I learned in the break the reason that EPA was not included in the list of agencies where we've said responsibilities have been divided among a number of regulators as DOI, DOT, U.S. Coast Guard, OSHA, is because EPA does not delegate its authority. It has retained its authority, so that's why it's not listed in one of those. Senator Graham.

CO-CHAIR GRAHAM: Yes. Going back to a comment that Don made earlier. Did you say, Don, there

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was a requirement that every two years these plans had to be reviewed?

MR. BOESCH: The response plans prepared by the operator, BP in this particular case, but in the generic case are filed generally for their operations in the Gulf and are updated on two-year intervals, so in fact they were --

CO-CHAIR GRAHAM: Excuse me. That's updated by BP?

MR. BOESCH: By the company.

CO-CHAIR GRAHAM: By the company.

MR. BOESCH: By the company response plan and the operator response plan, and so in fact their response plan did not have any specific response related to the well at Mississippi Canyon 252 and anything to do with the specific geography, geological risk and all those things associated with them.

CO-CHAIR GRAHAM: But what is the policy of MMS in terms of periodically evaluating whether the operator is in a position to deliver on their commitments of safety and response?

MR. BOESCH: I think that's something we'd

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have to ask staff to help us on, advise us on. That raises a serious question.

CO-CHAIR GRAHAM: From some of the testimony that we have received I had the impression that there's not much done, right? We heard I think that while the blowout preventer was supposed to be tested every X period of time that it had been more than twice that time before this particular one had been tested.

MR. BOESCH: Right, yes, and also on the issue of response plans we have heard from the research the staff has done how these response plans which can be very voluminous and have very perfunctory standard materials grabbed from other sources; thus this is why the walrus was mentioned in the response plan for BP in the Gulf, that there's precious little staff time to review these in any detail. So there were questions raised I think because of that evidence and from those individuals in the agency about the adequacy of their staffing capabilities as well as attention to the task in reviewing those response plans.

CO-CHAIR REILLY: Other comments, questions on number 5? All right. Number 6, science for

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decision-making.

MS. BEINECKE: Mr. Chairman, let me just again make a comment on this. This is a fairly at this point generic finding that we need more science, but this will develop with much more specific findings I think as we go through the review, more analysis of the environmental review process and eco process and what kind of science is invested in this. So I don't think this will be the final finding. It's much too general.

CO-CHAIR REILLY: I agree with that, and I also believe that whatever we say with respect to scientific needs as we make decisions about drilling need to be very, very specific because I'm concerned that simply saying we need more science is often used as a way to simply defer decision-making on the leasing and delay exploration which I think is a misuse of science.

MR. BOESCH: I think there are a number of dimensions of this recommendation or this finding which are under evaluation by the staff. They include how the science, scientific and engineering technical research is conceived to fill or meet the needs, how

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it's executed in terms of where it should be based within government agencies and the like and then also how it should be peer reviewed both in terms of the details of individual projects that are ongoing to make sure that they are of high quality and can stand the test of decision-making process but also the review of the whole program.

So again we've heard background information from consultants and the staff about alternative models for that review which would give it the independence to provide an honest appraisal of the adequacy of the science and the technology behind the program.

CO-CHAIR REILLY: This is an area where it seems to me it makes sense to delineate somewhat between what industry should do with respect to science. We're aware that Shell has spent 30 million dollars on science in the Arctic around the Chukchi and what the government should do, and with respect to what the government should do I would think that the difficulty in getting enough resources to do an adequate and thorough scientific job needs to be addressed and the most obvious way to address it is by

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allocating a certain portion of leasing revenues to this purpose, and it surprises me that that has been an issue given how large those numbers are in the past. It seems to me that a finding that there's not been a specific budgeted item out of discretionary budgets federal level needs to be confronted.

MR. BOESCH: When Commissioner Ulmer and I went down to New Orleans after our last meeting and visited with the people in BOEM, if you recall, I think it was Secretary Salazar who mentioned some significant new budget resources that he wanted to provide and I think he mentioned a hundred million. We were told in talking with the staff there were about 20 million of that is supposed to be designated toward scientific studies and research, environmental studies and the like, and so that's a budget request and we'd make a beginning on that, but I guess the question is then, you know, in hindsight after seeing what happened with this spill and all the questions about the environmental effects and the fate of the oil and the like what would be, how would we rethink the scientific program to support decision-making in light of that,

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and I think this is a question we asked actually some of the BOEM staff, and let's be honest, didn't get a very thoughtful answer. So I think we need to think of that in the context of how that program should be structured and located to make sure that it is forward looking and is it independent, objective and asking the hard right questions.

CO-CHAIR REILLY: A possible finding might include a review of the effectiveness of the monies that were reserved out of the settlement for Prince William Sound and the uses to which they were put and the resulting knowledge that we otherwise would not have. Okay.

CO-CHAIR GRAHAM: Bill, my comment is again a leads budget comment and --

CO-CHAIR REILLY: Well, we just made one.

CO-CHAIR GRAHAM: -- and I would ask if staff could review to evaluate this but my concern is that if it's done out of the royalty payments, those payments would normally go into the treasury and probably would be subject to an appropriation to remove it from the treasury. That gets you into the problem of every year

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you have to take a battle to get your appropriation and we're talking about the process that includes efficacy in large part depends upon its predictability and sustainability over time.

Having said that, there might be another approach to this, and that would be to do this as part of leasing process, that as companies secure leases that there be some percentage of a lease amount go into a separate fund for research and science. That might avoid having both the annual appropriation process. I'm not sure I'm correct on that but some way to get this out of the annual tussle appropriation would make this a much more significant and reliable undertaking.

CO-CHAIR REILLY: And at least for the Gulf it could come out of the settlement as it did in Prince William Sound I would think.

MS. BEINECKE: For some period of time.

CO-CHAIR REILLY: Well, how has it worked in Prince William Sound?

MS. ULMER: There's still a hundred million dollars left.

CO-CHAIR REILLY: A hundred million dollars

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left.

MS. ULMER: And it continues to generate research.

CO-CHAIR REILLY: And my understanding is what we know about the state of wildlife impacts, populations, fish and substrata oil deposits that are still there we would not probably know but for that fund.

MS. ULMER: Absolutely.

CO-CHAIR REILLY: And how does it keep going?

