

FORUM ON OFFSHORE DRILLING  
OIL SPILL PREPAREDNESS AND RESPONSE IN THE ARCTIC

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Dena'ina Convention Center

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Transcript  
Pages 1 - 143, inclusive

BUREAU OF OCEAN ENERGY MANAGEMENT, REGULATION AND  
ENFORCEMENT:

Michael R. Bromwich, Director  
John Goll  
Bill Hauser

PANEL I

Leslie Pearson: Pearson Consulting  
Ron Morris: Alaska Clean Seas  
Marilyn Heiman: Director, U.S. Arctic and Offshore  
Energy Reform Programs, Pew  
Environment Group  
Michael Castellini: School of Fisheries and Ocean  
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PANEL II

Peter K. Velez: Global Emergency Response Manager,  
Shell International E&P, Inc.  
Johnny Aiken: Alaska Eskimo Whaling Commission  
Alan A. Allen: Oil Spill Consultant, Spiltec.com

PANEL III

Lisa Murkowski: U.S. Senator  
Mark Begich: U.S. Senator  
Edward S. Itta: Mayor, North Slope Borough  
Dan Sullivan: Mayor, Municipality of Anchorage  
Larry Hartig: Commissioner, Alaska Department of  
Environmental Conservation  
Caroline Cannon: President, Native Village of Point  
Hope

Reported by: Leonard J. DiPaolo, RPR, CRR

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1 PROCEEDINGS  
2 **DIRECTOR BROMWICH:** Good morning everyone.  
3 It's a pleasure to be in Anchorage today to conduct the  
4 fifth of our public forums on offshore drilling.  
5 My name is Michael Bromwich, I'm the  
6 director of the Bureau of Ocean Energy Management,  
7 Regulation and Enforcement. And we're delighted to be here  
8 in Anchorage to present information about offshore  
9 drilling, and in particular oil spill preparedness and  
10 response in the Arctic.  
11 Before I go any further, I just want to say  
12 that obviously our prayers are with the four National Park  
13 Service people who are still missing as of this morning.  
14 We certainly hope that they are found and that they are  
15 safe.  
16 As I said, this is the fifth of eight public  
17 forums that we're holding across the country on various  
18 aspects of offshore drilling. We held the first one in New  
19 Orleans, Louisiana. We then held forums in Mobile, Alabama  
20 and Pensacola, Florida. This week we're on our West Coast  
21 swing. And we had a public forum in Santa Barbara,  
22 California the day before yesterday, and we're obviously  
23 delighted to be here in Anchorage.  
24 Let me describe briefly the format for the  
25 forum today. I will give a brief ten minute or so

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1 presentation, with the aid of the PowerPoint that's  
2 currently on the screen, just to frame the forums and to  
3 frame the major issues that these forums are addressing.  
4 We will then have a panel of distinguished  
5 experts, the first panel which is on stage now; immediately  
6 thereafter we will have a second panel; we'll then have a  
7 break; and then we'll have a third panel composed of public  
8 officials from Alaska. So we have a full morning planned  
9 for you, and we hope that you find it engaging and  
10 interesting. So let me go ahead and start.  
11 Just talking about the purpose of the  
12 forums, the forums are designed to explore three major  
13 issues, the issues that underlay the Secretary of the  
14 Interior's initial decision to impose the drilling  
15 moratorium.  
16 The issues are, in general terms, drilling  
17 and workplace safety, wild well intervention and  
18 containment techniques, and oil spill response capabilities  
19 for offshore drilling and production facilities.  
20 The purpose of these forums is to gather  
21 additional information for the Secretary so that he can  
22 determine whether deepwater drilling operations should be  
23 allowed to resume before the November 30th date that the  
24 moratorium currently extends to. Our mission in these  
25 forums is to collect that sort of information to prepare a

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1 report for the Secretary so he can make that decision.  
2 So the central purpose of the forums is to  
3 identify whether any modifications to the scope or the  
4 duration of the deepwater drilling moratorium is justified  
5 based on the risks associated with different types of  
6 drilling operations.  
7 The final point on this slide is a matter of  
8 great importance to us. We have various experts and public  
9 officials who we have invited here, but we're interested in  
10 everybody's comments. So there are comment cards I believe  
11 outside, and we also welcome your submission of comments to  
12 our website, which is listed at the bottom of the slide. I  
13 can promise you that we will read every one of them and  
14 they will be taken into account as we make these important  
15 decisions.  
16 Why are we focusing on deepwater? The main  
17 reason is because there is no actual or de facto moratorium  
18 on shallow water drilling. There has been a lot of  
19 controversy, particularly in the Gulf, about whether there  
20 is a de facto moratorium on shallow water drilling. There  
21 is not. Because there are new requirements that have been  
22 imposed on oil and gas companies, it has taken more time to  
23 process some of the new applications that are coming in to  
24 make sure that the applications comply with some of the new  
25 rules and requirements that have been imposed over the last

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1 few months.  
2 Just to summarize some of those new  
3 requirements, they are called NTL-05 and NTL-06, and we  
4 have written them in as clear a way as we can. But  
5 questions have arisen, and we have issued formal guidance  
6 in the form of frequently asked questions about the  
7 information that operators are required to provide or to  
8 comply with those NTLs. We've also held regular  
9 discussions with representatives of the shallow-water  
10 drilling coalition regarding the information that's  
11 required in response to the two NTLs.  
12 We are currently in the process of  
13 processing shallow-water drilling permit applications as  
14 quickly as possible, not as quickly as some of the  
15 operators would like, but as quickly as we can responsibly  
16 do so. And so that's what we're doing with respect to  
17 those applications.  
18 As you know, there is no deepwater drilling  
19 here in Alaska. But the Arctic poses different challenges  
20 to spill response that must be addressed in developing the  
21 new regulations that my agency is in the midst of revising  
22 and modifying, and we want to hear about those specific  
23 challenges that exist in the Arctic environment in today's  
24 panels.  
25 The importance of offshore drilling, I

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1 think, should be clear. There are tens of thousands of  
 2 workers across the country who are employed in the offshore  
 3 oil and gas industry. A lot of things depend on offshore  
 4 drilling. Our domestic energy production is critical to  
 5 both the health of the economy, to energy independence, and  
 6 to our national security.

7 Here in Alaska the Beaufort and Chukchi Seas  
 8 are, as you probably know, estimated to hold literally tens  
 9 of billions of barrels of potentially recoverable oil. The  
 10 safe and responsible recovery of that oil will supply  
 11 domestic energy demands and provide jobs for people here in  
 12 Alaska and elsewhere. It will also protect the  
 13 Trans-Alaska Pipeline from corrosion and ice problems that  
 14 the pipeline faces if the flow of oil drops below 500,000  
 15 barrels a day.

16 What are the risks of drilling, and what are  
 17 the risks of oil spills? A large volume oil spill off the  
 18 shore of Alaska would have a devastating effect on a number  
 19 of different items and issues, on subsistence, on marine  
 20 mammals and birds, on the ocean and coastal environments,  
 21 and on local communities. The only way to minimize the  
 22 harm once an oil spill has actually occurred is through a  
 23 rapid and effective oil spill response.

24 Obviously what we as a nation have been  
 25 preoccupied with over the last four months or so is the

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1 impact of the Deepwater Horizon spill off the coast of  
 2 Louisiana. As you know, 11 rig workers tragically died in  
 3 Macondo well blowout and fire. That oil spill had a  
 4 dramatic and continues to have a dramatic effect on the  
 5 ocean and coastal environments in the Gulf of Mexico and  
 6 throughout the country.

7 Literally hundreds of miles of shoreline and  
 8 wetlands in the Gulf states have been affected by that  
 9 Deepwater Horizon oil spill. There is a risk that the  
 10 entire fragile Gulf ecosystem could be affected, including  
 11 marine plankton, fish and shellfish, birds, marine mammals  
 12 and other wildlife, and those are not the only effects of  
 13 the Deepwater Horizon spill. They have also had a major  
 14 impact on industries down in the Gulf, including fishing,  
 15 shrimping, tourism and commercial retail and other  
 16 industries.

17 One of the things that became clear as the  
 18 response to Deepwater Horizon unfolded was that virtually  
 19 all of the available oil spill resources -- oil spill  
 20 response resources were being mobilized to deal with that  
 21 one spill, and those resources included tens of thousands  
 22 of personnel, both private and public, and a huge amount of  
 23 various kinds of equipment, including millions of feet of  
 24 boom, thousands of vessels, and a huge number, over a  
 25 hundred, helicopters and aircraft. So the magnitude of the

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1 effort, the allocation of resources to Deepwater Horizon  
 2 spill, was enormous.

3 What became clear is that there was an  
 4 insufficiency of existing oil spill response resources.

5 The deployment of the resources to the Deepwater Horizon  
 6 site and the surrounding area raised serious concerns on  
 7 the part of not only governmental officials, but industry  
 8 people, about the industry's ability to respond to  
 9 large-volume oil spills.

10 In a June 28th, 2010, meeting, which I was  
 11 present, we asked industry people to provide assurances  
 12 that there were existing sufficient industry resources to  
 13 address a second oil spill, if, God forbid, that had  
 14 occurred while the resources were being allocated to  
 15 Deepwater Horizon. No such reassurances were forthcoming.

16 The Coast Guard has determined that the  
 17 number of skimming vessels was inadequate to recover the  
 18 oil released from the Deepwater Horizon spill, and as a  
 19 result the Coast Guard and EPA amended their oil spill  
 20 response requirements to allow certain commercial and  
 21 military vessels normally required to be available for  
 22 spills in other regions to be deployed to the Deepwater  
 23 Horizon site.

24 NOAA has stated that it was fully engaged in  
 25 responding to the Deepwater Horizon oil spill, and it would

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1 have had great difficulty responding if another spill had  
 2 occurred while the Deepwater Horizon spill was still being  
 3 fought.

4 There is also -- in addition to the  
 5 inadequacy of oil spill response resources, there is the  
 6 inadequacy of current oil spill response plans. Industry  
 7 representatives have acknowledged that they are not well  
 8 equipped and have not been well equipped to handle  
 9 worst-case scenario oil spills.

10 Regional response plans in the Gulf of  
 11 Mexico proved to be wholly inadequate to address the  
 12 Deepwater Horizon spill. Among other things, the plans  
 13 overestimated the daily recovery capacity of skimming  
 14 systems in the open ocean. Plans failed to account for the  
 15 broad spreading of oil and the significant and extended  
 16 shoreline impact of the spill. And, in addition, the plans  
 17 failed to provide for a rapid mobilization of equipment  
 18 from domestic and international sources.

19 The Gulf of Mexico has the most available  
 20 spill response resources of any region. If the Macondo  
 21 blowout had happened anywhere else, the response, and this  
 22 is an important point to emphasize, the response would have  
 23 been an order of magnitude more difficult than it was  
 24 there.

25 Let's focus more geographically specifically

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1 on the Arctic region, and let's focus on oil spill  
 2 preparedness. As I said before, there is currently no  
 3 deepwater drilling in the Outer Continental Shelf of  
 4 Alaska, and therefore it is less likely that a large-volume  
 5 spill would occur here.

6 But as most of you know, this environment,  
 7 the Arctic environment, presents different and difficult  
 8 logistical challenges. They include that clean-up efforts  
 9 would have to be conducted more than likely in broken ice  
 10 and in solid ice conditions, that a large contingent of oil  
 11 spill response personnel would need to be supported in a  
 12 remote location for extended periods of time putting  
 13 stresses on the infrastructure in those remote locations,  
 14 and that response crews may have to work in the quite  
 15 severe weather conditions that exist in the Arctic.

16 In addition, and this is important, the  
 17 Coast Guard does not have a port in the Arctic, and  
 18 therefore response crews and capability would likely not be  
 19 as robust as they are and were in the Gulf of Mexico.

20 That's the brief introduction and the  
 21 framing of the issues. What I'd like to do now is to,  
 22 first of all, introduce my colleagues from my agency, who  
 23 will be joining me for all three panels, and then introduce  
 24 our first set of panelists.

25 First, from my agency, sitting immediately

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1 to my left, is John Goll. John is the director of the  
 2 Alaska Outer Continental Shelf region for the Bureau of  
 3 Ocean Energy Management, Regulation and Enforcement. He is  
 4 responsible for all agency activities in this region,  
 5 including oil and gas and other energy and mineral leasing,  
 6 environmental analysis and studies, and general oversight  
 7 of industry activities in Alaska's Outer Continental Shelf.  
 8 John has been in his current position since 1997, and  
 9 previously he headed the Bureau's national environmental  
 10 office.

11 Sitting to John's left is Bill Hauser. Bill  
 12 has been doing a lot of these forums with me, we've become  
 13 sort of road show buddies. Bill is the chief of the rules  
 14 and standards branch of BOEMRE. He served at headquarters  
 15 for 20 years. But earlier in his career, Bill served as a  
 16 petroleum engineer here in the Alaska region.

17 The general format of these panels is I'm  
 18 going to be asking the presenters to give relatively brief  
 19 presentations. We'll let them run through the  
 20 presentations, and then Bill and John and I will ask  
 21 questions to the presenters in sequence. We'll do that for  
 22 the first two panels.

23 Let me introduce the presenters in the first  
 24 panel. First, sitting closest to me, is Leslie Pearson of  
 25 Pearson Consulting. Leslie is the president and co-owner

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1 of her company that specializes in emergency and aviation  
 2 management planning, preparedness, policy research, and  
 3 regulatory compliance. Prior to that Leslie spent six  
 4 years as the prevention and emergency response program  
 5 manager for the Alaska Department of Environmental  
 6 Conservation.

7 Sitting to Leslie's left is Ron Morris of  
 8 Alaska Clean Seas. Ron is the president and general  
 9 manager of Alaska Clean Seas, a not-for-profit oil spill  
 10 removal organization. Prior to his affiliation with Alaska  
 11 Clean Seas, Ron was -- served for over 33 years in the  
 12 United States Coast Guard as a marine safety officer. He  
 13 completed his service in the Coast Guard in 2005 as a  
 14 captain of the port for western Alaska.

15 Sitting to Ron's left is Marilyn Heiman.  
 16 Marilyn is the director of U.S. Arctic and Offshore Energy  
 17 Reform Programs for the Pew Environment Group. She has  
 18 worked on natural resource policy issues for 27 years, and  
 19 was formerly the campaign manager of the International  
 20 Boreal Conservation Program.

21 Sitting to Marilyn's left is Dr. Michael  
 22 Castellini. He is the interim dean of the School of  
 23 Fisheries and Ocean Sciences of the University of Alaska at  
 24 Fairbanks. He's been a faculty member at that school in  
 25 the School of Fisheries and Ocean Sciences since 1989.

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1 It's a great pleasure to have all of the  
 2 presenters with us. I don't know which of you have  
 3 PowerPoints, but let me bring the clicker over there.  
 4 Leslie.

5 **MS. PEARSON:** Good morning. This is an  
 6 interesting process. I do want to state that although I  
 7 spent six years as the program -- emergency response  
 8 program manager, I spent 19 years with DEC, so my  
 9 discussion here today is drawing from the 19 years of  
 10 experiences in chasing oil spills in Alaska -- or dealing  
 11 with oil spills in Alaska.

12 In the Arctic Ocean the risks, difficulties,  
 13 and unknowns of oil exploration are far greater than in any  
 14 other area of the U.S. Outer Continental Shelf. The  
 15 seasonal sea ice, lack of infrastructure, limited response  
 16 resources, and distance from major population area centers  
 17 all make prospects of mounting a Deepwater Horizon size  
 18 spill in the Chukchi Sea even more daunting.

19 Our existing baseline science in the U.S.  
 20 Arctic seas is dominated by unknowns. We have incomplete  
 21 information on environmental sensitivities and no ability  
 22 to model the interaction between oil and sea ice.

23 At the same time we recognize that the  
 24 Arctic species and ecosystems are highly sensitive to  
 25 pollutants and much slower to recover from damage. Because

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1 of these significant challenges and high stake, a stout oil  
 2 spill planning and response infrastructure is needed to  
 3 support oil development in the Alaska OCS.  
 4       Spill response planning requires  
 5 coordination among spill response organizations, industry,  
 6 and government agencies. As it exists today, the planning  
 7 and response regime in the Alaskan Arctic simply could not  
 8 support a deepwater scale response.  
 9       I'm here on my own behalf, but I will  
 10 disclose that I am working on a project for Pew that  
 11 examines and analyzes what a worst-case scenario for a well  
 12 blowout in the offshore Alaskan Arctic Ocean would look  
 13 like. The scenario uses resources identified in Shell's  
 14 contingency plan, identifies its response and resource  
 15 limitations in comparison to numbers of resources deployed  
 16 during the Deepwater Horizon response. My preliminary  
 17 analysis shows gaps in resources, infrastructure, people,  
 18 vessels, and technology needed to manage a well blowout,  
 19 especially a high volume, long duration well blowout in the  
 20 Chukchi Sea.  
 21       I think it's important to understand that  
 22 the definition of the term "worst-case discharge"  
 23 essentially means the largest foreseeable discharge in  
 24 adverse weather conditions.  
 25       Under the federal regulations for

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1 exploratory or developmental drilling operations, the size  
 2 of an operator's worst-case discharge scenario is a daily  
 3 volume possible from an uncontrolled well out for 30 days.  
 4 That's a simple way of defining it.  
 5       Shell's contingency plan contains an open  
 6 water well blowout scenario where the weather and operating  
 7 conditions have no negative impact on the response  
 8 capacity. This is an extremely unrealistic assumption.  
 9 Even during the Deepwater Horizon spill response -- spill  
 10 response, weather and sea states caused response operations  
 11 to be curtailed several times.  
 12       A responsible oil spill plan should take  
 13 into consideration historic weather patterns and plan for  
 14 the possibility that conditions may not be ideal. Federal  
 15 regulations specifically require that the worst-case oil  
 16 spill scenario address adverse weather conditions.  
 17       Perhaps one of the great -- biggest  
 18 shortcomings, though, is the lack of consideration for how  
 19 a clean-up would be conducted in the presence of sea ice.  
 20 During a series of equipment trials in sea ice on the North  
 21 Slope in 2000, a barge-based mechanical recovery system was  
 22 demonstrated to be somewhat effective in ice conditions up  
 23 to 30 percent, but only if ice management vessels were  
 24 deployed.  
 25       Sea ice caused considerable strain on

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1 containment boom, and boom failure was problem. The trials  
 2 demonstrated that the maximum operating limitations of the  
 3 barge-based system in ice-infested waters was 0 to 1  
 4 percent in the fall ice, 10 percent in spring ice without  
 5 ice management, and up to 30 percent in spring ice  
 6 conditions with extensive ice management.  
 7       Most of the technologies used in responding  
 8 to oil spills in the Arctic have been adapted, those  
 9 typically used in temperate regions, on open water, inland.  
 10 Mechanical recovery and removal of spilled oil is a  
 11 preferred response method in the United States. While  
 12 there have been incremental improvements in individual  
 13 skimming technologies, there really hasn't been any  
 14 break-through technologies reported in the literature that  
 15 would significantly improve mechanical recovery in sea ice.  
 16 The use of chemical dispersants and in situ burning may  
 17 also be considered for use on a case-by-case basis and must  
 18 be approved by government response agencies.  
 19       During the Deepwater Horizon spill response,  
 20 all response techniques were used. The use of chemical  
 21 dispersants and in situ burning was significant. And  
 22 previous to the Gulf spill, neither response method had  
 23 been used on a marine oil spill to the extent observed.  
 24       In situ burning in ice conditions has been  
 25 considered a viable response option for decades in Alaska.