MS. ULMER: So the trustee, the Exxon Valdez trustee's counsel still manages the funding and still makes decisions under a comprehensive science research plan that was adopted years and years ago which they followed, they update. They have peer reviewed assessments of whether or not the plan is still appropriate and whether or not the specific studies that support that overall objective in terms of not only determining what the current species are and how, what kind of impact has been but to the extent they can looking at it in a certain holistic ecosystem way. So they do that, they continue to do that, and it has

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been, you're absolutely right, a model and something that never would have been possible without the resources.

CO-CHAIR REILLY: Is the current hundred million a consequence of the reopener that Exxon --

MS. ULMER: No. It's still a continuing -- I mean they've just sort of spent down.

CO-CHAIR REILLY: But they will finally spend it down?

MS. ULMER: Well, eventually.

CO-CHAIR REILLY: It will. What rate is it spent at?

MS. ULMER: I can't say that but --

CO-CHAIR REILLY: Okay. We can look into that, but anyway, we like the principle.

MS. ULMER: One other comment about science for decision-making and just to follow up on your earlier point about it's not just necessarily more science. It's how that the science that's being done is synthesized and then integrated into the decision-making process, which is another thing that I think was on the table when we were talking about what kind of

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studies have been done, whether it's in the Gulf or in the Arctic or anyplace else, it's not just the quantity, it's not just the volume. It's how those questions support the decision-maker's choice that has to be made at any particular point at the multi-step process, and I don't know that we've done a particularly good job of that.

I know that the Secretary of Interior has asked USGS to assess the state of scientific research in the Arctic to support decisions, and that report from USGS is due next spring that looks at sort of comprehensively what has been done in the Arctic and to what extent are those the right questions to answer the things that people actually have to make choices about. So I think it's that piece that I hope that the staff can help us as we get to this next level of detail to say something meaningful about that because I think it's sort of where the rubber meets the road.

MR. GARCIA: And I think that as the staff does this that it would be important that we keep in mind that in deciding what science should be done you need independent advice so that you don't wind up with

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a lot of pet projects by either the state or federal government pushing, and we've seen that happen in other cases, and so here's an opportunity to clearly establish how that science is going to be conducted and who's going to decide how it's done.

CO-CHAIR REILLY: A really key consideration that was very important in planning for the use of money in the settlement in Prince William Sound and quite elegantly dealt with according to the onsite visits that we made in Alaska with peer reviewed science that had to withstand a lot of scrutiny so that pet projects and off-the-shelf ideas had to be relevant.

MR. GARCIA: But I think there were some pet projects that did get pushed and had to be reviewed, so you need to be visioned.

CO-CHAIR REILLY: Well, if there's a better way to structure it, we ought to think about it. Okay. Anything further on that? Okay.

Group C. Political pressure: This is number 7. The regulatory and inspection process has been subject to political and industry pressure. The

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industry has successfully sought Congressional intervention to prevent implementation of MMS rule-makings. The time frames allowed for regulatory approvals for complex operations are inadequate. The 30-day requirement to approve exploration plans set by statute to expedite operations has limited the opportunity for critical technical review.

8. Oversight and inspection: The MMS management systems and regulatory philosophy have seriously lagged offshore peer regulators in not requiring companies to have a documented safety and environmental management system, a fundamental tool for hazardous operations.

9. Resources (Budget): Inadequate budget and management oversight by the Congress and successive administrations have left MMS without the resources to carry out its responsibilities. The Secretary of the Interior's appointed Safety Oversight Board reported a serious lack of ongoing training and workforce development. Reliance on on-the-job training for inspectors is inadequate and unacceptable for such high risk, technical operations.

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10. Transition: The fundamental shift necessary in the regulatory regime applicable to the offshore oil and gas industry will require additional resources and capacity, including staff hiring and training. In addition to the interim regulations imposed in recent months, the agency will have to propose for public comment a number of more comprehensive changes, including policies and procedures for third party certifications. A transition with adequate resources, specific benchmarks and timetables will be necessary to ensure activities are not unduly disrupted.

In the cases that we have studied in the United Kingdom and Norway particularly after they experienced catastrophes in their offshore oil and gas industry, they moved to create a safety case to define a series of expectations that were incumbent upon industry to present a comprehensive plan to anticipate risk to propose how they would be managed, and this was subject to the consent, not necessarily the specific involvement and approval, of the regulatory body. There were also considerable prescriptive regulations

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that were applied.

One of the major reforms that they underwent was to separate revenue receipt and generation from the regulation of safety and environmental performance. We have seen here with respect to the size of the revenues and the preoccupation admittedly by the MMS directors we've talked to an excessive concern with managing the revenues and even we found inspectors actually review production to keep track of whether revenue expectations are being met. The distraction from other regulatory functions which in other cultures at least in Norway and UK would be of concern to safety and environmental protection.

We have found that industry has distorted and impeded effective rulemaking, has prevented some rulemakings from being made, has influenced budgetary allocations by the Congress where certain plans' reviews were to be undertaken that then became impossible. We uncovered in a case where a chief engineer wanted to release data on injuries in the Gulf and was stopped by head of offshore from doing that. We've seen records that I find really shocking with

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respect to comparison of fatalities per hundred million hours worked in Europe and the United Kingdom. The European number is 1.07 fatalities for 100 million hours worked, and the US record is 4.84, almost five times more.

OCS-related injuries have gone between in recent years 300 and 450, a very substantial jump, by the way, in 2006, an explanation which I don't have, and OCS-related fires and explosions in the 1996 to 2009 period have ranged from 80 to 150, which I must say I have no idea.

At any rate, so, the record is replete with unrealistic risk assessments, a belief really that a major blowout like this could not happen. That was a widespread belief, not just in industry but I think throughout society, wholly inadequate preparations for containment and also response when it did happen and a regulatory agency staffed by people who were undertrained, underfinanced, overworked, overmatched and outgunned.

So that's the challenge that exists, and it's a challenge I think with respect to some of those

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safety numbers, a challenge, a very strong challenge to industry which given that it's a very sophisticated and substantial industry can rise to I think and several companies I believe have already risen to. It's also a challenge to government because we won't get the kind of risk reduction we really want in some of those numbers without strengthening both parts of the enterprise and doing it with much more I think professionalism and also separation of responsibilities where incentives might be warped by the revenue expectations.

Comments on number 7, political pressure? That could be a lurid one.

CO-CHAIR GRAHAM: Well, I would comment that in addition to Congressional intervention that we also had some cases of executive intervention, thinking most immediately about the Cheney task force that met in a high degree of secrecy and apparently had a considerable influence on decisions that were made subsequently. So I think that the politicalization of this process is pervasive in both Executive and Congressional ranges.