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1 Alaska Clean Seas, and I'm sure Ron will tell us about it,  
 2 maintains a stockpile of fire boom and various types of  
 3 ignitors.  
 4       In situ burning on the Deepwater Horizon  
 5 spill was -- the first controlled burn was conducted on May  
 6 5th. What's interesting, is by July 12th there were over  
 7 330 burns that had been conducted and the claim of removing  
 8 10.3 million gallons of oil. The amount per burn was just  
 9 over 31,000 gallons per burn if you do the math. That's  
 10 really significant as far as the use of that technique.  
 11       Dispersants were also initially applied on  
 12 the surface slick during that event, and by May 17th BP was  
 13 allowed to apply dispersants subsea on the oil plume that  
 14 was coming out of the blowout. This was the first subsea  
 15 application of dispersants in oil spill response history.  
 16       By July 12th, a total of 1.8 million gallons  
 17 of various types of dispersants had been applied to the oil  
 18 both surface and subsurface. The environmental effects  
 19 and -- environmental and physical effects of the use of the  
 20 dispersants remains unanswered to date.  
 21       Historically in Alaska the regulatory  
 22 agencies have consciously agreed that chemical dispersants  
 23 are not allowed for use in the Beaufort Sea due to the  
 24 shallow water. Alaska Clean Seas doesn't hold a stockpile  
 25 of dispersants, but there is a stockpile of dispersants

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1 here in Alaska, in Anchorage, Valdez, and also in Nikiski.  
 2 The Alaska inventory would have been  
 3 depleted on day six of the Deepwater Horizon oil spill, but  
 4 my question to the regulatory agencies is, would you allow  
 5 for the use of chemical dispersants equal to the amount  
 6 used on the Deepwater Horizon spill in the Arctic?  
 7 The Arctic oil spill response -- an Arctic  
 8 oil spill response capacity assessment is necessary to  
 9 evaluate the capacity of the oil spill response systems  
 10 here, and that means dedicated equipment, vessels, and  
 11 personnel. An oil spill response capacity assessment would  
 12 evaluate how much oil can be recovered or treated in the  
 13 event of an oil spill during an available spill response --  
 14 a spill, and how quickly that system could be put in place.  
 15 There is very little real world data  
 16 regarding the effectiveness of oil spill response systems  
 17 in the Arctic, and that's because there hasn't been a major  
 18 oil spill, so we're lucky there. But most of our  
 19 assumptions have been based upon performances derived from  
 20 either small scale laboratory tests, tank tests, some field  
 21 trials, but those have been very limited, and primarily  
 22 specific to one piece of equipment.  
 23 One major series of offshore field  
 24 deployments that was held in 2000 in the Beaufort Sea  
 25 showed significant problems when sea ice was present.

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1 There has been very little follow-up to that exercise of  
 2 that scale.  
 3 Field deployments provide an opportunity to  
 4 delineate the operable limits of the spill response system,  
 5 because the system is transported to the sea and deployed  
 6 under a range of natural conditions. In some cases a  
 7 response system may fail, not because of the primary  
 8 equipment failure, but because one or more of the  
 9 technologies or support platforms requires -- required does  
 10 not perform as intended. These support functions may be  
 11 severely challenged by the Arctic environmental conditions  
 12 or by the remote locations or lack of infrastructure and so  
 13 forth.  
 14 During the 2000 field trial held in the  
 15 Beaufort Sea, responders found that the actual limits to  
 16 the vessel-based skimming and recovery system were realized  
 17 in much lower sea ice concentrations than previously  
 18 assumed. Oil spill response systems have a distinct --  
 19 have distinct capabilities and limitations that should be  
 20 considered in planning for potential spill response  
 21 operations. Typically oil spill experts consider a  
 22 response to be successful if you get 20 to 30 percent of  
 23 the spilled oil recovered on the sea surface using  
 24 mechanical methods.  
 25 Arctic conditions present spill responders

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1 with limited daylight, extreme storms, cold temperatures  
 2 that are well below zero, and shifting ice. There have  
 3 been many days or even weeks when weather may prevent any  
 4 effort to clean up an oil spill because boats can't operate  
 5 or aircraft can't get to the scene or be flown.  
 6 I think the oil industry and also the oil  
 7 spill response organizations that we have in place on the  
 8 North Slope and here in Alaska all know the systems  
 9 have limitations, but as yet no one has quantified these  
 10 limits, and to do so would require a response gap analysis.  
 11 A response gap analysis exists whenever  
 12 environmental conditions exceed the operating limit of the  
 13 oil spill clean-up equipment, meaning that if an oil spill  
 14 occurs during this time, it could not contain or clean up  
 15 the oil. The term "response gap" is relatively new and --  
 16 new to the published literature. And there is some  
 17 misunderstandings or confusion as to what the term actually  
 18 means.  
 19 But in considering the response gap for an  
 20 offshore oil spill in the Arctic sea, it's necessary to  
 21 first identify the upper limits for the response system in  
 22 place. A response gap exists during periods of time when  
 23 one or more of these upper limits are realized. Upper  
 24 limits could be quantified by comparing historical climatic  
 25 data or other physical or environmental parameters.

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1 The implications of a response gap is the  
 2 fact that there are periods of time during which, if an oil  
 3 spill does occur, it would be left completely untreated.  
 4 This information is critical to understanding and assessing  
 5 the risk of oil spills from a given operation or location.  
 6 It does not necessarily mean zero development in those  
 7 areas, but it may mean that significant additional  
 8 mitigation measures should be put in place during those  
 9 times when an oil spill could not be cleaned up. For  
 10 example, some oil and gas production operations are limited  
 11 to certain seasons and may be curtailed during critical  
 12 biological periods.  
 13 In preparation for this hearing, I ran  
 14 across a historical document which I'll provide to the  
 15 Director here. The document is titled "Final Findings and  
 16 Decisions of the Commissioners Regarding the Oil Industry's  
 17 Capacity to Clean Up Spilled Oil During Broken Ice Periods  
 18 in the Alaska Beaufort Sea." It was published in June of  
 19 1984, and the authors were the commissioner of  
 20 Environmental Conservation, Richard Neve, and Commissioner  
 21 Esther Wunnicke with the Department of Natural Resources.  
 22 The document is centered on a May 14th,  
 23 1982, decision and used by the state to revise seasonal  
 24 drilling restrictions that had been placed on exploratory  
 25 oil and gas drilling operations in the Alaska Beaufort.

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1 The May 8, 1982, revision established two tiers. Tier 1  
 2 was -- removed some restrictions but kept intact the  
 3 prohibition of drilling activities in major oil bearing  
 4 strata during -- primarily during periods of broken ice,  
 5 outside the Barrier Islands during the open water period,  
 6 and during the fall bowhead whale migration. Tier 1 also  
 7 restricted drilling above the oil bearing strata outside  
 8 the Barrier Islands during the fall bowhead whale  
 9 migration.

10 Now, Tier 2 of the decision allowed drilling  
 11 in oil bearing strata year round, except outside of the  
 12 Barrier Islands during the fall bowhead whale migration,  
 13 once a lessee demonstrated compliance with applicable laws,  
 14 regulations, including theoretical and physical capacity to  
 15 detect, contain, clean up, and dispose of spilled oil in  
 16 broken ice conditions.

17 There was a deep public shock and dismay  
 18 when the Deepwater Horizon blowout occurred because the  
 19 worst case risk had been minimized and not properly  
 20 communicated to the public at large. We're on the path of  
 21 making a similar mistake in the Chukchi and Beaufort Sea by  
 22 trying to sweep the worst case under the table instead of  
 23 responsibly planning for it. It's time for the regulatory  
 24 agencies to be regulators and evaluators, get out in the  
 25 field and make industry prove up.

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1 Shell states that they can have their  
 2 equipment splashed within an hour. Splashing equipment and  
 3 having it work efficiently and effectively are two separate  
 4 challenges. There needs to be unannounced exercises  
 5 conducted to validate the statement. There also needs to  
 6 be assessment of the oil spill response capacity for the  
 7 Arctic which will identify the resource needs to respond to  
 8 a worst-case scenario in broken ice. We need to know the  
 9 upper threshold limits of response systems, accept the  
 10 limitations, and identify additional mitigation measures,  
 11 recognizing that there will be times when nothing can be  
 12 done. The process needs to be open and transparent if you  
 13 want to gain some level of public trust, and the agencies  
 14 need to face these challenges head on and exercise their  
 15 authority to say, no, no-go, if necessary. Thank you.

16 **DIRECTOR BROMWICH:** Thank you very much. We  
 17 really appreciate it. Ron.

18 **MR. MORRIS:** Thank you. Good morning. My  
 19 name is Ron Morris. I'm president and general manager for  
 20 Alaska Clean Seas.

21 Alaska Clean Seas is -- did we get the right  
 22 one? Okay, good, we're working fine -- Alaska Clean Seas  
 23 is an oil spill removal organization established originally  
 24 in 1979 as a company called Absorb. An interesting note  
 25 for today is that the original general manager is here

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1 today and scheduled to address the second panel.  
 2 In years early -- early years of the co-op  
 3 involved research and development and the response  
 4 techniques and equipment to meet the response needs of our  
 5 members. Over time the response techniques have been  
 6 refined and new techniques developed and equipment added to  
 7 the inventory. The name was changed a few years later, and  
 8 in 1990 was organized from an equipment co-op into a full  
 9 response organization increasing the number of personnel to  
 10 also deploy and operate the response equipment.

11 Alaska Clean Seas is a not-for-profit  
 12 company. We respond much like a fire brigade to  
 13 emergencies with both equipment and trained personnel.  
 14 Alaska Clean Seas' mission is to support our members'  
 15 companies -- our member companies with personnel,  
 16 equipment, and training in areas of interest to prepare for  
 17 and respond to a spill event.

18 Alaska Clean Seas' members are entitled to  
 19 call upon us to receive spill response support as well as  
 20 to refer to Alaska Clean Seas' resources and clean-up  
 21 techniques in their contingency plans. Alaska Clean Seas  
 22 is equipped in size to meet our member company response  
 23 requirements in their contingency plans that are reviewed  
 24 and approved by state and federal authorities.

25 Our primary job for our members is to

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1 provide spill response equipment that is well maintained  
 2 and in a ready state and to train personnel to operate the  
 3 spill response equipment in our inventory. Alaska Clean  
 4 Seas has an expanded mission that is a little different  
 5 than others OSROs around the country in that we also  
 6 provide day-to-day field environmental support as a  
 7 secondary job.

8 Our Alaska Clean Seas personnel are embedded  
 9 within the various producing fields in the North Slope. It  
 10 is within those areas that they conduct their various  
 11 support duties and maintain the equipment in their area,  
 12 conduct the training for the spill response team in their  
 13 field, and respond to spills that may occur.

14 We presently have ten member companies in  
 15 Alaska Clean Seas. The Alaska Clean Seas' articles of  
 16 incorporation define our area of interest as the Outer  
 17 Continental Shelf off the coast of Alaska, the North Slope  
 18 of Alaska north of the 68th latitude from the Canadian  
 19 border west to Point Hope, and the acreage under the lease  
 20 or free ownership -- fee ownership for the Alaska --  
 21 Trans-Alaska Pipeline System to the boundary of the marine  
 22 terminal in Valdez.

23 Alaska Clean Seas has grown to 78 employees  
 24 over the years to meet our members' response needs. In  
 25 addition, we train North Slope spill response team members

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1 who are employees of our member companies and contractors  
 2 working for them. These personnel are like a volunteer  
 3 force multiplier that are available in the event of a large  
 4 spill that requires more response personnel immediately.  
 5 Alaska Clean Seas also maintains retainers  
 6 with our auxiliary contract response teams who are  
 7 available to provide personnel when needed. This also  
 8 includes our village response team where members of North  
 9 Slope villages have been trained and are available to  
 10 respond to a spill as well.  
 11 Alaska Clean Seas has a \$50 million response  
 12 equipment inventory. Our inventory includes various sizes  
 13 and types of boom, skimmers, vessels, storage containers,  
 14 and mini barges for shuttling recovered oil, and  
 15 heli-torches to support in situ burning operations, as well  
 16 as a wide variety of support equipment from warm-up shacks,  
 17 mechanic trailers, auxiliary power, and hydraulic equipment  
 18 to run our pumps and skimming systems.  
 19 Our techniques for response include  
 20 mechanical recovery equipment utilizing our vessels, booms  
 21 and skimmers and other support equipment, as well as an  
 22 alternative response technique supporting in situ burning,  
 23 for instance.  
 24 The Alaska Clean Seas has developed, through  
 25 an industry and agency North Slope spill response team --

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1 project team, our technical manuals that have been termed  
 2 by our members as a best practice. Our manual has been  
 3 adopted and copied by others outside of the co-op as well.  
 4 The manuals are applicable to all of our members and for  
 5 their use in their planning in response efforts. We have  
 6 three volumes, the tactics, the map atlas of the priority  
 7 protection sites, and then information on incident  
 8 management system.  
 9 Our tactics provide a description and  
 10 illustration of the tactic, equipment, and personnel  
 11 requirements, along with support needs, and then the  
 12 deployment considerations and limitations for that tactic.  
 13 The map atlas is the product of the Alaska  
 14 regional response team subcommittee on priority protection  
 15 sites which is chaired by the Department of Interior. The  
 16 sites are determined through a work group of trustees,  
 17 government agencies, federal, state, and local, and land  
 18 owners.  
 19 Once approved, the site is added to the  
 20 atlas. And priority protection sites have been identified  
 21 along the coastline from the Canadian border west to Point  
 22 Hope, our area of interest on the North Slope, and includes  
 23 a little over 200 sites. This is just a page from the  
 24 atlas that shows three of the priority protection sites as  
 25 noted so you can have an illustration of what the map atlas

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1 has.  
 2 Alaska Clean Seas has a long history of  
 3 research and development activity, and we continue to stay  
 4 engaged in efforts to improve our response techniques  
 5 looking for opportunities to join research and development  
 6 efforts that may be proposed. We often act as a  
 7 facilitator for our members' efforts in research and  
 8 development providing support to projects that require cold  
 9 weather testing.  
 10 We have in the past provided assistance in  
 11 the more [sic] ice project, testing skimming in ice  
 12 conditions, and burning of emulsions, in situ burning, oil  
 13 herders, viscous oil pumping systems, detection of oil  
 14 under ice, and most recently the joint industry project on  
 15 oil spill contingency for Arctic and ice-covered waters  
 16 that concluded with a test in Norway last year.  
 17 Alaska Clean Seas has provided support to  
 18 our members for over 30 years and been a leader in  
 19 developing response techniques. Alaska Clean Seas has also  
 20 provided support in the Gulf spill response and we continue  
 21 our presence there today. We are currently working out of  
 22 Hopedale, Louisiana and St. Bernard Parish, having  
 23 developed and nearshore capability with the local fishing  
 24 fleet, equipping their vessels for recovery operations,  
 25 training the crews in our tactics, and then engaging in

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1 recovery operation. I hope this has provided you with a  
 2 snapshot of our co-op and the support that we provide our  
 3 members to meet their contingency plan response needs,  
 4 thank you.  
 5 **DIRECTOR BROMWICH:** Ron, thank you very much  
 6 for your presentation. The next presenter is Marilyn  
 7 Heiman. Marilyn.  
 8 **MS. HEIMAN:** Good morning, can you hear me?  
 9 **DIRECTOR BROMWICH:** Not well.  
 10 **MS. HEIMAN:** How about now? Thanks. My  
 11 name is Marilyn Heiman, and I wanted to just add to what  
 12 you mentioned about my background.  
 13 I have a long history in oil spill response.  
 14 I was staff to the Oil Spill Commission after the Exxon  
 15 Valdez oil spill, and I also worked in the legislature on  
 16 oil spill legislation that followed the spill. And I've  
 17 had my hand, not like some of the other technical experts  
 18 up here, but in some spill response, reviewing oil spill  
 19 contingency plans, and even practiced booming the Sag River  
 20 at one point, and had done some inspections. But I just  
 21 want to thank you very much for the opportunity to testify  
 22 today.  
 23 The BP Deepwater Horizon spill has been one  
 24 of the worst environmental disasters in our nation's  
 25 history. I want to extend my condolences to the families