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MS. BEINECKE: Mr. Chairman, I'm not going to comment on these specifically, but it seems to me that the Interior Department in this case managing the OCS program is carrying out the public interest that the offshore oil and gas is a public resource and they are charged with managing that resource and providing oversight to the industry as they're permitted to go forth and develop it, and I actually think we should have a finding on that issue which if you look at all these they're kind of quite specific to, in the aspects of the way it's been conducted, but I think that for the report reflecting on what the responsibility of the Interior Department is, the fact that it is a public resource, that they are carrying out the public interest and that our aim here is to assure that they have the capacity to actually fulfill that responsibility would be a good additional finding that really isn't captured yet in the ones we've taken a look at.

CO-CHAIR REILLY: I think Chairman Graham would have no problem with that. That was a suggestion made the last time.

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MS. BEINECKE: Well, I made a comment on this matter, but I just think we haven't captured that.

CO-CHAIR REILLY: Let's assume that's in this.

CO-CHAIR GRAHAM: I almost think that should be some place other than in number 7.

MS. BEINECKE: Yeah. That's what I said. I'm not actually commenting on these. It's more a generic comment.

CO-CHAIR GRAHAM: You don't think it falls under political pressure.

MS. BEINECKE: It may be the very first finding. I think it should be perhaps.

CO-CHAIR REILLY: Yeah. Good idea. Okay. Other comments? Questions on that? Number 8, oversight and inspection. Here we're talking about primarily the ones we looked at in Norway and UK in detail where the safety and environmental management systems are considered a fundamental tool for hazardous operations.

MR. GARCIA: My understanding is it's not just the serious lag, that we're one of the few major

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oil producing countries that does not have one of these systems, and perhaps we need to make it clearer as well as to provide the Commission some additional information for the approach that Norway and the UK and Australia and others have taken.

CO-CHAIR REILLY: Well, I think staff knows a great deal about several of those anyway, so I don't think that would be difficult.

CO-CHAIR GRAHAM: Since most of the companies or at least the companies that represent by far the largest segment of this industry operate in all these countries, Australia, Norway, et cetera, have we heard any blowback as to why the United States should be an outlier in this area and why should we, based on their experience in these other places, what's the rationale for the United States not having similar systems?

CO-CHAIR REILLY: Well, you know, I've asked that question. For international industry that operates in different jurisdictions, my principal question at the beginning was BP has been subject both to Norwegian and to UK safety management systems. How is it that their safety performance in the United

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States is different? And we've been given to understand that it is different, and people accommodate to the regulatory system that they confront.

We even had some indication from some people in industry that rig operators had to be retrained to move from the Gulf to Canada because they were at least by Canadian law considered to be paying adequate attention to safety and the environment, strong suggestions, in other words, that regulatory rigor was less in the Gulf than elsewhere.

MR. GARCIA: But I think it's fair to note that at least in the UK and Norway that the changes to their regulatory systems followed major disasters and incidents, so they didn't just one day wake up and say, hey, we're going to change our regulatory system. It took something quite catastrophic.

MR. BOESCH: That's true for Canada as well.

MS. MURRAY: Also true Australia.

MS. ULMER: In some ways it's also true of the United States. If you look at changes that were made in law after the Exxon Valdez disaster, that prompted a considerable change in how we deal with

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tankers, and the safety records post those changes shows that we made progress. So I think that raises a very important point for us as a nation: Can incidents like this give us the political backbone to achieve some of the safety improvements that are necessary that might catch us up with some of the other countries frankly.

CO-CHAIR REILLY: And not just the government and law but the company. Exxon reformed and became a leader in the field.

MS. ULMER: Yes.

CO-CHAIR REILLY: Okay. On to 9, resources, budget.

MS. MURRAY: So here I would ask the same question that you were talking about in terms of funding science. We learned that in Australia in funding the regulator comes out of these so that there's no year by year budget authority that has to be negotiated. So I just put out a question: Should we not have a strong regulator, and do we not have a good source of funding for this?

CO-CHAIR GRAHAM: I'm concerned the statement

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that follows the first sentence focuses immediately on one aspect of the unfunded training and workforce development accepting that those are very important items. Since this is titled budget, resources and budget, it seems to me that maybe rather than focus on one specific potential application of funds we ought to focus on the issue that the Dean just talked about, and that is a system that can be relied upon to provide that funding over time with as little political interference as democracy will allow.

CO-CHAIR REILLY: This is a little tricky. Where I find myself thinking that it's very unlikely and certainly not something we could count on that there will be adequate resources to do the job that needs to be done to give us the inspectors who have adequate resources in terms of formation, training, expertise to understand all the things that so many of them in interviews admitted they did not understand, cementing, centralizes what the industry of course knows, and this is where some kind of analogous entity such as the nuclear industry has with IMPO I think really comes into play, and it seems to me without it

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amply funded, amply funded by, as IMPO is, by the industry itself with people who are every bit the match for the people there are inspecting, regulating, overseeing, and who are trusted by them because of their expertise, one would hope, but who are serious professionals who can amplify and support the regulatory process by informing about and monitoring for best practice.

MS. MURRAY: I completely agree, but I'd also point out that there is the Nuclear Regulatory Commission as well as IMPO and that you need to balance industry and federal regulators.

CO-CHAIR REILLY: Well, no one would recommend dis-establishing. We'd like to see the regulator better compensated and better budgeted for, but I just tend to doubt that we're going to see enough support for federal employees, that a lot of them aren't going to be informed about some of these specialized disciplines.

MS. MURRAY: What you're talking about is something like peer certification which I think is an excellent thing.

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CO-CHAIR GRAHAM: I would suggest, Bill, that rather than try to squeeze that concept in to 9, you ought to have a new, an additional finding on the specific topic of industry collaboration.

CO-CHAIR REILLY: Mm-hmm, with the example of an IMPO.

CO-CHAIR GRAHAM: Yeah.

CO-CHAIR REILLY: Agreed.

MR. BOESCH: If this broader concept of revenues which was sufficient and reliable and that that would involve some dedication of revenue stream, it would be good if staff could do some research on this. It's nice to have examples of Australia, but if we had some in the US government where there was sort of a system set up where there was some portion of the revenues were dedicated by law for this purpose, it would be good to help craft the recommendation on this.

CO-CHAIR REILLY: I keep just looking ahead to the budget process and to the financial situation the country is in and worry that memories are short, and as time goes on it will be more difficult to get resources for this purpose, and if there's any way that

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we could do what you suggest and to have the monies come targeted directly from the revenues themselves given that they are substantial, that would really be much preferable.

MS. MURRAY: Well, I would argue that it is cheaper to do things safely than it is not to. If you look at the expenditure that will be needed over the next 30 years because of this or the expenditure that Exxon had to deal with because of all that spill, it is much cheaper to have an IMPO-like entity that's spending money on how to contain these spills quickly and how to be actually, have a safety culture, than it is to respond to something like this which will inevitably happen because this intrinsically happens.

MS. ULMER: Bill, perhaps we could ask a question of staff about this funding option, either now or later, the cents per barrel tax that goes into the Oil Spill Fund. I can't really remember if that's an automatic trigger or if that actually requires appropriation after the money is in the fund because it's another way of thinking about institutionalizing a source of revenue to do what needs to be done to avoid

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oil spills, to have the safety that everybody expects and wants. So just flag that as another perhaps mechanism.

CO-CHAIR REILLY: Okay. We'll take up 10. Transition. I looked at this first when we first began to discuss transition, and I think I understand the need for it and it's realistic to expect that a lot of the changes we're recommending will not happen overnight, but I want to avoid giving the impression that there's no sense of urgency here. There is. So somehow we need to balance it, and I hope this language does that.

CO-CHAIR GRAHAM: I would suggest that rather than use the phrase "the fundamental shift necessary in the regulatory regime" which requires the reader to have a significant amount of knowledge to give any meaning to that set of words that we say in concise language what is the shift? Well, what do we think are the fundamental characteristics that will distinguish the post transition from today?

MS. BEINECKE: I agree with that, Mr. Chairman. I think actually this should be a

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recommendation for what the transition should be rather than a finding. It's not really a finding. I think we ought to change the formulation of it to a transition needs to be developed within a particular timetable and targets so by such and such a time you can accomplish that.

MR. BOESCH: As a recommendation.

MS. BEINECKE: As a recommendation rather than finding.

MR. BOESCH: Also related to that, in this particular area we have a lot of moving parts going on. We have the reorganization which has been proposed by the Interior and EOM. Particularly we have what the agency is going to do now that the moratorium has been lifted due to the staff to deal with the permitting, how effectively that functions. Of course we have Congress which has at least one house has passed some restructure and readying. Whether they come back and deal with this in the lame duck session, maybe Senator Graham could help us understand, but we should be nimble and prepared to before we complete our report look at the state of play and make appropriate comments

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and recommendations on where things are headed.

CO-CHAIR GRAHAM: I'd also suggest that staff look into doing on this issue what we did this morning. It's very, very capable scholars who thought seriously about this issue. There certainly are people who talked about who spend their life thinking about organizational structures, and we could find one of the policy elements of those that we had this morning to talk to us about this because I think we're going to want to make some recommendations on how this whole regime should be restructured to avoid what's happened and to face future challenges.

CO-CHAIR REILLY: Further comments? Questions? Well, I think we're just about done then for today. I guess I would -- so the public comment would be at 4:00, in ten minutes or so.

MS. ULMER: Mr. Chairman, I wonder if we might take just a moment to consult with staff about what they have heard in terms of this discussion that might require either additional clarification or something that might be helpful to them as they go to the next step, and not that they necessarily have any

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questions, but if they do, that something that would benefit from additional discussion by the Commission.

CO-CHAIR REILLY: Anything we say that's completely crazy?

MS. NEFF: Maybe I could just tell you a little bit more about what we are doing when looking at the international regulator. We had a meeting, series of meetings we went over with them when they were in town for a meeting at the request of the Norwegian chief regulator. We've had interactions with them since then and we've provided a draft paper to MOB; going to their international conference next week and have scheduled additional time to talk to all of them to get much more clarification on a number of these issues that you raised, and we hope to have the Norwegian regulator here the next time you are in town so that you can meet with him as sort of the senior person in the peer group. He's been in that role for some years and he can relate the experience from Norway and the efforts that are underway to raise the bar internationally on the regulator.

So I apologize that we haven't had more

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specific information for you, but I think accuracy is important, and all of these countries have different political systems, different regulatory structures. You know, it's just we want to be sure that we're giving you the best information we can, and as Commissioner Murray has mentioned with the Australians, we had a conference call with their energy administration just the other day because they are just now moving forward on the findings from the Montara blowout from last year, so we will have more information for you on that.

On the issue of revenue options and possibilities, there are a number of different things that we will be laying on the table for you, both the way other regulators do this, the way we do it within the United States and also some insight into what is possible under the way the budget act works and how there might be some transitions there and ways to ensure that funds are separated and made available for these explicit purposes, and there are a number of different possibilities and we'll have a detailed memo for you on that before you get to the point of making

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recommendations.

CO-CHAIR GRAHAM: Today we've been talking about this revenue in the context of funding the safety responsibilities of these agencies. We're going to have an even bigger issue when we start talking about response and restoration, and so as you're looking at the revenue issues for today's agenda, I would urge you also to be thinking about what are going to be our revenue budget options for the restoration question.

MS. NEFF: The oil spill fund and the oil spill fee has been targeted as a funding source. The House has proposed or has actually passed legislation that would raise that fee. This whole consideration is in various stages, so I think those are -- they're all part of the same. It's not just the science and the regulatory oversight but the other issues that come into this. So there are different mechanisms out there, and we'll look at how they can apply, how they do apply and how they might apply.

CO-CHAIR REILLY: Okay. Well, I would just like to step back a little bit from conversations that we've been having and say that I think that given that

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we are formed in the shadow of a disaster and very concerned to try to make sure it doesn't happen again that we are necessarily focusing on a lot of problems and probably sounding more negative than some of us might wish to sound, and I would simply say that I found it interesting in the presentation this morning that in 1955, 20 percent of Americans were willing to fly on airplanes and 80 percent indicated they were not, and the aviation industry and manufacturer of the aircraft all got together to make it a very safe proposition relatively, and I think these challenges can be addressed, the ones that we confront, and have been in other industries. Typically they have been as we were reminded with respect to tanker safety as a result of some of the reforms that were enacted in law after the Exxon Valdez in Prince William Sound. There are fewer tanker accidents now, and we are dealing with a very sophisticated industry and a really very vital industry, vital to the country and vital to regions particularly where it's the most active and operating, and companies I think can reform themselves and some probably don't even have to because I've been on

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several rigs in the North Sea, the Gulf, and we were slated to go out on the South China Sea last year and weather prevented that, but have seen very exemplary practices, so they are in the industry and they certainly are in the regulatory apparatus itself, in the government. We know that there are capable people there and very dedicated people too.