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1 who have lost their lives and to those whose livelihoods  
 2 have been so negatively affected by the spill.  
 3       The spill has served as a wake-up call to  
 4 the Congress, to the Administration and to the country. We  
 5 were all lead to believe that an oil spill of this  
 6 magnitude had become virtually impossible because of the  
 7 technological advances in offshore drilling. It's now  
 8 clear, however, that technology for extracting oil has far  
 9 outpaced technology for preventing and containing, as well  
 10 as cleaning up, an oil spill once it's occurred.  
 11       The government failed to do what was  
 12 necessary to prevent a catastrophic spill, and the Gulf and  
 13 its communities will suffer decades as a result. So we can  
 14 no longer approach offshore drilling the way we did prior  
 15 to the spill. New legislation must be passed that reform  
 16 the laws for safety and offshore leasing and planning as  
 17 well as spill response. New regulations and policies must  
 18 be put in place in a culture, and approach of the  
 19 Department of Interior, and the former Minerals Management  
 20 Service, now the Bureau of Ocean Energy Management, must  
 21 change.  
 22       The Administration has taken some  
 23 significant steps towards making changes, and we applaud  
 24 Director Bromwich and his staff for holding these panel  
 25 discussions around the country and for the hard work that's

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1 already been done. But it's only the beginning.  
 2       Agencies, even when they are renamed and  
 3 restructured, do not change overnight. Real change will  
 4 only come with sustained vigilance and oversight and clear  
 5 direction by the Administration and Congress. Change must  
 6 take place not only in Washington, D.C., but also here in  
 7 the regions.  
 8       To quote Secretary Salazar, the current  
 9 five-year plan proposed by the past Administration was a  
 10 head-long rush of the worst kind. That approach has led to  
 11 divided communities, contentious lawsuits, and some very  
 12 bad will among the communities, the industry, the  
 13 conservation community, and the former MMS.  
 14       I hope to raise some recommendations about  
 15 the changes we think are necessary to ensure protection of  
 16 the Arctic marine ecosystem and the Native communities that  
 17 rely on it.  
 18       First I want to discuss spill response. We  
 19 remain, as has been discussed already today, very concerned  
 20 about the ability of industry to clean up oil in extreme  
 21 Arctic marine environments which can experience gale force  
 22 winds, treacherous seas, and the challenges by broken ice,  
 23 subzero temperatures, and days of darkness. In addition to  
 24 these hazardous weather conditions, the remoteness and lack  
 25 of infrastructure only add even greater difficulties for

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1 spill responders. Spill containment and response in the  
 2 Gulf was woefully inadequate where extensive  
 3 infrastructure, people, vessels, and aircraft were readily  
 4 available.  
 5       The nearest Coast Guard station to the  
 6 Arctic is about a thousand miles away in Kodiak. The  
 7 communities along the coast, Alaska coast -- Arctic coast  
 8 are extremely remote. There is no road system, few  
 9 airstrips where jets can land, and few docks that can  
 10 handle large vessels, particularly in the Chukchi Sea.  
 11       The Coast Guard has stated that they are not  
 12 well prepared to respond to a major spill in the Arctic  
 13 Ocean, and there is a lack of effective methods for  
 14 cleaning up oil in ice. Admiral Thad Allen testified to  
 15 the subcommittee of the Senate Appropriations in Anchorage  
 16 last August that our traditional small boats do not operate  
 17 well off the North Slope as far as launching and recovery.  
 18 We have long-range communications problems with our  
 19 helicopters because of lack of infrastructure, and there  
 20 are navigational challenges up there because there is a  
 21 lack of mapping data.  
 22       During Capitol Hill Oceans Week, Captain  
 23 J.J. Fisher stated that a major oil spill in the Arctic  
 24 would pose significant operational challenges for the Coast  
 25 Guard. He cited vast distances to the Coast Guard stations

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1 and noted that moving equipment to respond to an oil spill  
 2 in northern Alaska would be challenging. He also cited a  
 3 lack of infrastructure, including few places to land a  
 4 C-130, and the lack of ice breaking equipment and vessels.  
 5 He also stated that there are more hurricane force storms  
 6 in the Arctic Ocean than in the Caribbean every year.  
 7       As the Pew Environment Group recommended to  
 8 Congress, the industry must demonstrate the capacity to  
 9 respond to a catastrophic spill by maintaining enough  
 10 equipment in the region to respond immediately to a  
 11 worst-case discharge and to sustain a response for the  
 12 duration of that discharge.  
 13       There should be specific spill response  
 14 requirements for adequate quantities of equipment to be in  
 15 place based on well pressure, depth of the well, and the  
 16 length of time it would take to realistically permanently  
 17 cap or drill a relief well for any given rig.  
 18       Since the Exxon Valdez spill, Alyeska has  
 19 maintained contracts with fishermen in Prince William  
 20 Sound, and every year they hold trainings and drills to  
 21 practice deploying equipment to protect previously mapped  
 22 sensitive areas such as hatcheries. Nothing like this  
 23 existed in the Gulf, and nothing like this has been set up  
 24 in the Arctic Ocean.  
 25       In addition to table top exercises, on-water

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1 spill drills should be required, included surprise drills  
 2 as Leslie mentioned, that require demonstration of  
 3 equipment and response capability that is effective in  
 4 Arctic marine conditions. There have been few on-water  
 5 drills in icy waters, and those that have been held have  
 6 showed that mechanical equipment, such as skimmers, are  
 7 deemed inoperable in icy waters.  
 8         The March 2006 BP spill from a corroded  
 9 pipeline on the North Slope, the largest ever on the North  
 10 Slope, showed that if equipment is not maintained and kept  
 11 up to date with the best technology, major accidents can  
 12 happen, and when they do they are hard to control.  
 13         If exploration should move forward, a  
 14 full-scale inspection and training program should be put in  
 15 place in Alaska to ensure oil rig safety and to ensure  
 16 associated facilities, such as pipelines, are in good  
 17 condition and have sophisticated leak detection systems for  
 18 early detection.  
 19         And for exploration and production, spill  
 20 prevention, such as seasonal drilling restrictions where a  
 21 well operation is limited to winter only ice conditions,  
 22 should be required. For example, North Star operates only  
 23 in the winter. In addition, double-walled pipelines and  
 24 tankers must -- double wall pipelines and tanks must be  
 25 required.

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1         I want to just discuss briefly some of the  
 2 concerns we have about the lack of science in the Arctic  
 3 right now. Although some good research has been conducted  
 4 recently, much of it by Conoco and Shell on the lease  
 5 sites, there is still much we don't know. The Arctic is  
 6 warming almost twice as fast as the rest of the planet, and  
 7 species such as walrus, polar bear, and ice seals are  
 8 experiencing a great deal of stress due to climate change.  
 9 We need a robust Arctic marine research plan to provide us  
 10 better data to understand the impacts of oil and gas  
 11 development to these and other marine mammals, such as  
 12 bowhead whales, before allowing oil and gas activity to go  
 13 forward. We believe a cautious, science-based approach is  
 14 necessary in the Arctic Ocean.  
 15         For example, in 2007 and 2009 walrus hauled  
 16 out on the Chukchi shore of Alaska in substantial numbers.  
 17 In the past they stayed out on the ice. We do not know  
 18 whether and where they will haul out on land in the future.  
 19 This makes it impossible to determine the optimal place for  
 20 coastal infrastructure in order to avoid impacts to walrus,  
 21 which are already stressed from the loss of sea ice. More  
 22 monitoring and modeling are needed along with a  
 23 precautionary approach to coastal activities. The use of  
 24 traditional knowledge has been increasing, but there is  
 25 still a great deal that has not been documented or

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1 incorporated in research activities and management  
 2 decisions.  
 3         In addition, a local observation and  
 4 monitoring network could draw on the expertise and presence  
 5 of many hunters and fishermen using the Arctic coastline  
 6 where they are likely to be the first to see the arrival of  
 7 new species, changes in distribution of existing species,  
 8 and other forms of ecosystem change. There should be more  
 9 involvement of coastal residents, including both  
 10 traditional knowledge and ongoing observations.  
 11         Environmental impact statements for five --  
 12 for the five-year program and for individual lease sales  
 13 must consider low probability, high impact events. In  
 14 these documents, important ecological and cultural areas  
 15 should be identified and excluded from oil and gas  
 16 activity.  
 17         Before moving forward with exploration, we  
 18 need to develop better spill trajectory models for  
 19 understanding behavior, fate, and effects of oil in cold  
 20 water and ice conditions. There is also a need for more  
 21 detailed environmental sensitivity indexed mapping.  
 22         I have some final recommendations for  
 23 ensuring a more multi-sector approach for managing the  
 24 Outer Continental Shelf and ensuring effective spill  
 25 prevention and response.

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1         The reform of the Bureau must ensure that  
 2 agency culture becomes one of a regulator rather than a  
 3 partner to industry. Meaningful opportunities for public  
 4 comment on oil and gas planning, leasing, exploration, and  
 5 development, as well as oil spill contingency plans, should  
 6 be provided to affected communities. A regional citizens  
 7 advisory council can provide needed citizen and community  
 8 involvement and ensure complacency does not set in. The  
 9 Prince William Sound Regional Citizens Advisory Council is  
 10 an excellent model, and both House and Senate legislation  
 11 contain proposals for citizen advisory councils.  
 12         Other agencies with responsibility for oil  
 13 spill or protection of the environment should be involved  
 14 in and provided funding for meaningful review of the  
 15 five-year plan, leasing, exploration, and production.  
 16 Additionally, these agencies should also be afforded the  
 17 funding and meaningful opportunity to comment and be  
 18 involved in the approval of oil spill contingency plans and  
 19 inspection -- and be involved in inspections.  
 20         The Coast Guard has the responsibility to  
 21 lead the response, yet are not significantly involved in  
 22 the review of the industry response plans. Research must  
 23 be conducted, local governments, tribes, and communities  
 24 must be better consulted, thorough NEPA analysis must be  
 25 completed, and spill capacity that has proven to work in

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1 the Arctic marine conditions must be in place before DOI  
 2 should allow any new drilling to take place in the Arctic  
 3 Ocean.  
 4       Administrative reform is necessary, but so  
 5 is congressional action. Reforms to OCSLA, the OCS Leased  
 6 Lands Act, and the Oil Pollution Act of 1990 to improve  
 7 spill response and safety must pass this Congress to ensure  
 8 that an accident like the Deepwater Horizon does not happen  
 9 again. Thank you very much.  
 10       **DIRECTOR BROMWICH:** Thank you very much for  
 11 your presentation. Our next presenter, our final presenter  
 12 on this panel is Dr. Michael Castellini.  
 13       **DR. CASTELLINI:** Thank you very much.  
 14 Thanks. I want to thank you for the opportunity to be  
 15 here. I had a chance last week to talk with Chancellor  
 16 Fran Ulmer also on one of her listening tour for the  
 17 presidential commission on oil spill response.  
 18       And the difficulty of being the fourth  
 19 person here is I'm writing down notes as everybody's been  
 20 speaking, and I almost want to get rid of my slides and  
 21 just talk about the other things that have come up before,  
 22 but I'll try to put those into the slides that I have.  
 23       I'll give you a little bit of background in  
 24 why I'm sitting here. I've been working here in Alaska for  
 25 over 21 years now. My specialty is in marine biology,

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1 specifically in the medical physiology of marine mammals,  
 2 so the issues we were talking about earlier of climate  
 3 change, oil spill responses, impact of oil on animals, et  
 4 cetera, is my specialty.  
 5       I work particularly out on the sea ice. 13  
 6 or 14 expeditions, both the Antarctic and the Arctic  
 7 working on those types of animals. Had the opportunity  
 8 obviously to be involved in the Exxon Valdez afterwards  
 9 with the seals, sea otters, whales that were involved in  
 10 that spill. I was a member of the environmental studies  
 11 program that the MMS used to run for looking at  
 12 environmental impact statements for potential leases, and  
 13 we covered everything there, of course, from oil to sand  
 14 drilling, sand mining off in the Gulf.  
 15       As part of that I was the chair of the  
 16 Arctic Commission For Science Issues here. I'm the  
 17 director of the Coastal Marine Institute, which is a  
 18 collaborative organization between BOE and universities  
 19 across the country to involve research-level interactions  
 20 between the two, and we have one of those programs here in  
 21 Alaska.  
 22       And the School of Fisheries and Ocean  
 23 Sciences, which I'm the interim dean, is involved in  
 24 essentially the core of university-level research in the  
 25 state relative to marine issues across the board, not so

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1 much engineering or safety, which we've covered here today,  
 2 but more along the lines of oceanography, marine biology,  
 3 policy and management.  
 4       We have our Marine Advisory Program, which  
 5 you would probably know under the land grant university as  
 6 a cooperative extension, but this is the marine-based  
 7 version of that. We have agents across the state. Some of  
 8 our past agents are in the room, and I believe I have seen  
 9 one or two of our current ones here also today. And, in  
 10 fact, we had agents on the Gulf Coast within a few hours --  
 11 within a few days, rather, after the Gulf event, because we  
 12 were called to say, can we send somebody down to help us  
 13 start to deal with the social impacts, that many of them  
 14 came through the Exxon Valdez, and they were able to go  
 15 down there and help.  
 16       We talked earlier -- it was mentioned about  
 17 the 1984 report that you were talking about in the Arctic.  
 18 A new one of those is coming out. The university has  
 19 facilitated it with the North Slope science committee. And  
 20 Mayor Itta, who is here later today, was on that group and  
 21 can speak to you more about that.  
 22       So let's see if I can put together what  
 23 we've talked about earlier today with some of my thoughts.  
 24 The primary question we have in all these issues, of  
 25 course, is how do you balance exploration, economics,

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1 environmental impacts, social impacts, risk in Alaska, the  
 2 economics that you referred to in the beginning. Oil is  
 3 important for the economy of the state, it's important for  
 4 the people, and yet we're trying to balance the risk and  
 5 all the other aspects of exploration.  
 6       So as I speak today, the themes to keep in  
 7 the back of your mind is what's the role of marine research  
 8 in this equation, how do you put those balances together?  
 9 What did we learn from the Exxon Valdez oil spill that's  
 10 applicable to this? And probably most importantly is how  
 11 can we improve that in the future?  
 12       So if we look at the role of marine research  
 13 in the environment, specifically I'm not going to talk  
 14 about ship safety, oil rig safety, engineering safety,  
 15 development, that's not our specialty. You've heard this  
 16 today, you have many more speakers on that, I'd be way out  
 17 of my league speaking about that, but rather it's more like  
 18 the marine research that we just mentioned a moment ago.  
 19       I want you to think about several things  
 20 today, the before versus after concept, which is critical  
 21 to this story. The question is where would the oil move,  
 22 everybody always wants to know that -- everybody probably  
 23 across the country daily was checking on the NOAA websites  
 24 to see what the oil looked like in the Gulf -- and impact  
 25 to ecosystems, which is, of course -- the general area is

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1 what our school and a lot of the research in the state  
 2 that's not being driven by a variety of other sources  
 3 probably, deals with.  
 4       So let's deal with the before versus after  
 5 concept first. This was a core concept of OCSIP, of  
 6 course, in the late 1970s, looking at the Outer Continental  
 7 Shelf, what it looked like before we started major  
 8 exploration up there. In fact, my very first publication  
 9 was funded by OCSIP studies back in 1977 on the extremely  
 10 remote possibility that a sea otter might get involved in a  
 11 oil spill. So things do happen occasionally like that.  
 12       I would say this is probably the most  
 13 important finding that came out of the EVOS event, the  
 14 concept of what is there before versus what's there after.  
 15 It's extremely difficult for somebody to come to me and  
 16 say, tell me the impact of an oil spill on this beach, if  
 17 we haven't been to that beach before. So we don't know  
 18 what animals were there, the condition they were in, what  
 19 the ecosystem looked like, how well they were reproducing.  
 20 The herring problem that we had in Prince William Sound,  
 21 that they have never really recovered, was that a natural  
 22 cycle or was it being driven by the oil, was it being  
 23 enhanced by the oil spill? We don't know.  
 24       Several of the pods of whales that live in  
 25 the Sound, as you all know from the region, those of you

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1 that live here in Anchorage, have not come back or were  
 2 reduced. Again, what's natural variation, what is caused  
 3 by the oil? It's very hard to do that if you don't have  
 4 the before and after concept in the back of your mind. And  
 5 we'll explore that again throughout the rest of the few  
 6 minutes that I'm talking.  
 7       But this requires us to think about looking  
 8 at the actual stress points that you do want to study,  
 9 because you can't do everything. There is not enough  
 10 science budget in the United States to say, let's look at  
 11 the coastline of Alaska and determine everything that's  
 12 there, what it's like now, reproductive history, what it's  
 13 going to be like, how climate change is impacting it, how  
 14 natural variations impact it, and then throw oil in as the  
 15 condition on top of it. So we're going to have to look at  
 16 specific areas, either in time or space, or specific  
 17 species, and use them as indicators, the ones that would be  
 18 at the most stressful points in that in order to try and do  
 19 that, because it's simply impossible to do everything.  
 20       This is sort of the core concept behind  
 21 MMS's, or BOE's, environmental studies program in terms of  
 22 looking at -- ahead of leasing operations, what's out  
 23 there, what potentially is impacted, how we would study  
 24 that, and how we would try to measure those changes. We'll  
 25 talk about that again in a little bit in the future, in a

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1 few more minutes. But this at least was -- this concept  
 2 already exists in the agency. It probably may need to be  
 3 expanded in terms of looking at some of the issues that  
 4 we're talking about now, and of course this is the concept  
 5 of the Coastal Marine Institutes that try to do this across  
 6 the country, not necessarily just with oil, but with all  
 7 offshore exploration.  
 8       My recommendation in this area from two  
 9 decades of working in this is that we need to minimize  
 10 snapshots, which we tend to do, and tend to move more  
 11 towards the concept of monitoring so we can factor in  
 12 change, factor in -- you were talking about the walrus  
 13 haul-out patterns changing, what's natural patterns versus  
 14 what is perhaps impacted by human activity. And snapshots  
 15 are good, it's always good information to have in time and  
 16 space, but the monitoring concept over time becomes  
 17 critical.  
 18       Let's deal with the question where would the  
 19 oil move. Well, you firstly have to have some idea of  
 20 surface currents and winds. As you all know from reading  
 21 the stories about the deep plumes in the Gulf of Mexico,  
 22 again not necessarily an issue here in Alaska, but midwater  
 23 and deepwater currents, of course, very different from what  
 24 you're getting on the surface, how do you monitor those and  
 25 keep those on track?