So to the extent that we have in any way and we've necessarily been concerned with trying to correct for inadequacies, problems and challenges, to the extent that we have done that, I would just for my own part like to make clear that I think one needs to keep the perspective on all of this and recognize that we're really here because we think these problems can be solved and we think the industry can solve its challenges and the government can solve its, and we're going to recommend how.

Do you have any final comments, Bob?

CO-CHAIR GRAHAM: I will second your thoughts.

CO-CHAIR REILLY: So now we're going to get public comment. That's five minutes away? I think

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we'll take a break until --

MR. SMITH: It will be at 4:15 to 4:45.

CO-CHAIR REILLY: I thought it was 4:00. Okay. We will take a break until 4:15, and we will come back and hear as I understand two comments.

MR. SMITH: Just two.

CO-CHAIR REILLY: Okay. Thank you. All right, folks.

(A recess was taken)

CO-CHAIR REILLY: Nice to see you again.

MR. GUSTAFSON: Thank you, Mr. Chairman.

CO-CHAIR REILLY: Welcome back. You have three minutes, and you are the only commenter, and Co-Chairman Graham had to catch an airplane.

MR. GUSTAFSON: I think what I'm going to do is I'm going to submit via e-mail for the public record my testimony and then I'll just try to --

CO-CHAIR REILLY: We welcome it, and other comments, by the way, are welcome from the public through the website.

MR. GUSTAFSON: Well, thank you for giving me the opportunity to say something today. You're already

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very familiar with the issues that are involved.

CO-CHAIR REILLY: Would you announce yourself.

MR. GUSTAFSON: Oh, yes. I'm John Gustafson. I'm the retired Executive Director of the National Response Team and was involved with the development of the Exxon Valdez report as an investigator and now as an analyst.

You're already familiar with the issues that are involved with this spill. My remarks today are really going to focus on operational matters, specific things that might be done to improve preparedness, prevention response. Of course I'm speaking for myself as a member of the public.

I believe that this area might become one of the areas that could be a finding: That of improving public understanding and improving intergovernmental coordination as well as intergovernmental collaboration. This was mentioned earlier by me by the suggestion that perhaps a focus on prevention could be made by some interagency committee. Currently the interagency activities that take place include

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preparedness and response, but there's not a specific function going to prevention.

Now, what I mean by that is perhaps the NRT, the National Response Team, could carry on that function or some other interagency group. There's an article in this last month's Government Executive magazine that identifies the importance of collaboration among agencies and public servants in order to handle and address some of the costs that are involved with the budget cuts that are going to be made.

Two, web-based training tools should be considered as a way to provide training and better understanding for the NCP. It's been testified before this Commission that a number of individuals especially from local government and in the public and elsewhere don't understand how the NCP works. It would be a simple proposition to develop web-based training tools that could go out and I think there are examples of this that could be provided to the Commission.

Three, there's also confusion about the application and the roles and responsibilities of the

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on-scene coordinator, responsible party, et cetera, that are identified in the NCP. In the case of the on-scene coordinator this can actually lead to a case where local government officials feel that they have the responsibility under home rule to be able to direct federal assets. Now, this extreme occurred in the 1990s, and as the result of this there was a special agreement that had to be worked out between the federal agencies and the state and local governments. This may need to be done in extreme cases where local governments, especially those with home rule, feel that they don't have to comply with federal responsibilities for safety, handling of public funds and perhaps also assume that they have the authority to direct federal assets.

MR. SMITH: Sir, there are some provisions here. If you could start to wrap it up.

MR. GUSTAFSON: Okay. We'll start to wrap it up by saying a small half day command and control exercise should be a mechanism that's looked at rather than these long-term exercises that are being done now for spills of national significance that would build a

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better understanding. I suggest the exploration of a computer-aided management for emergency operations interactive mechanism software that is used by 4,000 fire departments around the United States as a way to improve the work that's done in the field, and I feel it should be encouraged to continue its emphasis on the implementation of the Incident Command System under Presidential directive number five, but changes may need to be made to bring in local government into that mechanism.

California you said had a way of dealing with that by establishing what was called a multi-agency committee, a MAC, that was composed of local governments that fed information into the ICS mechanism during the response.

I'll elaborate on these suggestions. I appreciate the opportunity for three minutes and hope to be able to be of any additional help that you think may be.

CO-CHAIR REILLY: Thank you, Mr. Gustafson. I just read about that California institution yesterday. Thank you very much. I look forward to

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your submission.

MR. GUSTAFSON: Thank you.

CO-CHAIR REILLY: We have no other public commenters, and so this meeting of the Offshore Oil Commission is adjourned.

(Whereupon, the proceedings were adjourned at 4:20 p.m.)

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CERTIFICATE OF REPORTER - NOTARY PUBLIC

I, Janet A. Hamilton, the officer before whom the foregoing proceedings were taken, do hereby certify that the foregoing transcript is a true and correct record of the proceedings, that said proceedings were taken by me stenographically and thereafter reduced to typewriting under my supervision; and that I am neither counsel for, related to, nor employed by any of the parties to this case and have no interest, financial or otherwise, in the outcome.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my notarial seal this 19th day of October, 2010.

My commision expires March 14, 2013.

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NOTARY PUBLIC IN AND FOR
THE DISTRICT OF COLUMBIA

National Commission on the

BP DEEPWATER HORIZON OIL SPILL AND OFFSHORE DRILLING

Attachment 3

Opening Statement of Robert Graham

Commission Co-Chair

(taken from transcript)

The following statement of Senator Robert Graham was taken from the transcript of the Commission meeting on October 13, 2010 and is not a written statement from Senator Graham:

CO-CHAIR GRAHAM: Thank you, Mr. Reilly. This Commission stemmed from the tragic Deepwater Horizon explosion and oil spill April 20th of this year. It was formed as a nonpartisan independent group to examine the relevant facts and circumstances concerning the multiple causes of the Deepwater Horizon explosion and to develop options to guard against potential offshore oil spills in the future.

We should not forget that this tragic accident took the lives of 11 men. The Gulf was flooded with gushing oil for almost three months. The economy of the entire region was badly impacted once again just five years after the destruction of Hurricane Katrina. The work of this Commission has now arrived at its halfway point. We began with our first public hearing in New Orleans on July 12th. Before that meeting ever began my fellow commissioners and I fanned out on trips throughout the Gulf states meeting with a variety of people in the region listening to the stories of how this catastrophe affected them and their families and their communities. After that our investigators and our hearings explored topics that included how we regulate and oversee offshore drilling. How can we improve the culture of drilling industry and look at the effectiveness of the response and how best to restore the damaged ecosystem. All in all we've held a total of five days of public meetings with over 70 panels. We've heard from federal, state and local officials, business and environmental leaders, scientists, energy experts, historians and citizens from the Gulf and listened to comments both inside and outside the hearing from scores and scores of citizens.

Today's deliberative meeting is the first opportunity for the commissioners to have had to sit down together as a group and discuss our possible findings. Today we take an important step towards developing these important recommendations which will be the core of our final report. I'm especially glad that this meeting is taking place in a way that allows the public to view our discussions. We are doing this in an open forum, consistent with our commitment to transparency, a commitment which has guided us from the beginning. Today's meeting, like all our public meetings, will have a portion devoted to public comments. If you cannot make it in person, we can also give your comments thought through our website, oilspillcommission.gov. We have received hundreds of messages and many excellent suggestions and ideas through this source. Chairman Reilly will now go over where we go from here.

National Commission on the

BP DEEPWATER HORIZON OIL SPILL AND OFFSHORE DRILLING

Attachment 4

Opening Statement of William Reilly

Commission Co-Chair

(taken from transcript)

The following statement of Mr. William Reilly was taken from the transcript of the Commission meeting on October 13, 2010 and is not a written statement from Mr. Reilly:

CO-CHAIR REILLY: Thank you, Bob. As Senator Graham just said, we are subject to law, the Federal Advisory Committee Act, which has not permitted us thus far to meet as a group of seven without full public conversation which we will undertake today. So this is really the first time the commissioners have actually come together to discuss among all seven the preliminary findings that you will certainly hear described. A lot of work has been done to date thanks to the good efforts of commissioners and the staff, and today we begin our very important discussions about what our final report should say and what we should recommend.

On the agenda is a set of candidate findings from the Commission's Offshore Drilling Subcommittee and also from the Regulatory Oversight Subcommittee.By way of background, our subcommittees provide the organizing structure for the Commission's work. They help set our agenda, identify panelists for our meetings, oversee staff research efforts and most, most importantly develop the set of candidate findings and recommendations for consideration by the full Commission. We have a total of six subcommittees. Besides those we're considering today they include ones on the Macondo well disaster on responding to oil spills, on damages from the incident and on restoration. The Offshore Drilling and Regulatory Oversight Committees played a strong role in shaping our August 25th hearing where we heard from experts on offshore drilling and industry safety as well as from current and past government officials, notably three former directors of the Minerals and Management Service. Much of what we heard in those meetings is reflected in the findings that we will be discussing shortly.

I have my own thoughts about how well we as a country and our government's regulators have overseen this complex, even occasionally dangerous yet vitally important activity, namely, offshore drilling in deep waters, and I look forward to hearing my fellow commissioners' views. I expect along the way we will readily find some areas of consensus, many areas of general agreement and perhaps even a few areas about which we don't yet have full agreement. These first discussions are intended to help clarify where we are as a commission and what we need to do to bring closure to the President's assignment.

As for the road ahead, our chief counsel, Fred Bartlett, will present the findings of the Commission's investigative team on November 8th and 9th. This will I believe be the clearest and most comprehensive account yet offered to the American people of what happened on the Deepwater Horizon. After that we plan at least one more set of hearings in early December where we will close on the Commission's findings and recommendations. We will then present our first final report to the President in early January, just a little under three months from today. Having been involved in many reports in my career, I can honestly say this time table, six months from our initial hearing to the end, has presented a daunting challenge to finish our work, to gather the facts, to stay on schedule, and it's a really great credit to the fine staff and to a number of other people associated with us who have appeared before us and talked to us either in these public meetings or in meetings in private that we have come so far so fast. We expect to deliver our report to the President on time and with solid content to advise him on the future of offshore drilling in the United States waters. Now we begin a very important step toward that finish line.

I will turn it over now to begin the discussion of the findings, the potential general findings of the Subcommittee on Offshore Drilling. The three members of that committee are Senator Graham, Dean Cherry Murray and Chancellor Fran Ulmer, and Senator Graham will lead off with finding number one.

National Commission on the

BP DEEPWATER HORIZON OIL SPILL AND OFFSHORE DRILLING

Attachment 5

Public Comment by John Gustafson

Retired, National Response Team

Testimony of John R. Gustafson before the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling
Delivered October 13, 2010. Updated Nov. 28, 2010**

Co-chairmen Riley and Graham and members of the Commission, I am John Gustafson retired Executive Director of the U.S. National Response Team. Thank you for the opportunity to testify today.

I was a member of the NRT interagency team investigating the Exxon Valdez Oil Spill in 1989 and also was closely involved with developing the NRT report to President George H. W. Bush in 1989 and the regulations that followed the passage of the Oil Pollution Act. My experience with environmental disasters began in the 1970s with the Amoco Cadiz oil spill in English Channel and the Love Canal, New York toxic chemical incident. For ten years I was the Executive Director of the sixteen-agency US National Response Team. Since my retirement from federal service with the Treasury Department and EPA, I have continued in the field by lecturing at universities and conducting training seminars in California and elsewhere; by participating in a Local Emergency Planning Committee in the Washington, DC area and by participation in simulation exercises. For many years I have been active with the "Continuing Challenge", a California organization of west coast hazmat and fire service emergency responders and managers. I am testifying today as a private citizen.

National planning and coordination is accomplished through the National Response Team under the National Oil and Hazardous Substances Pollution Contingency Plan (the NCP). When a pollution release such as an oil spill takes place in coastal waters, as in the case of the Exxon Valdez and the BP Deepwater Horizon oil spills, the Coast Guard becomes the lead agency directing the response. EPA is the lead agency providing the on-scene coordinator for inland oil spills. The Coast Guard and EPA provide the leadership of the National Response Team and thirteen Regional Response Teams throughout the US, the Caribbean, and the Pacific Ocean. EPA chairs the NRT; Coast Guard is vice chair. EPA and the Coast Guard co-chair the thirteen RRTs.