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1       At least we have the Alaska shelf is  
 2 shallow, and that's been mentioned several times today.  
 3 Mentioned all the time today is the fact that we have to  
 4 deal with this with or without ice. And that point is  
 5 obvious, I just wanted to remake it. Extreme temperatures,  
 6 darkness. And the Alaska logistics are much, much less  
 7 than the Gulf of Mexico.  
 8       It was suggested to us an order of magnitude  
 9 less. I would say that's probably an optimistic statement.  
 10 It's probably several orders of magnitude less of  
 11 capabilities that existed in the Gulf of Mexico versus what  
 12 we have here. There was mention already today of including  
 13 military and commercial vessels. You've all seen the  
 14 pictures, you know the capacity that was utilized there in  
 15 the Gulf, and we have nothing like that capable here. So  
 16 I'd say it's considerably less than an order of magnitude.  
 17       So let's deal with this first question.  
 18 Okay, what would you do about surface currents and winds?  
 19 How do you actually know that? When you want to know, here  
 20 is oil on the surface, where is it going to go, how do you  
 21 try and figure that out? You -- eventually you have to  
 22 figure out, here like off of Wainwright and Barrow, what do  
 23 the surface currents look like?  
 24       Now, I'm going to ask you how would you do  
 25 that? How would you go out there without a fleet of ships,

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1 without putting people out there all the time? Satellites  
 2 won't give you that information. How do you do that?  
 3 Well, that's been discovered now that you  
 4 can use surface radar that will actually -- we have readers  
 5 in -- or radar operators there in Wainwright and in Barrow,  
 6 and they can look out quite far, quite far from the  
 7 coastline, and read, based on today's winds and on today's  
 8 variety of conditions, what the surface currents are doing.  
 9 You can see a variety of small gyres there -- and this is  
 10 ice free at this time, of course -- a variety of gyres  
 11 where the water is circling, movement along the coast.  
 12 These radar systems are fabulous. We've got  
 13 them employed in the Cook Inlet. And MMS -- BOE, excuse  
 14 me, has supported this -- MMS in the past -- a variety of  
 15 different agencies, Coastal Marine Institute. The industry  
 16 itself has helped support to do this. So that's really  
 17 interesting, you can do that.  
 18 Now I'm going to ask you another question.  
 19 Radar takes a lot of power. There are not very many AC  
 20 outlets with that type of power along the coastline there.  
 21 How do you know that?  
 22 Well, then you come up with the next level  
 23 of work that is coming out through the university and a  
 24 variety of other places, the portable power modules  
 25 necessary in order to be able to drive the radar systems.

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1 So this is a considerable problem. You've got to be able  
 2 to airlift these in. They have got wind, they have got  
 3 solar, they have got back-up diesel, they have a whole  
 4 variety of different components of that, and we're trying  
 5 to market these for a variety of circumstances. And we're  
 6 working also with private industry on this.  
 7 But if you want to know the surface  
 8 currents, you've got to be able -- remotely you've got to  
 9 be able to put in the radar. And in order to put in the  
 10 radar, you have to be able to put in the power. And these  
 11 parentheses of research necessary to drive this type of  
 12 work continues. Clearly satellites are critical to this,  
 13 but to be right there on the surface you need to be able to  
 14 do this type of work.  
 15 But what do you do then for deepwater,  
 16 because the radar will only handle the first half meter or  
 17 so of the ocean? Well, you put in floats and moorings, and  
 18 some of you are familiar with this. These can be dropped  
 19 down to the bottom. We have a suite of those out in the  
 20 Chukchi and the Bering right now. You can pick them up,  
 21 they can transmit data back and forth. And in order to  
 22 do -- when you utilize those, you do start to get concepts  
 23 of deepwater currents, and we have a suite of those all  
 24 over in that same area.  
 25 And on those devices we can put in marine

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1 mammal recorders to answer the questions we were talking  
 2 about earlier of which animals are there. We can do  
 3 surface current by radar masked over the top of those to  
 4 match up ocean surface and deep water, and a suite of  
 5 oceanographic moorings to answer very simple questions, as  
 6 people have been asking in the Gulf, when they were talking  
 7 about the plume, where was it layering, and you need to  
 8 know the density of the water and the different currents in  
 9 order to be able to do that.  
 10 That requires a ship, of course, to be able  
 11 to put out moorings, and there is, as of yet, no ice  
 12 capable UNOLS. UNOLS is the university research fleet  
 13 ships capable of working in the ice. Our first ship will  
 14 come on line in January 2014 run by the University of  
 15 Alaska Fairbanks, run and purchased and being built right  
 16 now by the National Science Foundation, called the  
 17 SIKULIAQ, a Native word which means the ice that is now new  
 18 enough and strong enough for you to be able to walk on it  
 19 safely. And that ship will be in place in January 2014  
 20 ready for research.  
 21 One of the really interesting things, in  
 22 order to be able to put these moorings out, but something  
 23 else they can support, are what we call underwater  
 24 autonomous gliders. We have those out in the Arctic right  
 25 now, too, in exactly those mooring sites and exactly under

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1 the radar sites.  
 2 And if I could take you to the lab right now  
 3 in Fairbanks and pull up the computer screen -- I should  
 4 have figured out if we could do that live here on the  
 5 Web -- and we would be getting back data taken five minutes  
 6 ago from where those vessels are, where those little --  
 7 they look like torpedos -- underwater telling us what's  
 8 going on with the oceanography. We can track them with  
 9 salinity. You can use them to track whatever you want,  
 10 track oil spills, that's fine, track fish. They are  
 11 programmable, come to the surface every six hours, you can  
 12 reprogram them by GPS and away they go tracking down the  
 13 next questions you're seeking.  
 14 So a combination of these different things  
 15 allow us to answer what you would think would be a simple  
 16 question: Where is the oil going to go?  
 17 You need know what's going to happen on the  
 18 surface, you need to know what's going to happen under  
 19 water, and then you need to be able to factor in the ice,  
 20 which changes all this, of course, and how the ice and  
 21 water move underneath each other, and that's the type of  
 22 research we're doing along those lines, and it needs to be  
 23 answered -- we need to know the answer to those questions  
 24 before we can do the before versus after concept.  
 25 That's the relatively easy part, now you get

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1 an ecosystem assessment, which is, for those of you, the  
 2 biologists understand, is somewhat harder. This involves a  
 3 variety of different components. One is the physical  
 4 aspects of exploration itself. And people are very  
 5 sensitive to that here in Alaska, they are sensitive to it  
 6 around the world, the noise, the disturbance that's caused  
 7 by the actual exploration itself.

8 For those of you not here from Anchorage,  
 9 all you have to do is ask the question about what's  
 10 involved in building a bridge across the narrow Arm here  
 11 and the impact that the noise and the construction might  
 12 have on the Beluga whales or the fish that utilize the Arm  
 13 here.

14 That concept of how you try to understand  
 15 the interactions of animals with noise, whether it's fish,  
 16 whether it's birds, whether it's marine mammals, the  
 17 studies that are involved in that are important, and again  
 18 come back to this concept of before versus after and  
 19 monitoring.

20 You have the physical aspects of the oil  
 21 itself. This doesn't have anything to do with its  
 22 chemical, it's more like the concept of gill fouling in  
 23 animals that rely upon gills to get oxygen out of the  
 24 water.

25 Insulation failure. This was the biggest

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1 issue, of course, with sea otters after the Exxon Valdez  
 2 event, that we had predicted we knew how to clean them up  
 3 when the facility was built in Valdez in order to be able  
 4 to do that. It was discovered that you have to use Dawn  
 5 detergent, for example, in order to be able to clean the  
 6 animals, other detergents wouldn't work. A variety of  
 7 different questions involved in the actual thermal  
 8 breakdown for otters, for fur seals, not so much whales,  
 9 they don't rely on fur obviously to stay warm.

10 One of the things that we missed, for  
 11 example, though, comes into the chemical aspects of oil.  
 12 We had known for 15 years before Exxon how to clean an  
 13 otter, how to clean a fur seal, the thermal impact that  
 14 that would make upon the animal by losing that insulation,  
 15 because instead of its beautiful fur coat, it's fouled with  
 16 oil. What we missed totally was the fact that the heavy  
 17 organic vapors sitting on the water surface, when the  
 18 animals inhaled those, essentially caused them a suite of  
 19 respiratory failures, and we lost many, many animals to  
 20 that. To not too much the thermal problem, which we knew  
 21 how to fix, but they were breathing benzenes and a variety  
 22 of other chemicals that caused essentially their lungs to  
 23 fail. We believe this is probably the same thing that was  
 24 happening with seals and whales, because they are breathing  
 25 right at the surface also massive volumes of air in any

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1 single breath. Of course, they don't come up on the beach  
 2 like the otters do, so we missed that.

3 But in terms of ecosystem assessment, you've  
 4 got to consider the long-term aspects and the short-term.  
 5 An animal that gets fouled, a bird, a marine mammal,  
 6 immediate problem is thermal, maybe longer term is  
 7 breathing heavy organics, and maybe even longer term is  
 8 carcinogens or other aspects of long-term biology.

9 I'll take you back to the same thing we've  
 10 talked about -- I've been talking about for the last ten  
 11 minutes. How do you know the normal reproductive pattern  
 12 of these animals? How do you know the normal reproductive  
 13 pattern of the herring? How -- the traveling patterns of  
 14 the seals or the whales or their haulout patterns if you  
 15 don't have the information ahead of time?

16 So once again, somebody came to me, I was  
 17 out collecting blood samples and blubber biopsies and  
 18 things from seals after the Exxon Valdez. We had some  
 19 fairly good ideas of what we were seeing. We could see  
 20 medical issues, we could see a variety of blood chemistry  
 21 things. Just like the blood samples you give when you go  
 22 to the doctor, we can do the same thing with the seals.  
 23 The question is, though, what did they look like before  
 24 they saw the oil? We can compare them to California, we  
 25 can compare them to animals in captivity, but you always

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1 have that nagging question.

2 So I'll try to wrap it up with this last  
 3 concept. So for the Director, the question I have then is  
 4 what is the balance? How do we improve the work that we're  
 5 doing in terms of marine research, and specifically if we  
 6 could start over, what would we do differently on the  
 7 science side?

8 These would be my recommendations based upon  
 9 what I've seen here and what our colleagues in school and a  
 10 variety of other universities have been talking about.

11 I would suggest that the environmental  
 12 studies become gateways as opposed to a voice in the  
 13 decision as to where we're going to lease, how we're going  
 14 to drill. Even take it to sand mining, take it to the Cape  
 15 Wind project off of Massachusetts, any of those questions  
 16 that DOI is involved in.

17 It was made quite clear to us in  
 18 environmental studies that we were one voice that was going  
 19 to go to the Director, and from there to the Secretary.  
 20 Environmental studies would be a voice that went into the  
 21 decision, which was fine, we were happy with that, but it  
 22 was not a gateway voice. It was not a stop or go voice.  
 23 It was, this is one of the many voices that were going to  
 24 go into making these decisions.

25 So perhaps a subtle change is to ask for the

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1 possibility that, as you do environmental studies, and as  
 2 you look at a variety of these, that you up the gateway  
 3 concept a little bit. That if they can demonstrate a  
 4 successful or good pathway for a yes or no decision, that  
 5 that will help.  
 6       Now you can't clearly just say everything is  
 7 going to be no because then you wouldn't get any  
 8 development whatsoever. And I don't know the specific  
 9 answer to that, but I think you need to enhance it beyond  
 10 just one of many voices, all of which are equal. At least  
 11 that's my side from the research perspective.  
 12       The second recommendation is that litigation  
 13 prevention does not equal good science design. And in many  
 14 cases a lot of the studies that are funded now tend to say,  
 15 we know we're going to be sued, we know we're going to go  
 16 to court, what type of science do we need to protect  
 17 ourselves in court in terms of an environmental impact  
 18 statement or some sort of issue involved of when we're  
 19 going to get sued.  
 20       That's not really the way to design a  
 21 successful science program. It is useful, it is important,  
 22 environmental impact statements and the NEPA compliance, a  
 23 variety of those different issues involved with offshore  
 24 development are absolutely critical. The legal system is  
 25 involved no matter whether you want it to be or not. But

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1 if we're going to design the science, it should come from a  
 2 different perspective. That being, forget the litigation  
 3 part for a moment, if you were going to design a science  
 4 program that would answer these questions, what would you  
 5 do, and then how would you factor the litigation on to it,  
 6 so it's a switching in priorities.  
 7       Consequently I would suggest that you employ  
 8 a National Science Foundation level type of science program  
 9 that is broad, open to a variety of different agencies, has  
 10 a rigorous non- -- non-involved set of referees. For those  
 11 of us that have tried to get NSF grants, they are extremely  
 12 tough, ten percent success if you're lucky, but they are  
 13 extremely rigorous. And not to say that the science that  
 14 has already been funded by DOI and MMS, BOE is not  
 15 rigorous, but it's a different type because it has the  
 16 theme of the concept of litigation involved on top of it.  
 17       So it's a mindset change, but I think an  
 18 important one. And certainly whether you involve the  
 19 National Science Foundation, whether you involve the  
 20 National Academies of Sciences, something along those lines  
 21 to answer the problem that you're always going to have --  
 22 I've never seen this problem go away -- and that is if BOE  
 23 or MMS or CMI funds it, then is the fact that that's been  
 24 funded by the agency compromise the science one way or the  
 25 other? We can argue that for the next three hours and

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1 there will be people on both sides of that argument.  
 2       The easiest way to resolve that is to say,  
 3 okay, we'll remove it, we'll run this through the national  
 4 academies, we'll run this through the National Science  
 5 Foundation, we'll run it through some other group so that  
 6 you have a level of filter there, because whether there is  
 7 any influence or not is not the point, it's a perception  
 8 issue at that point.  
 9       We clearly have to enhance our social  
 10 studies also. MMS has done a fairly good job of that up  
 11 here in Alaska looking at the social impacts of some of the  
 12 islands that are involved in whaling. Working with the  
 13 Barrow whalers, working with all the villages along the  
 14 coastline, people that rely upon birds, the fish, the  
 15 marine mammals for subsistence utilization, we need to have  
 16 a better interaction with them, which we talked about  
 17 earlier in terms of enhancing the social studies.  
 18       The villages along the northwest coast are  
 19 there for a particular reason. The reason why is because  
 20 at that location is where the coastline, the ice, people,  
 21 and the animals all intersect. Those villages have been  
 22 there for thousands of years for that reason. As the ice  
 23 changes, the animals move. The social impacts to the  
 24 villages, the coastal erosion, et cetera, are driving these  
 25 changes, and we need to get a handle on that. Again, the

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1 before versus after.  
 2       And finally we need to stress value  
 3 decisions. Everything we do in terms of the science, in  
 4 terms of the -- do we lease, do we not lease, do we drill,  
 5 do we not drill, how safe do we let -- this type of  
 6 drilling, what type of regulations. They are all value  
 7 decisions, whether you're talking about the Endangered  
 8 Species Act or NEPA compliance or anything, we as a society  
 9 are always trying to balance out what it's going to cost  
 10 versus what we're going to gain. And I know that's been an  
 11 issue of concern for the Bureau for a long time, but from  
 12 my perspective we need to, again, change a concept. If we  
 13 could start over, we might enhance that from the beginning  
 14 a little bit more to look at it from multiple perspectives  
 15 and look at the value.  
 16       Anyway, from my perspective, from what I've  
 17 seen over the years here and what the university does and  
 18 the type of research that goes on in terms of marine  
 19 sciences, I wanted to bring those points and  
 20 recommendations up to you, and thank you again for this  
 21 opportunity.  
 22       **DIRECTOR BROMWICH:** Thank you very much.  
 23 And I want to thank the whole panel again. This was a set  
 24 of extremely thoughtful and substantive presentations  
 25 presented in plain English, which has not always been the

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1 case on some of our panels, but really an outstanding set  
 2 of presentations.  
 3       The cost of that is that we're running a  
 4 little long, so I think we're going to have to restrict the  
 5 question period to about ten minutes. So let me start, and  
 6 as I said at the outset I think what I'd like to do is ask  
 7 questions seriatim, so we'll start with Leslie and then  
 8 we'll go down the line here and we'll go to each of the  
 9 presenters.  
 10       Leslie, just really one kind of big picture  
 11 question for you, and this may have been implicit in your  
 12 presentation, but I want to ask the question explicitly.  
 13 How has your thinking about oil spill response here in the  
 14 Arctic with the special conditions that apply here, how has  
 15 that been affected by what you've seen and watched with  
 16 respect to the Deepwater Horizon oil spill response? What  
 17 views of yours have changed or been modified as a result of  
 18 observing what's gone on there? And maybe the answer is it  
 19 hasn't.  
 20       **MS. PEARSON:** Well, as a spill responder,  
 21 one of the first things that comes to mind, which we  
 22 haven't really discussed -- well, we haven't touched on  
 23 prevention, but my perspective has gotten -- if we're going  
 24 to allow for drilling, we need to figure out a way to  
 25 control the source sooner rather than later, and that's one

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1 of the first objectives that you set during your response.  
 2       I think the other thing that's changed is  
 3 the fact that over the course -- since OPA '90, and the  
 4 rules went in place from OPA '90, as far as the  
 5 government's response, rules and requirements really  
 6 haven't advanced that much. I mean, it's just sort of  
 7 status quo, and we need to take it to the next level and do  
 8 subarea plans and a unified plan here in Alaska.  
 9       And the North Slope subarea plan actually  
 10 does have a scenario, a coastal scenario, it's a worst-case  
 11 scenario, which takes in the fact of broken ice, but it's  
 12 very vague, and I think that needs to be really beefed up.  
 13 Because the public has an expectation that the government  
 14 agencies are going to be there to help out and to manage a  
 15 response and to ensure that industry is doing the right  
 16 thing. And so here in Alaska there really needs to be a  
 17 good, hard, serious talk with the regional response team  
 18 members and beef that up and take it to the next level.  
 19 Preparedness is important.  
 20       **DIRECTOR BROMWICH:** John, do you have any  
 21 questions of Leslie?  
 22       **MR. GOLL:** Probably a whole number, but let  
 23 me stick to one with regard to testing. You were  
 24 mentioning different approaches. And going back to the  
 25 Tier 1, Tier 2, today, at least with the exploration plans