NRT responsibilities vary during a major response depending on the needs of the lead agency. This gives flexibility to the implementation of the National Contingency Plan. In the case of the 1989 Exxon Valdez incident, the NRT conducted an investigation of the spill and reported its findings and recommendations to President George HW Bush in addition to other NRT response functions. The NRT report was prepared under the direction of the Administrator of EPA and the Secretary of Transportation.

** Note: These remarks are expanded from oral testimony delivered previously.

You already have received substantial testimony on many issues associated with the BP Deepwater Horizon disaster. In my previous testimony, I recommended that the Commission consider the findings of the US Chemical Accident Safety Board and Baker Commission reports on the 2005 Texas City, Texas British Petroleum petrochemical plant explosion that killed 15 workers and billions of dollars of damage. I also suggested that Commission members review the NRT report to President George HW Bush on the Exxon Valdez Oil spill. The reports provide important information. I believe their findings will be valuable as you develop your report on the BP Horizon Gulf incident.

My testimony today will focus largely on operational and technical projects worth exploring that could help improve prevention, preparedness and response for future incidents. Several years will pass before relevant laws are changed and regulations are developed to implement your findings. My suggestions today include ideas worth exploring that can begin without law or regulation changes. They can help improve intergovernmental coordination, public understanding, and worker safety, as well as improve response planning and management.

1. Gulf Oil Emergency Software. Development of a web-based, inter-active, computer software program addressing the prevention of and preparedness for deep water Gulf oil spills would improve Gulf-wide situational awareness and incident response. It also would also help improve worker safety. A proven approach would be to explore the development of an oil version of a program currently used for hazardous materials called "CAMEO" (Computer Aided Management of Emergency Operations). A program with aspects of "CAMEO" was used during the BP Gulf Spill, but a common platform is needed to provide an overall situational picture.

CAMEO "Hazmat" has several sub-programs. It brings together emergency response data bases, safety information, a mapping capability, plume dispersion models, and an interactive program for incident scenario development. It was initiated by the National Oceanic and Atmospheric Administration (NOAA) and was developed in partnership with EPA, the Seattle Fire Department and other public and private organizations. (I was the initial EPA lead assigned to work with NOAA on its development.) CAMEO "Hazmat" source codes are shared with industry and are used frequently in privately developed systems. CAMEO "Hazmat" is used by more than 6,000, local governments, fire departments and industry facilities in the US, Europe and Latin America. Louisiana State University has trained thousands of responders to use it.

As a new software program addressing Gulf oil spills, "CAMEO Oil" could draw on the weather, tide, current and other information already developed by NOAA. This might become a project for the new Gulf Disaster Response Center in

Mobile, Alabama to explore. Much of the CAMEO "Hazmat" development was paid for by the chemical industry via the Superfund, which now has lapsed. The Oil Spill Liability Trust Fund could help contribute to the development of a similar program for oil spills. Mention in the Oil Spill Commission report could help encourage consideration of CAMEO "Oil" software development.

2. Web-based NCP Regulation Public Information and Training. The federal regulations governing oil spills (NCP/40 CFR Part 300) are not well understood by various levels of government, by industry and by the public. A web-based training and information tool, including the answers to frequently asked questions, would help explain the NCP and serve as a reference source for the regulation. When the NCP is not well understood by State and local officials, and by government managers, attorneys and responders at all levels of government, there is a danger of creating misunderstanding and confusion during an incident and slowing down the response.

A web-based training program could help explain and clarify the roles and responsibilities of Federal, State and local governments and the Responsible Party during an oil spill. In addition, the "polluter pays" principle for funding spill cleanup and remediation and the legal responsibilities and authority of the federal On Scene Coordinator for, oversight and direction and protecting public health, safety and the environment need to be understood better. A NCP information web-site with answers to frequently asked questions is badly needed. During a major incident an independent "Ombudsman" may be needed also to answer questions from the public and explain the complexities of the law and the response.

3. Oil Drilling Platform Safety. More Federal interagency collaboration is needed for deepwater oil rig accident prevention. The National Response Team Worker Health and Safety Sub-Committee, or some other interagency group, should take on the issue of worker safety on offshore oil rigs. OSHA chairs the NRT committee for Worker Health and Safety and would be a logical chair or co chair for this effort. Collaboration between OSHA, MMS/Interior, the Coast Guard, NIOSH (National Institute of Occupational Safety and Health/HHS), EPA, and the DOT pipeline safety agency and the offshore oil drilling industry, could lead to lessons learned previous incidents and then adopted as industry best practices. The NRT Worker Health and Safety Committee has sponsored several successful worker safety conferences in recent years where ideas were shared, resulting in the development of technical guidance.

4. Oil Spill Simulation Exercises. Smaller, focused, half-day, tabletop command level simulation exercises added to the Coast Guard and EPA Spills of National Significance (SONS) exercise cycle could help build understanding and trust between government managers as well as with industry. Smaller exercises would

take less time, be less expensive, and more flexible than larger multi-state exercises. In addition, they could focus on one topic, for example, improving coordination with local governments during an emergency. This would not obviate the need for regular Spills of National Significance multi-state exercises. Multi-state SONS exercises have proved to be very valuable. But smaller, more focused exercises could identify and work out specific problems BEFORE a major incident occurs.

5. Finish Implementation of the National Incident Management System Incident Command System (NIMS/ICS). FEMA/DHS has been working successfully to implement the National Incident Management System (NIMS) nationwide for all levels of government for several years. The all-hazards incident command/unified command system for all levels of government is the foundation of the National Response Framework. Full implementation nationwide is a daunting task. Major progress has been made since NIMS was mandated nationwide by the signing of Homeland Security Presidential Directive #5 (Domestic Response) in 2003. EVERY Federal, State and local agency must operate using NIMS/ICS as required under HSPD-5 and subsequently under the National Response Framework. State and local agencies must have staff personnel that participate and are empowered to make emergency response decisions at command locations to make NIMS/ICS successful. The 9 /11/2001 Commission Report following the New York World Trade Center recommended full nationwide implementation of the incident command system.