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1 that we're seeing are more beyond in -- you know, beyond  
 2 the Barrier Islands, not in the shallow water, so the  
 3 approach is more to do it during open water and such.  
 4       So with regard to testing, especially with  
 5 regard to broken ice and conditions like that, how would  
 6 one go about doing that? You know, if, again, ultimately  
 7 the companies are out there in the open water period, and  
 8 at other times trying to avoid, you know, the periods with  
 9 ice, the periods with whales and such, so what would be  
 10 your recommendation on the testing that would be effective?  
 11       **MS. PEARSON:** Well, I think testing can be  
 12 done. I mean, that was proven in 2000 when there was a  
 13 nearshore -- it was a nearshore set-up, not an offshore  
 14 obviously. But we can learn a lot from nearshore  
 15 exercises, field deployment testing systems, and there is  
 16 no reason why tests can't be conducted. That's been  
 17 proven, and there is rather important findings have come  
 18 out of it.  
 19       The focus, as of the last probably eight  
 20 years, has gone away from field testing, splashing  
 21 equipment, and actually doing some quantifying of the  
 22 effectiveness. It's gone more towards table top exercises.  
 23 Really, if you've been in the business for a long period of  
 24 time, the value of a table top exercise starts to really  
 25 depreciate. So getting the equipment out there, testing

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1 it, making sure it's operating properly and doing it in the  
 2 springtime nearshore. Do it offshore if you can, but take  
 3 it incrementally.  
 4       **DIRECTOR BROMWICH:** Bill, any questions for  
 5 Leslie?  
 6       **MR. HAUSER:** No.  
 7       **DIRECTOR BROMWICH:** For Ron, you described  
 8 your organization and its membership and its mission. What  
 9 has the organization done -- it's really a variant of the  
 10 question I just asked Leslie -- but what has the  
 11 organization done and what has its membership done in  
 12 response to what it's seen with respect to the Deepwater  
 13 Horizon oil spill response? Is there ongoing work, is  
 14 there a project adapted here to what the special challenges  
 15 are in the Arctic that's trying to embody the lessons that  
 16 you may have learned from observing what went on in terms  
 17 of fashioning a locally relevant oil spill response?  
 18       **MR. MORRIS:** Well, the lessons learned are  
 19 still being developed, and it's one of the things that --  
 20 my plan is to bring my folks back from the Gulf and engage  
 21 them in what did they learn, what did they see and observe.  
 22       From afar -- I've been down there, but from  
 23 afar, just looking at the organizational challenges of  
 24 multi-jurisdictional issues they have got down there. We  
 25 don't have a similar landscape here in Alaska, so I think

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1 from the standpoint of a command structure, it's going to  
 2 be a little bit simpler up here because we have one state,  
 3 North Slope Borough villages to work with, and a pretty  
 4 much tried and true group federal and state officials that  
 5 work together on most events. But to take the lessons  
 6 learned is what -- we really haven't developed kind of a  
 7 strategy or looking at those and how we're going to  
 8 incorporate them. It is in my plan to do that.  
 9 As far as our members and what they are  
 10 planning to do with this, I know Shell has got projects,  
 11 and I think Peter Velez is going to address the group later  
 12 today here and probably discuss Shell's exact plans for  
 13 their Outer Continental Shelf issues in the Beaufort and  
 14 Chukchi exploration projects.  
 15 So I'm looking at opportunities to make  
 16 improvements to our processes and our equipment and -- but  
 17 it's a little bit premature right now. I think the thing  
 18 that's going to come out of this, we in the industry kind  
 19 of are joking in some way, but there is no joke about this,  
 20 but OPA '90 -- or 2010 or 2011 comes around, there are  
 21 going to regulatory changes or legislative changes that  
 22 will precipitate some regulatory changes, and we just have  
 23 to be ready to respond to those, and the industry, our  
 24 members will then direct us to size up, equip, whatever we  
 25 need to meet their response challenges that are provided.

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1 **DIRECTOR BROMWICH:** I think you'll have a  
 2 head start on this. I don't know if you know this, but I  
 3 asked BP to present a detailed presentation on what they  
 4 have learned, the lessons learned from their experiences in  
 5 Deepwater Horizon, and that's due to be provided to me in  
 6 the form of a briefing next week, and I'm sure will be  
 7 disclosed in some form very soon therefore publically. So  
 8 I hope that advances your work. John?  
 9 **MR. GOLL:** Ron, you, in your presentation,  
 10 you described a tool kit, the different conditions and how  
 11 you would approach spill response. Leslie, of course,  
 12 brought up the response gaps and such. How much have you  
 13 been looking at response gaps such as she was referring to  
 14 with regard to the tool kits and the improvements of what's  
 15 been going on, or has there been?  
 16 **MR. MORRIS:** One of things that we as OSRO,  
 17 the oil spill removal organization, we size our response  
 18 and our equipment to meet a contingency planning standard  
 19 that's established. So if the gaps are there, they need to  
 20 be identified by the regulatory agencies and we need to be  
 21 told to fill the gap.  
 22 With the plan that we have for the Outer  
 23 Continental Shelf, it's essentially bringing the flotilla,  
 24 bringing the equipment to the area for the ready immediate  
 25 response, and then cascading equipment in that's needed to

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1 supplement that. So a gap analysis I don't believe has  
 2 really been done, but it's more incumbent, I believe, on  
 3 any regulatory changes that might change the planning  
 4 standards that you have to deal with and equip for them.  
 5 **DIRECTOR BROMWICH:** Thank you. Bill?  
 6 **MR. HAUSER:** One of the areas that the  
 7 Deepwater Horizon has shown is the importance of the  
 8 command centers. Does your plan have -- how do you address  
 9 the command centers?  
 10 **MR. MORRIS:** Well, our member companies in  
 11 their plans have got -- I believe for the Outer Continental  
 12 Shelf they would use Anchorage as the base for their  
 13 incident management team and they would forward deploy,  
 14 Barrow or Wainwright, personnel at an operational level.  
 15 And then you'd have certainly people offshore on the  
 16 vessels that would be in the response. So they kind of  
 17 work as Anchorage as the base for mainly the corporate team  
 18 and the regulatory agencies to be able to assemble. You've  
 19 got the infrastructure here, you've got all the things that  
 20 they really need to support that effort, understanding that  
 21 they would have to transport up to the Slope personnel that  
 22 would need to be on scene or do their overviews. But they  
 23 will have forward deployed individuals, but the main thrust  
 24 would be here in Anchorage for the I-M team.  
 25 **DIRECTOR BROMWICH:** Thank you. Marilyn, one

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1 of the recommendations you had was to allow citizens  
 2 advisory councils to have a role in various processes, and  
 3 I think you mentioned that there is one in Prince William  
 4 Sound. Can you describe very briefly what the scope of  
 5 those responsibilities are and what your recommendation  
 6 would involve in terms of the scale and the kinds of issues  
 7 on which there would be interaction?  
 8 **MS. HEIMAN:** Sure. Under OPA '90 the Prince  
 9 William Sound and the Cook Inlet Regional Citizens Advisory  
 10 Councils were set up, and I think there is a proposal for a  
 11 Gulf RCAC. And I know Senator Begich and Senator Murkowski  
 12 have both talked about regional citizens advisory councils  
 13 in the Gulf and in Alaska.  
 14 It's a non-binding relationship. They  
 15 are -- the citizen advisory council makes recommendations  
 16 to the industry the way they are set up, and they can also  
 17 make recommendations to the government. But it works very  
 18 well, I think. They are fairly well funded and they do get  
 19 very good training, so they are not just citizens who don't  
 20 know anything about oil and gas or --  
 21 **DIRECTOR BROMWICH:** Funding comes from  
 22 where?  
 23 **MS. HEIMAN:** Well, from the industry for  
 24 both Prince William Sound RCAC and Cook Inlet RCAC. And  
 25 it's easier in Prince William Sound because of Alyeska and

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1 the arrangement with the consortium. So it's non-binding.  
 2 But some of the things that I've seen that I  
 3 think really have made a difference that the citizens  
 4 advisory council has recommended and the way they have done  
 5 it, and that includes the stationing of two of the most  
 6 powerful tractor tugs in the world that can push or pull a  
 7 tanker in distress; and the escort, the requirement of  
 8 those escort vessels and making sure that has been  
 9 maintained, because there has been interest by industry to  
 10 back off since then.  
 11 Just kind of a continued vigilance to make  
 12 sure what was put in place, which was excellent response  
 13 capability after the Exxon Valdez oil spill, stays in  
 14 place, and that some of those things I talked about, like  
 15 the training and the involvement of the citizens. And it's  
 16 mayors from cities, it's not, you know -- these are  
 17 citizens that are -- they have actually been self-selected.  
 18 But some of the proposals show either Department of  
 19 Interior appointing the positions or, you know, having  
 20 their recommendations come from groups from the area.  
 21 **DIRECTOR BROMWICH:** Great, thank you. John?  
 22 **MR. GOLL:** Yes. Marilyn, in your  
 23 presentation, again, you also mentioned with regard -- you  
 24 said we need more on-water oil spill drills and such. In  
 25 the past our agency has participated with the Norwegians

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1 and the Canadians of using -- actually putting oil into the  
 2 water or ice and testing that. Would you be supportive of  
 3 that approach?  
 4 Right now, of course, in this country it's  
 5 not allowed, but we always hear this in going to the  
 6 communities, you really need to test with oil in the water  
 7 to see if the equipment works. Under what conditions would  
 8 that be -- you know, your view on what would be acceptable  
 9 with regard to that and how and where it might be done?  
 10 **MS. HEIMAN:** Yeah, that's a hard question,  
 11 and I don't know what Pew's position is on that, but I  
 12 personally think it would be, under very controlled  
 13 circumstances, acceptable to use water drills and -- but I  
 14 do want to say about those studies that have been done, and  
 15 I think there are some very good studies about burning and  
 16 under ice and how the oil behaves, but I don't think we can  
 17 go from saying, okay, we've done some controlled burns  
 18 under the ice so therefore we can clean up oil in ice,  
 19 that's my only concern about those.  
 20 **DIRECTOR BROMWICH:** Bill?  
 21 **MR. HAUSER:** No.  
 22 **DIRECTOR BROMWICH:** Okay, finally, Dr.  
 23 Castellini, you had a number of observations I wanted to  
 24 ask questions about, but let me limit my questions to just  
 25 one.

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1 You say that snapshots are generally used  
 2 and that there needs to be a greater move to -- the concept  
 3 of monitoring. Can you elaborate on that just a little  
 4 bit? What kind of monitoring, using what kind of tools are  
 5 you referring to?  
 6 **DR. CASTELLINI:** Right. The issue that we  
 7 face in a great deal of science, and particularly in this  
 8 case in marine science along the coast, is that if I go to  
 9 Prince William Sound today and sample the beach or sample  
 10 some animals and that becomes the baseline for something  
 11 that happens ten years from now, then I don't know what's  
 12 happened in the last ten years.  
 13 There are problems with the way science is  
 14 currently funded in the United States that tends to say,  
 15 you write a three-year grant, you're done, thank you, send  
 16 the report, thank you very much, and there is very few  
 17 opportunities to see beyond either a three-year window,  
 18 five if you're lucky. And with Administration changes and  
 19 a variety of different ways that agencies go up and down,  
 20 there are scarce -- very few agencies that actually think  
 21 long time. NSF has a few of those that are called  
 22 long-term ecological research centers, there are a handful.  
 23 We attempted to do that here in Alaska after  
 24 the Exxon Valdez Oil Spill Trustee Council attempted to  
 25 start a monitoring program, a tremendous support from the

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1 scientists, because you can design a 25-year project, not  
 2 me personally, but maybe this lab and then this lab and  
 3 then this lab and another university, but the project keeps  
 4 going. But funding agencies don't think like that.  
 5 So if BOE could start to think along the  
 6 lines of saying, yes, we want to fund, for example, I don't  
 7 know, nearshore intertidal animals off the coast of, you  
 8 know, Kotzebue or something, or somewhere where we think  
 9 there is going to be activities, realizing that maybe it's  
 10 the University of Alaska that does it for five years, and  
 11 then maybe it's the University of Washington that does it,  
 12 and maybe somebody else that does it, but the program keeps  
 13 going and the data build up, and the data management --  
 14 **DIRECTOR BROMWICH:** So it's the same kind of  
 15 data, same kind of collection, it's just over a broader  
 16 period of time?  
 17 **DR. CASTELLINI:** Over time, absolutely. I  
 18 think you need a mindset from the funding agency to say,  
 19 it's done in three years, thank you very much, give us the  
 20 report, what's next. That's the fundamental mind shift.  
 21 **DIRECTOR BROMWICH:** Idea, got it. John?  
 22 **MR. GOLL:** Mike, your presentation, it's the  
 23 part of the job that I really, really enjoy, being able to  
 24 see really the changes that have come through in  
 25 technology, the innovation that's going out now, being able

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1 to detect winds and currents with radar, tagging whales and  
 2 other marine mammals and such.  
 3 One issue -- you know, I may get a briefing  
 4 from my staff and it may sort of filter through the agency,  
 5 but it seems like these are hidden secrets to most people.  
 6 You probably ask people in this room, did anybody know this  
 7 was going on.  
 8 **DR. CASTELLINI:** Right.  
 9 **MR. GOLL:** How do you get it to not just the  
 10 agency, but the other people who really need to know and  
 11 are part of the decisions, you know, the people in the  
 12 communities and others?  
 13 **DR. CASTELLINI:** Yes. The university --  
 14 besides the standard answer, which is public relations  
 15 officers and newsletters and things like that, the better  
 16 answer that I've seen, and we used in an effort to deal  
 17 with climate change issues, is that you actually sponsor  
 18 forums in a suite of locations across the state, across the  
 19 country that have local organizers that want these data  
 20 out. And you hit school kids, you hit the agency people.  
 21 The public has to know, and that's probably the greatest  
 22 tool right there.  
 23 We finished a national and international  
 24 tour speaking about climate change and some of the issues  
 25 we talked about here. We estimated we spoke to 60,000

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1 school kids and 3,000 school teachers at middle school in  
 2 an effort to try to tell them the issues that were going  
 3 on, with a suite of people, you know, talking. But it  
 4 takes a concerted effort to be able to do that. I can  
 5 write all the reports you want, and you've gotten a whole  
 6 bunch of mine.  
 7 We can do a variety of very official things,  
 8 but until you get public involved, and I'm going to say  
 9 school kids, and you can translate this to school kids  
 10 pretty easily in terms of cool stuff and the work that  
 11 you're doing. And some of the CMIs are doing that really  
 12 well on the coast of California. If you look at some of  
 13 the CMIs in California, they are brilliant in some of this  
 14 outreach. And there are whole organizations that deal with  
 15 outreach, and that conceptually is probably the most  
 16 critical in thinking how you do this formally.  
 17 **MR. HAUSER:** One last question. You  
 18 mentioned the importance of knowing the physical aspects of  
 19 the oil.  
 20 **DR. CASTELLINI:** Yes.  
 21 **MR. HAUSER:** Do you know enough about the  
 22 North Slope crudes now, or do you need more information?  
 23 **DR. CASTELLINI:** I would have to defer that,  
 24 in that particular case, to the engineering divisions at  
 25 the School of Mining and oil work development at UAF to

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1 officially answer that question.  
 2 But the concepts of the physical  
 3 characteristics of oil, in many cases, are independent of  
 4 particular fractions of different types of oils that are in  
 5 there, because some of the more physical concepts are due  
 6 to the fact that basically it's not water more than  
 7 anything else, and the way that it interacts with the  
 8 animals.  
 9 But the peculiarities, the fingerprints, the  
 10 chemical fingerprints of North Slope, I'm going to have to  
 11 claim innocence on that because I'm just not aware of it  
 12 enough. I know that people do know the answer though, just  
 13 not me.  
 14 **DIRECTOR BROMWICH:** Thank you very much.  
 15 Again, I want to thank all the panelists. I think the fact  
 16 that we have run long, quite long, is a reflection of the  
 17 quality of the presentations more than anything else. So I  
 18 want to thank all of the panelists.  
 19 What we'll do is move directly to the second  
 20 panel, we'll remain here, and we'll do a quick switch.  
 21 Thank you again, appreciate it.  
 22 Okay, let me introduce the panelists for the  
 23 second panel. We're fortunate again to have three  
 24 outstanding people. If people could either take their  
 25 seats or be quiet, please, thank you.

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1 The person sitting closest to me is Peter  
 2 Velez. Peter is the global emergency response manager for  
 3 Shell International, E & P, Inc. He has been employed by  
 4 Shell since 1975. He's had a wide variety of assignments  
 5 during his career, including in drilling engineering, civil  
 6 engineering, been an operations superintendent and  
 7 production superintendent. The list goes on and on.  
 8 He's currently the chair of the  
 9 International Oil and Gas Producers Arctic Coordination  
 10 Task Force, and the IPIECA Arctic Oil Spill Task Force, and  
 11 serves on the API/NOIA oil spill response task force  
 12 established after the Deepwater Horizon incident.  
 13 Sitting to Peter's left to Johnny Aiken with  
 14 the Alaska Eskimo Whaling Commission. He is a whaler from  
 15 Barrow who has participated in bowhead whale subsistence  
 16 hunting for 40 years. He was recently appointed as the  
 17 executive director of the Alaska Eskimo Whaling Commission.  
 18 And prior to that he was director of the North Slope  
 19 Borough planning department, and served before that as  
 20 special assistant to the mayor of the North Slope Borough  
 21 during two different mayoral administrations.  
 22 Finally on the panel sitting to Johnny's  
 23 left is Alan Allen. Alan is an oil spill consultant. He a  
 24 private consultant who has over 43 years of experience in  
 25 oil spill surveillance and spotting techniques, as well as

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1 with the physical containment and recovery of oil, the  
 2 controlled burning of oil, and the application of chemical  
 3 dispersants, all issues that came up in the forum during  
 4 the first panel.  
 5 For approximately 35 of the 43 years, Mr.  
 6 Allen has focused his efforts on the fate, behavior,  
 7 effects, and control of spilled oil under Arctic and  
 8 subArctic conditions. So we're very fortunate to have all  
 9 three presenters, so let me turn it over to Peter Velez to  
 10 begin.  
 11 **MR. VELEZ:** Thank you. Good morning, thank  
 12 you for the opportunity to come and speak to you today  
 13 about oil spill response in offshore Alaska. And what I'm  
 14 going to focus my talk today is on four key subjects that  
 15 we see as key.  
 16 The first one, as part of any plan that we  
 17 have, is the prevention part. The second component is  
 18 going to be containment. The third one is going to be our  
 19 response planning that we have in place. And then last  
 20 I'll touch on what we're doing looking to further advance  
 21 the knowledge and the research that we're doing on projects  
 22 in the area of Arctic oil spill response.  
 23 So on this slide what I'd like to emphasize  
 24 is that really there is multiple layers of prevention.  
 25 There just not one layer of prevention. And the way that

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1 we look at it in Shell is that we have essentially we have  
 2 four phases of prevention.  
 3 The first part is that it takes a lot of  
 4 proper planning and work ahead of time before we even start  
 5 to drill an exploration well to look at what we're going to  
 6 do and how we're going to drill the well. We use what we  
 7 call -- a process called drill the well on paper, DWOP.  
 8 It's essentially where we bring a large group of people  
 9 involved in the drilling of the well, plus others that are  
 10 not associated with the well, to essentially challenge what  
 11 we're going to do to drill the well. There we identify  
 12 what the risks are, what kind of equipment, additional  
 13 equipment we may need, what kind of drills, et cetera,  
 14 we're going to need to conduct.  
 15 The second phase then becomes, after we do  
 16 all that work, is knowing the early signs that the well may  
 17 be either encountering some higher pressure or some kicks,  
 18 as we call them in the business, that we may need to  
 19 monitor. We do that by having trained personnel on the  
 20 rig, but also we monitor all the rigs that we have,  
 21 including the one here. We would monitor that at remote  
 22 centers, both in Houston and New Orleans, where we have  
 23 experts that essentially are monitoring the well activity  
 24 and the drilling operation to ensure that all the signals  
 25 that are there, the equipment is being monitored, pressures

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1 are being monitored, mud weights, et cetera, and they are  
 2 essentially able to see on realtime on 24/7 basis what's  
 3 going on.  
 4 And third one is we have multiple mechanical  
 5 barriers. We just don't have one barrier as the BOP, so we  
 6 have more barriers in place to be able to essentially stop  
 7 the well in case a problem is going to occur.  
 8 And then last, we also look at the loss of  
 9 well control. We have drilling -- we have plans in place  
 10 to essentially monitor, but also how would we react in the  
 11 event of a well control situation.  
 12 Along with that, we also monitor our  
 13 simultaneous operations, what's going on on the rig plus  
 14 also other associated activity around it. We have critical  
 15 operations and curtailment plans. So if we have a  
 16 situation like ice moving in or weather moving in and we  
 17 curtail our drilling operations, we will do so. All those  
 18 plans are in place for our operation.  
 19 Our oil spill contingency plan and the  
 20 provisions that we have in place, as mentioned in the first  
 21 panel, we have a system in place which is an unprecedented,  
 22 robust system in place. It's ready to respond within one  
 23 hour. It's dedicated to our drilling operation. Unlike  
 24 the Gulf where there is equipment that is deployed along  
 25 the coastline and it provides coverage for multiple

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1 operators, for our operation here in Alaska, in the Chukchi  
 2 and the Beaufort, we essentially have dedicated equipment  
 3 that's located as close as one hour from the drilling  
 4 operation and ready to respond.  
 5 It's a three-tier response system that has  
 6 both offshore, nearshore, and onshore equipment, and it's  
 7 ready and it's rapid, and it can be effective because we've  
 8 tested the system in place already. This equipment is  
 9 operating by people that are trained to operate the  
 10 equipment. They are on board the vessels 24/7 and at the  
 11 locations where we maintain the equipment. And it's not  
 12 only people that are experienced in oil spill, but also are  
 13 knowledgeable of the area, because they come from  
 14 organizations like Alaska Clean Seas, the Arctic Slope  
 15 Regional Corporation, and UIC. So the personnel is on  
 16 location and ready to respond.  
 17 This slide gives you a perspective of the  
 18 dedicated equipment that we have. So like I said, we have  
 19 the offshore equipment, we have nearshore, and onshore.  
 20 To just touch on a couple of the pieces.  
 21 For example, for offshore we have two vessels that we have  
 22 planned to use this year and they are still available on  
 23 our contract, the NANUQ, which is a dynamically positioned  
 24 ice strengthened vessel with outboard equipment, and also  
 25 the TOR VIKING, which is another offshore supply vessel.

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1 We also have an offshore response barge, the ENDEAVOR. We  
 2 have a storage tanker which is capable of storing over  
 3 500,000 barrels of oil if we were going to spill any. And  
 4 then we have booms for all three occasions, our offshore,  
 5 our nearshore, and our coastal, plus also boom in case we  
 6 have to burn oil, we have a special boom that's used for  
 7 that. We have skimmers, small boats, et cetera, that are  
 8 available.  
 9 All of this is covered clearly in our  
 10 contingency plan which is referred to as a C plan. It's a  
 11 very detailed C plan. It's been reviewed, scrutinized, and  
 12 approved by the agencies involved in the process, both  
 13 federal and state, and has been available for comments by  
 14 others outside, and it's a very comprehensive plan that's  
 15 in place for our operation.  
 16 There is differences, as has been discussed  
 17 between the Arctic, that can impact recovery, oil spill  
 18 recovery, and we acknowledge that, but we work also those  
 19 issues. There are some of them that become a challenge,  
 20 but there are some of these things that become also helpful  
 21 for us.  
 22 So, for example, there is less evaporation  
 23 as compared, say, to the Gulf of Mexico, so that way the  
 24 oil stays a lot fresher and easier to recover than if it  
 25 becomes emulsified and the light ends have dropped out of

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1 it. You have reduced spreading of the oil, and I'll show  
 2 you a picture of what that looks like, which means that  
 3 you'll have a smaller area affected, not only because of  
 4 the shallower water that we are going to be drilling here,  
 5 say 150 feet of water versus 5,000 feet like in the Gulf of  
 6 Mexico, but that has a big impact on the recovery.  
 7 Reduced weathering of the oil is also  
 8 important. Burning of oil, you're going to have a lot more  
 9 concentrated oil, and I think one of the other panel  
 10 members will discuss some of the experience with oil coming  
 11 up from deeper water, and I'll show you a picture on that  
 12 also.  
 13 And the ice also provides both a positive  
 14 and a negative. It acts as a natural barrier so it helps  
 15 keep the oil corralled and in smaller areas, but also it's  
 16 something that we have to work around with our equipment  
 17 and be able to move the equipment around and be able to  
 18 operate skimmers and other vessels around it. But we have  
 19 part of our fleet that we have for our drilling operation  
 20 is ice management ships that are especially designed for  
 21 that type of work.  
 22 One of the challenges also that we face is  
 23 by not having preapproved use of dispersants. The quicker  
 24 we can apply dispersants for a spill, the better you're  
 25 off. The longer that decision process takes, the less

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1 opportunities you have to apply dispersants. Although we  
 2 have proven through the incentive work that we were part  
 3 of, that because of the less evaporation and the less  
 4 weathering, that application of the dispersants in Arctic  
 5 conditions has a longer window than it does in warmer  
 6 weather.  
 7 Some of the learnings from the Gulf of  
 8 Mexico that we've been working very closely and monitoring  
 9 as part of the API/NOIA task force, but also in discussion  
 10 with BP, is that the depth of the source is clearly a big  
 11 issue. So 5,000 feet of water versus 150 feet of water for  
 12 a spill response makes a big difference.  
 13 There was a lot of successful application of  
 14 dispersants, not only by aircraft but also subsea. So  
 15 there has been a dispersant applied previously by aircraft,  
 16 there has been tests done previously about applying  
 17 dispersants subsea, and this was an example or an incident  
 18 where there was -- the use of subsea application proved to  
 19 be effective.  
 20 A lot of in situ burning that will be  
 21 discussed by another panel member. But also it showed that  
 22 there is a big ability to cascade a lot of the resources  
 23 that we have in place around the U.S. and other parts of  
 24 the globe. So the ability to cascade not only personnel  
 25 but also resources is the key that is critical for this

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1 type of response.  
 2 There was a question around multiple command  
 3 centers that I heard towards the end of the last panel.  
 4 That created a problem because of the multiple states.  
 5 Here you would have less of that -- an issue with that.  
 6 But also we're set up to clearly manage a command center,  
 7 and to the point where the initial response for the  
 8 Deepwater Horizon operator, the Shell's response center  
 9 which we loaned to BP as part of our operation. We have a  
 10 state-of-the-art command center to manage those operations  
 11 in the Gulf Coast.  
 12 And then on the dome side, containment side,  
 13 there is a lot of learning. Domes have been used  
 14 previously, but I'll show you some more information on what  
 15 we plan to do here in Alaska.  
 16 Next slide is just to give you a perspective  
 17 of oil in 150 feet of water versus oil in 5,000 feet of  
 18 water. And what I would like to just point out, this is  
 19 just a schematic and has a lot of detail, but the footprint  
 20 of the oil when it surfaces in 150 feet of water is a lot  
 21 smaller. We're looking at 150 feet to 250 feet typically  
 22 when that oil surfaces. It takes probably less than ten  
 23 seconds for the oil to surface. There is not multiple  
 24 current layers like you have in deep water.  
 25 When you're looking at the bottom part of

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1 this panel, the oil, when it surfaces, the width alone is  
 2 about a mile wide, but also it's gone through quite a bit  
 3 of water as it's risen, so it's picked up water and been  
 4 broken up into smaller particles. So your footprint is a  
 5 lot larger. You also have multiple current layers that the  
 6 oil encounters as it's going up, which essentially also  
 7 help takes some of that oil and move it subsurface, which  
 8 we will not see that type of condition over here.  
 9       Also, the amount of time that it takes for  
 10 this oil to surface, we're looking at probably ten minutes  
 11 to sometimes days based on the amount of current layers and  
 12 how that oil gets trapped underneath. So it's two  
 13 completely different parameters that we see in both of the  
 14 locations.  
 15       And in the top panel, which is what we would  
 16 see in the Arctic, you can see that the oil comes up a lot  
 17 cleaner, fresher when it gets up to the surface, and that's  
 18 in the case of an accident, which is -- what we're trying  
 19 to do is spend a lot of time on the prevention and the  
 20 containment, but also being ready for the prevention part.  
 21       I mentioned that there is ways to also get  
 22 additional equipment. Our system is robust. It more than  
 23 addresses our worst-case discharge that we have in place  
 24 for our wells that we plan to drill in the Chukchi and the  
 25 Beaufort. But in case something happens, we also have the

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1 ability to cascade other equipment that we have. So this  
 2 slide just shows you that there is a lot of equipment, and  
 3 this does not even include some of the private resources  
 4 and private contractors that we have access to equipment.  
 5       But the capability to move a lot of this  
 6 equipment is not only -- a lot of it can be flown in, but  
 7 also people can be brought in. And we have the ability by  
 8 contracts that we have in place to be able to mobilize  
 9 additional equipment into the arena if something were to  
 10 happen.  
 11       We also have made our commitment to have a  
 12 prefabricated dome which would be staged in Alaska. And  
 13 this just shows you one of the concepts on how this would  
 14 work. But we're looking at having a dome in place, built  
 15 and located near the drilling sites. And also it would  
 16 have the ability not only to recover oil, but also to be  
 17 able to process the oil and handle it when it came to the  
 18 surface.  
 19       So, again, the key there is you want to  
 20 prevent it, you also want to be able to contain it if you  
 21 have an incident, and then behind that we also have the oil  
 22 spill response to pick up the oil in case we have to.  
 23       We're also one of the founding members of  
 24 the Marine Well Containment Company, which is essentially  
 25 the initial group of four companies which are Shell,

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1 Chevron, ConocoPhillips, and ExxonMobile, that are  
 2 developing a billion dollar set of tools and equipment for  
 3 containment, and some of their equipment would also be  
 4 available to us as part of the operation.  
 5       Next I'd like to also just briefly touch on  
 6 some of the work that we're doing on furthering the  
 7 technology and furthering development.  
 8       Our objectives in this area are to continue  
 9 to increase our response efficiency and reduce the  
 10 environmental impacts. So similar to some of the  
 11 discussions held in the last panel, we have been very  
 12 active as Shell in this type of activity and will continue  
 13 to be active.  
 14       We've done a lot in the past, and just like  
 15 with any in our industry, we're a high technology industry  
 16 and we have to continue looking for better ways to do  
 17 things, and there are advances that come out that we want  
 18 to be involved with.  
 19       The focus areas that we have around  
 20 containment and mechanical recovery, advanced response  
 21 techniques like dispersants, burning, herders, help to  
 22 detect, monitor, and model better, although we already have  
 23 model systems in place to be able to model oil movement,  
 24 and what are the environmental impacts of untreated, but  
 25 also dispersed or burned, oil. So these are some of the

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1 areas that we continue to do work in.  
 2       The next slide just shows you some of the  
 3 projects that already we've completed or are in progress.  
 4 I think a lot of people here are familiar, we did a SINTEF  
 5 presentation with the oil spill in ice project that we did,  
 6 we did two of those sessions in the last 12 months. Those  
 7 touched on those four areas. We've also done some work  
 8 around coastal and shoreline oil spill response. We're  
 9 doing a toxicity project right now with some of the species  
 10 that are found in the Chukchi and the Beaufort Sea. And  
 11 then also looking at ways to further detect. So this is  
 12 just a sampling of some of the projects that we have  
 13 underway or are completed.  
 14       In addition to this, we also have some  
 15 upcoming work that is coming up. So we worked as an  
 16 industry, as a global industry group in the Arctic to look  
 17 at some of the further work. So we have a set of projects  
 18 that we're working right now to go out for proposals, and  
 19 again this is to further advance. And this slide just  
 20 shows you the areas which are essentially the ones I've  
 21 talked about.  
 22       And our objective right now is to start this  
 23 work in early 2011, and we're going out for proposals here  
 24 in the next month or so. It's a global effort, but one of  
 25 the keys on this is the participation by other parties. So

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1 it's not only an industry work, we do this in collaboration  
 2 with academia and we do it in collaboration with agencies  
 3 like BOEM, Coast Guard, EPA and others that are interested  
 4 in this, and also oil spill response organizations like ACS  
 5 are heavily involved in this. So this will be going out as  
 6 a joint industry project here in the short-term.  
 7         So my last slide essentially discusses what  
 8 are some of the opportunities and improvements. The first  
 9 thing is that to be able to respond to a spill we have to  
 10 have the capability to utilize all the tools that are  
 11 available to us, so not just mechanical, but also  
 12 dispersant and in situ burning. As a responder, we need to  
 13 be able to utilize whichever is the best tool or  
 14 combination of tools during the spill to take care of the  
 15 event as fast as possible.  
 16         The ability to have preapproval for  
 17 dispersants is also very important. The longer that  
 18 decision gets delayed, the more impact the oil can have.  
 19 The issue of containment, there has been a lot of activity  
 20 since the Deepwater Horizon incident. We had containment  
 21 systems previously to the Deepwater Horizon. We loaned one  
 22 of our containment systems to BP for their use during that  
 23 spill, and we're doing further work as part of that. So  
 24 the recovery of oil at the source is critical, and also  
 25 being able to get some credit for having these well

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1 containment systems as part of the worst-case discharge is  
 2 also something that should be looked into to be able to  
 3 utilize that equipment and be able to expand that arsenal  
 4 of tools that is being built right now.  
 5         The API/NOIA task force recommendations,  
 6 that's going to be delivered to the Presidential  
 7 Commission, the next draft, in about a week-and-a-half.  
 8 We're working with BP. I think I'd also heard that there  
 9 was a question that there is a report. I'm very aware of  
 10 the report going into BOEM. BP, we're also having meetings  
 11 with BP as part of our task force, so we're reviewing that  
 12 because we're looking at a set of recommendations that is  
 13 short-term, in the next six months and within the next  
 14 year, and we want to make sure that everything is aligned  
 15 with the interest of the industry but also of the  
 16 government agencies that are working on this project.  
 17         I mentioned the IPIECA work that is coming  
 18 up. And the last one I wanted to mention, is that we're  
 19 also, as Shell, collaborating with X Prize Foundation, and  
 20 we're co-sponsoring a challenge competition to develop the  
 21 next set of oil spill response technologies, which is a  
 22 competition that was announced in Washington on July 29th.  
 23 It's going to start on September 1. And for a period of  
 24 six months, companies, organizations, will be competing to  
 25 essentially propose the next set of oil spill technology to

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1 clean up, and we're looking for a step change.  
 2         The winner of this contest that Shell is  
 3 co-sponsoring is going to get a million dollars. We're  
 4 going to do some tests of the finalists at the OHMSETT BOE  
 5 facility which will be used for competition to review the  
 6 tests that are done, and then the finalists will be able to  
 7 bring their equipment there and run some tests with actual  
 8 oil at that facility.  
 9         So in summary, the key, from our  
 10 perspective, is that we have to look at all three areas.  
 11 We need to look at prevention, we need to look at  
 12 containment, we need to look at response, it should not  
 13 just be the response part. We put a lot of emphasis, and  
 14 the best way to avoid it is prevention, but if something  
 15 happens, is to be ready to contain the spill.  
 16         And we're not looking to have a spill, but  
 17 the only way that we can further advance our knowledge with  
 18 the limited number of spills -- with the reduced number of  
 19 spills that are occurring is by doing tests and doing time  
 20 tests and other type of experimental spills, so we're also  
 21 heavily involved in trying to get those into place. Thank  
 22 you.  
 23         **DIRECTOR BROMWICH:** Thank you very much for  
 24 your presentation. I just want to note that with respect  
 25 to the API/NOIA task force, that we're going to have one of