NIMS/ICS may need to be adjusted for major incidents such as the BP Gulf Horizon incident when local or regional governments are unable or unwilling to be represented by their State representatives. Local governments need to be more involved. Several methods are used currently to facilitate local representation. Regional Response Teams (RRT) have used the NCP Area Planning Process to include local governments at the planning stage. At one time, the State of California used a separate Multi-Agency Committee (MAC) to advise the incident command during a response to ensure that local government voices were heard. Which method is used likely depends on the size of the response and the willingness and ability of the local government to participate. Adjustments to NIMS also should address how to involve the public more effectively during a major oil spill. Participation in planning by State and local governments needs to be mandatory.

6. Federal, State, Local Response Coordination via MOU Agreements. In rare cases, local officials may assume they have the authority to direct Federal assets during an oil spill, based on their interpretation of State Home Rule laws. This can lead to unnecessary interagency disagreements, confusion and conflicts during the incident response. In these cases, a separate response agreement or MOU between the Federal responding agency and the State or local government

may be necessary. This agreement needs to be negotiated BEFORE an oil spill incident occurs. Such an agreement has been negotiated between a State and the Federal responding agency because of a state Home Rule Law interpretation at least once in recent years. Home Rule law interpretations appeared to be a big issue during the BP Horizon Gulf Spill in at least one state, Louisiana. Federal response agencies should identify States where this is a problem and initiate MOU negotiations.

7. National Oil and Hazardous Substance Contingency Plan (NCP) and National Response Framework (NRF) coordination and, as necessary, reconciliation. This challenge is more than a technical/operational issue. Major changes in federal laws passed after the 2001 World Trade Center and anthrax terrorist incidents became major "game changers" in emergency response. Agency resources formerly addressing oil and chemical disasters had to be shifted to focus on anti-terrorism. The NCP has become Emergency Support Function #10 for responding to all Federal oil and chemical incidents, not only industrial accidents but also terrorist incidents. The response system for oil and hazardous substances needs to be coordinated better and, as necessary, reconciled with other Emergency Support Functions of the National Response Framework. This is needed in order to meet the challenges of a multi-state incident like the BP Horizon Oil Spill. This will impact federal regulations, especially those addressing "Spills of National Significance." A detailed interagency study is needed to see how this coordination and, as necessary, reconciliation can take place.

After the Exxon Valdez Oil Spill, the National Contingency Plan and the National Response System made major improvements: double hulls were required for oil tankers; contingency plans were improved; the Area Planning process was developed; the response management structure called "Spills of National Significance" was established to "utilize effectively the resources of the parties responsible for the spill, the 16 Federal agencies of the NRT/RRT structure, and the affected state or states and local governments." These actions and the work of the sixteen NRT/RRT federal agencies and their State counterparts in the years after Exxon Valdez were very important in laying the groundwork for the adoption of the NIMS Incident Command System that is now used nationwide.

A major challenge is how to make changes while also strengthening and reinforcing the existing coordination and management mechanisms for oil and hazardous substances that have been used successfully for the past forty years The NCP is a comprehensive set of response regulations that, when implemented correctly and supported throughout government, serves the incident commanders and response teams well. Other important mechanisms include the role of federal On-Scene Coordinators, the National

Response Team, the thirteen Regional Response Teams. All are included in the NCP. There also must be an adequate complement of senior managers and staff at the Coast Guard and EPA who are trained in the contingencies of oil and hazardous substance response if we are going to meet the challenges of a future Gulf Oil Spill. Agency retirements are taking a toll.

Whatever changes are made will require even more interagency coordination and collaboration because of federal budget constraints. The importance of interagency coordination and collaboration through monthly NRT meetings, quarterly RRT meetings, special technical conferences and technical guidance development should be encouraged and strengthened and not overlooked.

The BP Gulf Horizon Oil Spill has shown us the critical interrelationship between disasters affecting our environment, our economy and our national security.

Thank you again for the opportunity to testify.

**Testimony was delivered before the OilSpillCommission meeting at its October 13 meeting; written updates have been submitted through November 28.

National Commission on the

BP DEEPWATER HORIZON OIL SPILL AND OFFSHORE DRILLING

Attachment 6

Public Comment Sign-In Sheet

National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling Meeting
October 13, 2010 • Public Comment Sign-In

	Name	Organization	City, State
1			
2			
3	John Gustafson	NRT Exec. Director (Retired)	Bethesda, MD
4	Jenny Kordick	Sierra Club	Washington DC
5			
6			
7			
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9*			
10*			

*Numbers 8-10 are on a wait list.

National Commission on the

BP DEEPWATER HORIZON OIL SPILL AND OFFSHORE DRILLING

Attachment 7

Public Observers Sign-In Sheet

National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling Meeting • October 13, 2010 • Observer Sign-In

	Name	Organization	City, State
1	Bart Szewczyk	[illegible]	DC
2	Ken Lane	DOI	DC
3			
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*Numbers 8-10 are waitlist.

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	Name	Organization	City, State
1	Mark Griffon	CSB	DC
2	Bill Hoyle	CSB	DC
3			
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*Numbers 8-10 are waitlist.

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	Name	Organization	City, State
1	John Gustafson	NRT (Retired)	Bethesda, MD
2	Raya Bakalov	DOI	Washington, DC
3	Megan Erhardt	CRC Public Relations	Alexandria, VA
4	Charles Dudek	USCG	Washington, D.C.
5	Jenny Kordick	Sierra Club	Washington DC
6	Josh Klein	Nat Geo	DC
7	Tony Padilla	OSC	DC
8*	Jessica Ennis	Earthjustice	DC
9*	Mike Gravitz	Environment America	DC
10*	Rafael Moure	CSIB	

*Numbers 8-10 are waitlist.

National Commission on the

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Attachment 8

Press Sign-In Sheet

National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling Meeting • October 13, 2010
Press Sign-In

Name	Organization	E-mail	Phone
NICK GREINER	ABC	[redacted]	[redacted]
DAVID CATTREUS	CNN		
David Cooke	Bloomberg TV		
Aysha Rascoe	Reuters		
Dina Cappiello	AP	[redacted]	[redacted]
Ben German	The Hill	[redacted]	
Josh Voorhees	POLITICO	[redacted]	

National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling Meeting • October 13, 2010
Press Sign-In

Name	Organization	E-mail	Phone
DAVID IVANOVICH	ARGUS MEDIA	[redacted]	[redacted]
Marty Niland	Energy Now	[redacted]	[redacted]
Siobhan Hughes	Dow Jones	[redacted]	[redacted]
Chip Somodevilla	Getty Images		
Laura Parker	AOL News	[redacted]	[redacted]
Kate Sheppard	Mother Jones	[redacted]	[redacted]