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1 the presenters -- at least one of the presenters at our  
 2 September 7th meeting in Houston, who is going to summarize  
 3 those recommendations. So it may be that it's delivered to  
 4 the President's Commission as well, but we're going to get  
 5 the benefit of that even sooner, so that's terrific. Thank  
 6 you very much. Our next presenter is Johnny Aiken. Mr.  
 7 Aiken.  
 8         **MR. AIKEN:** Good morning, everyone. First  
 9 of all, I would like to thank Director Bromwich and the  
 10 Bureau of Ocean Energy Management, Regulation and  
 11 Enforcement for holding this forum and to give us a chance  
 12 to speak on how we feel about offshore activities in the  
 13 Arctic.  
 14         My name is Johnny Aiken, and I am the  
 15 executive director of the Alaska Eskimo Whaling Commission.  
 16 I am from Barrow, Alaska and was born and raised there and  
 17 have been whaling with my father for over 40 years.  
 18         AWC has 11 whaling villages, and my  
 19 presentation is focused on whaling and our environment. I  
 20 do not want to take too much of your time, so I will make  
 21 my presentation as brief as possible. I have a lot of  
 22 pictures, and I think that looking at pictures tells a  
 23 better story than words can say. So I just wanted to give  
 24 you an idea of our environment and the culture we enjoy as  
 25 a result of what our environment has to offer us as a

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1 people.  
 2 This is a photograph of Harry Brower's  
 3 whaling crew and a whale he harvested not very long ago.  
 4 As most of you know, Harry Brower is the chairman of the  
 5 Alaska Eskimo Whaling Commission and was not able to be  
 6 here because of his busy schedule.  
 7 This is a slide that shows where the whales  
 8 are in different times of the year. The yellow low is  
 9 where the whales are in the wintertime. According to the  
 10 tagged whales, we have learned that the yellow is the area  
 11 where the whales winter every year. The green is showing  
 12 you that during -- the green is during the spring when the  
 13 whales start migrating north towards Canada, and that is  
 14 when our spring whaling begins.  
 15 For Barrow, our whaling activities begin in  
 16 mid to late April. I think the migration starts as early  
 17 as January or February. The pink is where the whales  
 18 summer in Canada. And the brown is where the whales start  
 19 migrating south in the fall.  
 20 This slide shows the areas where seismic  
 21 leasing and drilling are to occur in the Chukchi Sea and  
 22 the Beaufort Sea should this program be opened.  
 23 Here is where Shell's Beaufort Sea campaign  
 24 is -- here is where Shell's Beaufort Sea campaign is to  
 25 drill the Sivulliq project in the near future if allowed.

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1 I lost it, sorry. This slide shows where a lot of whale  
 2 sighting occurred during 1979 and 2005 -- between 1975 and  
 3 2005. All the dates are whale sightings -- all the dots  
 4 are whale sightings, I'm sorry. The yellow is the  
 5 Kaktovik's bowhead use area, and people in Nuiqsut use  
 6 area. The red lines indicate Nuiqsut's whaling GPS  
 7 tracking where they hunt, the red lines there inside all  
 8 those dots.  
 9 This slide shows where Sivulliq is going to  
 10 be located in the brown circles. And the gray indicate  
 11 where deflection -- whale deflection distances from the  
 12 center. The center being the Sivulliq project. Each  
 13 circle represents a distance, and the distances are 6, 9,  
 14 15 and 19 miles. Those lines depict the use areas for  
 15 Nuiqsut. As you can see, Sivulliq is right in the path of  
 16 the migrating whales in the fall.  
 17 On this slide our lines, which -- depict the  
 18 tagged whales and the lease areas. This is in the fall.  
 19 As you can see, many whales migrate through the lease area.  
 20 Work in the Arctic will mean work in heavy ice, and we are  
 21 concerned that there may not be technology to be working in  
 22 the ice-infested waters. Ice is -- it can be a very  
 23 strong -- it's something that you've got to be real careful  
 24 with, and it's not going to be easy to work in the ice  
 25 should a spill occur.

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1 This slide here shows typical ice structures  
 2 in the winter. We have a lot of pressure ridges nearshore  
 3 which tells us how powerful moving ice can be. As you can  
 4 see, some of these pressure ridges can be pretty huge. For  
 5 our whaling crews, a lot of work is involved in building  
 6 trails to the open lead. Every year crews go out and build  
 7 a trail to the open lead. Sometimes it can take weeks to  
 8 get to the lead. We cannot use any heavy equipment. All  
 9 the work is done by hand, labor, ice picks, and using heavy  
 10 equipment may be too dangerous.  
 11 Our ocean, the Arctic Ocean, has many  
 12 animals and fish, with the most important being the whale.  
 13 The whales travel through any kind of ice conditions,  
 14 whether it be closed or open. Many have calves either in  
 15 the spring or the fall migration. We know whales can live  
 16 under the ice when there is no water to be seen. We have  
 17 seen air holes, such as this, even in three to four feet of  
 18 thick ice. If oil is under the ice, the whales are sure to  
 19 be there.  
 20 And this is a picture of a whale breathe  
 21 through the ice. Should an oil spill occur, many animals  
 22 will be impacted, probably much more than what happened in  
 23 the Gulf. Since ice has receded in recent years because of  
 24 global warming, hundreds of walrus have been found on  
 25 beaches along the Arctic coast. I believe this photograph

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1 is located between Point Lay and Point Hope. Polar bears  
 2 are a concern, too. I can't imagine a polar bear tarred  
 3 with oil. I don't think it would ever survive if it had  
 4 oil on its coat in the wintertime.  
 5 In the Arctic, we have our share of storms.  
 6 Along with the storms comes erosion of our coastline. Here  
 7 we see the same area before the storm. These are the same  
 8 houses. In August of 2000 we had one of our biggest  
 9 storms. The worst storms we had were in 1963 when we saw  
 10 houses and fuel tanks floating along the coast. In October  
 11 2006, we had bad storms also. Some of these storms  
 12 destroyed erosion control structures. This is in  
 13 Wainwright. Almost straight offshore are the lease areas.  
 14 This is a slide on the Liberty Project, and  
 15 the reason I wanted to show this is because we need to find  
 16 better technology if we're going to develop offshore oil  
 17 and gas. Right now I believe that we are not ready to  
 18 develop offshore oil and gas in the Arctic where it will be  
 19 much harder to respond to an oil spill. The oil industry  
 20 had a hard enough time in the -- in their response in the  
 21 Gulf spill where there was no ice, where temperatures and  
 22 weather were not an issue. It's extremely cold in the  
 23 Arctic, and I can't imagine having to respond to a spill  
 24 where there is ice and where it gets too cold for  
 25 equipment. We need to wait until there is technology which

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1 is capable of responding to oil spills in the Arctic.  
 2 Thank you, Commissioner.  
 3       **DIRECTOR BROMWICH:** Thank you very much, we  
 4 very much appreciate it. Mr. Allen.  
 5       **MR. ALLEN:** Thank you very much. I was just  
 6 looking at the clock and realizing that the time we had  
 7 allowed leaves me exactly three minutes.  
 8       **DIRECTOR BROMWICH:** You'll get more than  
 9 three minutes.  
 10       **MR. ALLEN:** All right, thank you. And by  
 11 the way, thanks, Ron. I'm the old guy he referred to that  
 12 was the original manager of ACS when it was called Absorb a  
 13 long time ago.  
 14       I'm here representing myself. I'm not  
 15 representing BP, although I worked for them during the  
 16 incident in the Gulf. And I would like to jump to probably  
 17 my last few points that I wanted to make just in case I do  
 18 run out of time.  
 19       The words that I would like you to remember,  
 20 and hopefully some of your questions back to us will  
 21 involve, rapid containment; the value of burning, that  
 22 property of oil is something we need to recognize it wants  
 23 to do, it's flammable and that's what makes it so valuable;  
 24 the importance of having good eyes in the sky, the  
 25 importance of spotting; the trade-offs involved in spill

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1 response; and also team work, something that turned out to  
 2 be one of the greatest lessons that I think I saw come out  
 3 of the Gulf; and then finally, the importance of working  
 4 with and embedding into your project the media and  
 5 politicians, and lawyers, and the things that can at times,  
 6 in fact, even slow down and harm a response. So I would  
 7 like to be very candid in that. Fortunately I am speaking  
 8 for myself here today and not BP or Shell or any other oil  
 9 company.  
 10       In the light in here I'm not sure that you  
 11 can see, especially when I get into some of the oil slides.  
 12 I apologize for that, but hopefully you can read the key  
 13 words. And that is one of the first things that I observed  
 14 when I got to the Gulf was the importance of recognizing  
 15 how the distribution and the properties of oil initially  
 16 are so critically important in response, and having  
 17 accurate estimates of the volumes being released is  
 18 something now that I think industry will spend a great deal  
 19 of time making sure that, as we look at worst-case  
 20 discharges, that we have a very good feel for what the  
 21 range of possible volumes are that could be released,  
 22 because that drives a lot of what you do in selecting a  
 23 response. It has a lot to do with how you manage and  
 24 control that response as well. And in many cases the  
 25 logistical support that you have to anticipate to support a

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1 response will be driven by just how large an area will be  
 2 involved and what will the condition of that oil be.  
 3       I've never been exposed before to an oil  
 4 spill. In the 40-some years that I've been doing this, on  
 5 hundreds of spills around the world, I've never seen a  
 6 situation where we had oil bubble up through 5,000 feet of  
 7 water. And that presented a very unique situation in terms  
 8 of the nature of that oil and what it meant for how we  
 9 determined our response.  
 10       And then, in final, the performance. And,  
 11 of course, the assessments of impact are all driven very  
 12 strongly by all of these factors that you see around the  
 13 spill source considerations. So the distribution of the  
 14 oil, how winds and sea conditions affect it, the distances  
 15 offshore, all of these are really critical issues, and I  
 16 know that they go into the planning process as I'm involved  
 17 here in Alaska to plan a proper response.  
 18       Critical, I think, to any response operation  
 19 anywhere in the world is this multi-layered aspect. If you  
 20 don't have a full range of capabilities, then you don't  
 21 have a full package. And the ability to contain and  
 22 recover oil is critical, and moving that containment  
 23 concept so ever strongly now to containment at the site.  
 24 Some of the things that Peter was talking about with domes,  
 25 sombreros, things of that type, I think are really

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1 important and a lot of time will be spent on that.  
 2       But then as it surfaces, immediate  
 3 containment. Having resources right there so that your  
 4 immediate response can be put in place, and not only that,  
 5 but for sustained response. Have recovery systems,  
 6 skimmers that can be brought in, as was done in the Gulf,  
 7 in fairly short notice. And when you're working that far  
 8 offshore, how do you feed, berth, and handle everything  
 9 right on down to decon at the end of the incident when  
 10 you're working that far removed, and of course in Alaska  
 11 here we may have that situation as well.  
 12       Relying on controlled burning. I'm just  
 13 going to have to admit it, I have to go back and rewrite my  
 14 training courses, I think, and rewrite the book in some  
 15 ways on controlled burning because we learned a lot. It  
 16 was very successful, and we determined that there is a lot  
 17 we can do to improve our response capabilities there, but  
 18 we were extremely successful. I'll show a few pictures of  
 19 that in a minute.  
 20       And then the use of chemical dispersants.  
 21 I've never been exposed -- probably no one has ever been  
 22 exposed to the issue of injecting dispersants at sea level.  
 23 And we learned a lot about that, and I think that really  
 24 plays into the future in terms of where do we go with that  
 25 concept, how does it influence what we do on the surface by

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1 injecting it at the seabed, what are the implications  
 2 there?  
 3           So this whole business of a layered response  
 4 is very important. And when it comes to containment and  
 5 recovery, to me it was fascinating to see how fast we can  
 6 move so many systems out there. There were 12  
 7 responder-class vessels out there from MSRC. That was  
 8 impressive to see them move about and contain and recover  
 9 oil. There were another 60-plus skimming systems out there  
 10 at the time, and that's just in the open water offshore  
 11 part, to say nothing of the hundreds of skimming systems  
 12 that were brought in on short notice and mobilized for the  
 13 nearshore response.  
 14           So these kinds of systems and moving towards  
 15 things like the Ocean Buster that you see in the lower left  
 16 there, fairly new systems, they have been around for years,  
 17 but used now in anger, used in actual spill events, opened  
 18 up learning for us so that now we see better ways to employ  
 19 them and how to adapt for the volumes of storage that we  
 20 need to handle each of these systems. I'm trying to stay  
 21 very close to the 12 minutes.  
 22           When it comes to controlled burning, again  
 23 it may be difficult in this lighting to see it, but if  
 24 you're not too familiar with this approach, be aware that  
 25 initially you go out with a fire resistant boom, you work

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1 with, in our case typically, the fishing vessels and  
 2 shrimpers to tow the fire boom. There was a great deal of  
 3 time spent in training them, which was a lesson learned,  
 4 that we learned also in the Exxon Valdez spill, where the  
 5 value of the local people was critical. These fishermen  
 6 knew the area, they could tell me what the weather would be  
 7 the next day just as your own people can tell us in Alaska.  
 8 It's so valuable to have that input. And we relied on the  
 9 fishermen down there in a big way, but it took time to  
 10 train them. So what that means in terms of where we go  
 11 from here in terms of anticipating that need in training  
 12 people to help us out, that's critical.  
 13           But here you see -- possibly you see an open  
 14 apex system here where two large boats will tow boom up to  
 15 a thousand feet on each side with an open apex so that they  
 16 contain -- or not contain, but divert and release oil out  
 17 into a fire resistant boom. That really enhances the rate  
 18 at which you can access oil. So our encounter rates were  
 19 great. Once the oil is contained in the boom, you can see  
 20 that ignition would take place perhaps on the upwind side  
 21 and then feed across that oil.  
 22           In the lower picture here you have oil that  
 23 is contained within the boom but it's only burned about  
 24 halfway across. Here you see, on the right, a full spread  
 25 of the fire over the entire contained oil. That can take

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1 place within minutes. The whole process of getting oil  
 2 into the boom is the secret. And when I talk about  
 3 spotting in a minute here, you'll see just how valuable  
 4 that is to getting these crews into the right oil. And  
 5 then, as shown here in the bottom, a new lesson that we  
 6 learned in burning, was the fact that we could feed oil  
 7 into an existing burn.  
 8           To date whenever I would do a burn class I  
 9 would always say, you would never go out and burn when  
 10 there was oil immediately around the towing boats. Well, I  
 11 have to rewrite that, because it depends on the nature of  
 12 the oil. In this case we had very safe conditions and we  
 13 could literally feed oil to a burn. Normally a burn within  
 14 a boom would be over in about an hour, and we may have  
 15 eliminated 500 to a thousand barrels within an hour. Now  
 16 by feeding oil into it, some of our burns lasted 8, 9, 10,  
 17 11 hours, a single burn, burning off thousands of barrels  
 18 per hour. So the lessons we learned on burning were that  
 19 we can do an awful lot with that.  
 20           The role of dispersants, very critical here  
 21 as well, and to do it right, to have enough dispersants  
 22 stockpiled and be able to move it on scene and be able to  
 23 move it quickly into the aircraft. Aerial use of  
 24 dispersants, very valuable tool when used properly.  
 25           One of the lessons I discovered during the

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1 spill was that if you don't have informed people about what  
 2 you're doing, and that includes especially the media, they  
 3 can step in and stop your program in a heartbeat.  
 4           We had some of the politicians -- I'm  
 5 sorry -- and some of the lawyers that were on scene who put  
 6 us in a very awkward position where they were asking  
 7 questions that we had already answered decades ago. They  
 8 were uninformed, uneducated about just how much we already  
 9 know about dispersants. And when you get somebody in the  
 10 media on television acting emotionally and irresponsibly,  
 11 the public can react, fishermen can react, and that can  
 12 actually bring a stop or a threat of stopping our  
 13 operation.  
 14           And because, for example, the issue with  
 15 turtles in the burning operation, people were concerned  
 16 that we were burning turtles, which, if we did, we never  
 17 saw one, never found one. We had turtle watchers on every  
 18 operation, never discovering anything like that. But it  
 19 almost brought the burning operation to a halt because of a  
 20 lot of misinformation.  
 21           I mentioned earlier the importance of  
 22 surveillance and spotting. This is brought home especially  
 23 when you recognize that from a boat it's almost impossible  
 24 to see the oil that you really want to go after. You want  
 25 to go after the thickest, most concentrated oil. And to

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1 have spotters trained in advance is key.  
 2           It took us several days to get a dozen  
 3 people trained up and to have our pilots, who you see by  
 4 the way in the lower left, trained up to the point where  
 5 they could really support our operation. To discover that  
 6 a fixed-wing aircraft were by far better than the  
 7 helicopters because of the communications we had to make on  
 8 board, the ability to talk to each other about what we were  
 9 seeing. Working with a KingAir, as you see in the upper  
 10 left, was essential, supported, for example, by the Mart  
 11 Group, M-a-r-t, out of Canada. That marine aerial response  
 12 team was fantastic. And they could provide regional  
 13 coverage, high altitude, of where the oil was early in the  
 14 morning, give us direction so that we could then go out  
 15 with our spotter and give direct eyeball observations to  
 16 the vessels on the surface, and to be able to communicate  
 17 to them.  
 18           We worked out so many bugs in terms of  
 19 putting large colored tarps on the back of the shrimper  
 20 boats so that we knew who we were talking to, to having  
 21 AIS, automatic identification system, involved and  
 22 utilized, trained our people so that we could see exactly  
 23 what boat was where and guide it into the oil, and once it  
 24 was in, in the burning case for example, to be able to move  
 25 them constantly right into the best oil.

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1           So surveillance and spotting, satellite  
 2 imagery, multi-spectral systems, all of this needs to be --  
 3 continue to be refined. We already know a lot about it and  
 4 how to use it.  
 5           And then the team work. I'd like to say  
 6 that one of the real benefits, and I just wish that -- I  
 7 won't use any names, but some of the people from the media,  
 8 they need to get out there and spend more time. We need to  
 9 embed them in our system so they can really see how this  
 10 operation goes.  
 11           You know, it's never going to be perfect.  
 12 We're never going to get all of the oil. And there is  
 13 expectations that are ridiculous. Over the years I've  
 14 discovered that if you only get five or six percent of a  
 15 spill, a total spill through, for example, burning, some  
 16 people are like, that's pretty bad. Well, that represents  
 17 in this case well over 300,000 barrels that we kept from  
 18 coming ashore. And when you look at the dispersants as  
 19 well, it's an enormous amount. Maybe 900,000 gallons of  
 20 dispersant were used. Sounds like a lot. But that was  
 21 very effective in helping to keep oil from hitting the  
 22 beaches.  
 23           It's trade-offs. Those are things that we  
 24 need to look at in terms of what about that black smoke  
 25 that the fire made? What about the dispersed oil? What

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1 does it mean? How long does it take to degrade in the  
 2 water column? Do you call it a plume or do you call it a  
 3 cloud of widely disbursed oil? The emotions. The absurd  
 4 things that went on within the press. If only they could  
 5 have seen the team work that's going on here.  
 6           In the lower left you see CBS. I worked  
 7 with that crew. Took them out to the fires. They didn't  
 8 want to go home. These guys were just so impressed with  
 9 what we were doing, it changed their tune and approach in  
 10 reporting what we were doing.  
 11           Back at the command center, having live  
 12 video coverage, as you see on the screen there, constantly  
 13 monitoring everything we did. Every vessel out there that  
 14 we worked with had a live video so people could watch the  
 15 operation. Working with the Coast Guard, working with BP.  
 16 And that's a gentleman right there in the middle, by the  
 17 way, used to run the oil spill response program at Prudhoe  
 18 Bay. And I was delighted to bring him in as a spotter and  
 19 also to help me in running the burn program. And to work  
 20 with the fisherman, the lower left corner -- or lower  
 21 right-hand corner. Absolutely fantastic. I couldn't hope  
 22 for a better team of people, just as I know we have had the  
 23 village support here as well in terms of training people  
 24 who wanted to be a part of it. It's their environment,  
 25 they care about it, and they became so good at what they

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1 were doing they became competitive.  
 2           There were times when the fishermen would  
 3 get up early, and I mean like 4 or 5 o'clock in the morning  
 4 after they had worked 12, 14 hours burning. They would be  
 5 out there with their flashlights going off, sneaking around  
 6 trying to find the oil so that they could burn more oil the  
 7 next day. They were a great group to work with, and they  
 8 brought a style and fun to the operation. So I can't  
 9 overemphasize those needs to work with in a team spirit  
 10 level.  
 11           I think I still ran a few minutes over, I'm  
 12 sorry, but those are some of the key points I wanted to  
 13 make.  
 14           **DIRECTOR BROMWICH:** Thank you very much. A  
 15 very brief round of questions. First, Mr. Velez, in one of  
 16 your of your early slides you talked about the series of  
 17 barriers that exist in dealing with -- in preventing and  
 18 then dealing with oil spills, and one of your categories,  
 19 as I recall, was mechanical barriers. And there was a  
 20 brief mention of special barriers that exist in the Arctic,  
 21 but I'm not sure that you really described those. Could  
 22 you very briefly describe what those special barriers are  
 23 in the Arctic?  
 24           **MR. VELEZ:** Okay, yes, sir. So one good  
 25 example that I think is familiar to everybody is blowout

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1 preventers, BOPs. The BOP that we are going to use has  
 2 been tested multiple times. It's going to be inside of a  
 3 cellar sitting underneath the seafloor so that it's  
 4 protected from ice. It will also have ways that it can be  
 5 activated separately from the rig itself, so it will have a  
 6 separate panel that will be located on the seafloor that  
 7 can be activated by either divers or by an ROV, so that's  
 8 one example.  
 9       The well that we're drilling is an  
 10 exploration well that we plan to drill, so there is going  
 11 to be a casing program that is designed essentially to  
 12 handle an exploration well. So it will have casing points  
 13 that will essentially meet the requirement that it has, but  
 14 also to essentially isolate areas that we have as we go  
 15 forward with the well.  
 16       On the rig itself, like I said, one of the  
 17 things that we do is we have personnel on the rig that's  
 18 highly experienced, multiple people at one time, along with  
 19 a contractor that is doing the drilling. But also we're  
 20 going to monitor -- all the functions of the rig are  
 21 monitored remotely at other locations, so we're able to  
 22 have people that are highly experienced that are monitoring  
 23 what is happening on the rig, and like I said, pressures,  
 24 temperatures, drilling speed, et cetera, so we're able to  
 25 look at that.

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1       All the equipment that we're using here on  
 2 the rig and the drilling equipment has been -- undergone a  
 3 lot of testing, multiple layers of testing. And also the  
 4 casing programs, cementing programs, et cetera, also has  
 5 undergone rigorous analysis and review.  
 6       **DIRECTOR BROMWICH:** Great, thank you. John,  
 7 do you have any questions for Mr. Velez?  
 8       **MR. GOLL:** Just very quickly. You mentioned  
 9 the containment dome and such that you also said you wanted  
 10 to allow -- hopefully you were going to be getting credit  
 11 with regard to worst-case discharge.  
 12       But with regard to the containment dome, you  
 13 described the well cellar where the blowout preventer and  
 14 such would be below the seabed such that it would not -- if  
 15 ice or such came through, you know, it would not be harmed.  
 16 But how are you dealing with the concept of ice, though, in  
 17 the containment dome?  
 18       **MR. VELEZ:** The ice itself -- the  
 19 containment dome would be used in an emergency, so the  
 20 containment dome is not going to be in place during a  
 21 normal operation. If we have to move the dome into place,  
 22 we also are going to have ships that are going to be  
 23 managing the ice around the location. So we'll put the  
 24 ships that are doing ice management to help us manage,  
 25 because we'll have some other equipment so -- you know,

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1 near the location, so we'll essentially have to keep the  
 2 ice away.  
 3       But keep in mind also that our drilling  
 4 season is going to be mid July through the end of October,  
 5 so we're essentially in open water season. There will be  
 6 some ice, but we'll be able to manage the ice that we  
 7 encounter.  
 8       **DIRECTOR BROMWICH:** Bill, any questions?  
 9       **MR. HAUSER:** Yes. What are your plans for  
 10 relief well drilling?  
 11       **DIRECTOR BROMWICH:** In the Arctic  
 12 specifically?  
 13       **MR. HAUSER:** In the Arctic.  
 14       **MR. VELEZ:** In the Arctic. So, that's a  
 15 good question. We have provisions to drill a relief well.  
 16 We're going to have a rig, the Kolik (ph), which is  
 17 essentially being mobilized right now through Dutch Harbor,  
 18 and it's going to be available in case we need to have a  
 19 relief well drilled. That rig will be activated and will  
 20 be essentially ready to move into position in case we need  
 21 it to drill our relief well. So we'll have a second rig  
 22 available for our operation.  
 23       We also have capability with our first rig,  
 24 which is from the Discover, it's not a Nobel Discover (ph).  
 25 That rig has a release mechanism that essentially will

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1 allow it to be released off location if something happens,  
 2 quickly release, and also we have a second set of BOPs and  
 3 drilling equipment for it that we can use to drill a well  
 4 from it also.  
 5       **DIRECTOR BROMWICH:** I don't have any  
 6 questions for Mr. Aiken. John, do you?  
 7       **MR. GOLL:** Maybe just a quick one. Going  
 8 back to the Shell example in 2007, there was a lot of  
 9 discussion with regard to the spill response, that an  
 10 armada was coming out into the area, that there was almost  
 11 too many response vessels. That, of course, then comes  
 12 into consideration with regard to avoiding whale migration  
 13 with regard to subsistence and such.  
 14       There is this balance that one has to go  
 15 through with regard to the number of vessels versus, of  
 16 course, the timing of the activity, not to do it during the  
 17 subsistence hunt for Nuiqsut and such. But has the AWC  
 18 again looked at that issue with regard to the balancing of  
 19 the number of vessels that might be needed for response  
 20 versus the subsistence hunts?  
 21       **MR. AIKEN:** I don't know that the issue of  
 22 whale hunting would be an issue when there is a spill going  
 23 on. I don't think the whalers of Nuiqsut or Kaktovik would  
 24 try to stop clean-up activities should a spill occur during  
 25 the whaling season. I'm not sure if I understood your

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1 question right.

2 **MR. GOLL:** I think, again, it was, you know,

3 the balancing of the number of vessels. Even if there were

4 not a spill, the approach has been to avoid the area during

5 the subsistence hunt so that the response vessels might be

6 a little bit further away versus what they would normally

7 have been. I understand if there were a spill it would be

8 a different situation.

9 **MR. AIKEN:** Sure. The most important thing

10 is that the oil industry has the equipment on site should

11 there be an incident. And I don't think the number of

12 vessels would be an issue with the whalers because of the

13 importance of the equipment being available on site should

14 an incident occur.

15 **DIRECTOR BROMWICH:** Bill, do you have any

16 questions for Mr. Aiken?

17 **MR. HAUSER:** No.

18 **DIRECTOR BROMWICH:** I've just got one

19 question for Mr. Allen. You talked in great detail about

20 your experiences dealing with Deepwater Horizon, but I

21 noted in your introduction that the bulk of your career has

22 been spent dealing with Arctic issues, and so I can't let

23 you get away without asking the question.

24 What did you learn in your experience in

25 participating in the Deepwater Horizon response? What

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1 kinds of lessons do you draw for drilling and response here

2 in the Arctic from that?

3 **MR. ALLEN:** Well, we need another hour.

4 **DIRECTOR BROMWICH:** Okay, you don't get an

5 hour, you get a couple minutes.

6 **MR. ALLEN:** I think foremost, prior to any

7 potential spill impact, would be education. I really hope

8 I get an opportunity to go back and maybe even address

9 Congress, or someone at a very high level, so that we have

10 educated people addressing the issues, asking the

11 questions, judging what is right, understanding the

12 trade-offs. I think this is a really big one, and I would

13 like to spend the rest of my career doing that, what's left

14 of it.

15 I would like also to recognize that we have

16 to have indepth capability, indepth trained people with the

17 aerial surveilliance and spotting, that's critical. Coast

18 Guard has talked about that. They have talked about the

19 importance of setting up a really good formal, indepth

20 program, and I think we have to have that in place.

21 The nation needs to pick up, as Canada has

22 and several other countries have, a standby, and in fact

23 used daily, aerial reconnaissance capability, we need that

24 tool. And who runs that? I'm not sure, but it could be

25 industry or government.

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1 These are the things that are critical, and

2 I think to continue to do what we've been doing, and that

3 is to hold trials, sea trials. I have to agree with Leslie

4 and others who have mentioned the importance of sea trials,

5 and not demos. I just -- I can't spend enough time trying

6 to inform you how important it is that we be able to go

7 out, not as a demonstration, not to be judged, to be able

8 to go out, make mistakes, make adjustments, learn how to

9 use the equipment best. And that means you go to sea as a

10 team with everybody working together to say, how can we

11 deal with the environment and work with it, not fight it,

12 how can we respect the ice, how can we respect the ice, how

13 can we respect the gaps that people identify and work

14 safely. The last thing we want to do in a response is to

15 kill somebody or to injure anybody. And so we need to go

16 out and do trials that are geared that way to you utilize

17 the equipment in the best way possible, and those are just

18 a few of them.

19 **DIRECTOR BROMWICH:** I appreciate that.

20 John.

21 **MR. GOLL:** You were showing a lot of things,

22 of course, from the Gulf of Mexico, and there has been a

23 number of questions we always get, well, will it work up in

24 the Arctic. And one question that I wanted to ask

25 somebody, and you're the last one, is connected with the

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1 logistics issues that we would face up in the Beaufort and

2 maybe much more in the Chukchi with regard to airports, you

3 know, ports and such. If one needed to bring in extra

4 equipment, how would -- will it really work up there with

5 regard to bringing in the logistics issues and such?

6 **MR. ALLEN:** No, very good question. And I

7 know that industry is looking carefully at that. We've

8 spent decades examining those issues. And when we

9 drilled -- when industry drilled in the Chukchi Sea 20

10 years ago, those same issues came up then, and we looked

11 very carefully at, could we bring groups out of Kodiak and

12 out of SRVs (ph) in the lower part of the state? How would

13 we support them? And those are the things I know are being

14 looked at very carefully now. What role would Wainwright

15 and other places play in terms of maybe offering a refuge?

16 And what needs to be done in order to handle that situation

17 where you have a large number of vessels at sea in the

18 middle of the Chukchi and a storm comes up, where do they

19 go for protection? And how do we ensure that we're not

20 going to be hurting anybody or losing equipment and people?

21 Those are the critical issues, sustained logistical

22 support. And I think that the spill in the Gulf has really

23 heightened the awareness, the need to solve these problems

24 in advance.

25 Let's face it, back in 1969, my first major

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1 spill, the Santa Barbara blowout, the issues came up, they  
 2 were addressed very seriously. Typically there is a period  
 3 of complacency, we fall back a little bit, we get a little  
 4 relaxed because it didn't happen. Ten years go by and you  
 5 have another major one. This is a strange business where  
 6 you go through these rides of being alerted.  
 7 Well, this alert on this spill I think has  
 8 been a monumental one, and the fact that we are forced now  
 9 to, I think, address indepth what are really the issues  
 10 that are going to make a long-term, meaningful, sustained  
 11 response, recognizing how ice plays into this. I'd like to  
 12 be a part of helping to make that -- have the industry  
 13 ready to do that.  
 14 **DIRECTOR BROMWICH:** Bill any? No. Thank  
 15 you very much all three of you for, again, very terrific  
 16 presentations. That concludes our second panel. We're  
 17 going to take a 15 minute break now before coming back and  
 18 finishing off with our third and final panel. So thank you  
 19 very much.  
 20 (Break)  
 21 **DIRECTOR BROMWICH:** Okay, let us go ahead  
 22 and resume. This is our third and final panel this  
 23 morning, and we're extremely fortunate to have a very large  
 24 and incredibly distinguished group of public officials from  
 25 the state of Alaska to join us.

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1 So let me introduce all of them at the  
 2 outset, and then I will ask actually Senator Murkowski to  
 3 begin. We have Senator Lisa Murkowski, the senior senator  
 4 from Alaska. Sitting to her left is the junior senator  
 5 from Alaska, Mark Begich. Sitting to Senator Begich's left  
 6 is Edward Itta, the mayor of the North Slope Borough.  
 7 Sitting to Mr. Mayor Itta's left is Dan Sullivan, the mayor  
 8 of Anchorage, Alaska. Sitting to Mayor Sullivan's left is  
 9 Larry Hartig, the commissioner for the Alaska State  
 10 Department of Environmental Conservation, who is here on  
 11 behalf of Governor Sean Parnell. And last but not least is  
 12 Caroline Cannon, the president of the Native village of  
 13 Point Hope. We very much appreciate all of you being here,  
 14 and we very much look forward to your comments. So Senator  
 15 Murkowski, the floor is yours.  
 16 **SENATOR MURKOWSKI:** I thank you, Director  
 17 Bromwich, for the opportunity to speak today to provide  
 18 this formal statement. Because we are a little bit shorter  
 19 on time than we had hoped, I have full comments that I  
 20 would like to submit to the record, but I'm going to  
 21 truncate some of them, if I may.  
 22 I am very encouraged that you and  
 23 representatives of the Interior Department are here to  
 24 listen to Alaskans. This is incredibly important, and  
 25 important to us going forward.

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1 We all still mourn the loss of the 11  
 2 workers on the Deepwater Horizon rig, and I feel the strong  
 3 and lingering emotions at the images and the accounts of  
 4 the spill itself, which brought back many of our worst  
 5 memories of the Exxon Valdez spill. And it's appropriate  
 6 to react to the Gulf spill with disappointment, but some  
 7 responses have been motivated by anger rather than sound  
 8 policy choices.  
 9 On May 28th the Interior issued what it  
 10 called a deepwater drilling moratorium. I believe that  
 11 there is no dispute over the fact that the Administration  
 12 knew that more than 23,000 jobs would be lost as a result  
 13 of this decision, and that the National Academy of  
 14 Engineers, who the Administration charged with determining  
 15 what responses would be appropriate to deal with safety  
 16 issues after the spill, never recommended any moratoria.  
 17 In other words, the Administration knowingly  
 18 destroyed 23,000 jobs in a time of a nationwide economic  
 19 instability for no apparent safety or environmental  
 20 benefit. And what's worse is the fact that this  
 21 Administration's estimate of 23,000 jobs lost is  
 22 incomplete. It doesn't tell the whole story because it  
 23 presumes, wrongly, that all drilling under the moratoria  
 24 will simply resume the moment the President declares that  
 25 the moratorium is over.

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1 Even if the President lifts that moratorium  
 2 early, as I understand that he is considering, it won't  
 3 matter because the permit process has also been frozen. I  
 4 think it's dangerously naive for anyone with regulatory  
 5 experience to suggest that all of the Gulf's drilling rigs  
 6 would be able to simply switch back on the minute that the  
 7 moratorium is removed. It just doesn't work like that.  
 8 During his moratorium, rigs have left the  
 9 country and they will stay gone for years. Diamond  
 10 Offshore, Anadarko, Murphy Oil, they have all shifted their  
 11 investments overseas. And the people, the people with  
 12 special skills have left with those jobs and they are now  
 13 working under governments who can manage the risks of an  
 14 industry without simply removing the underlying activity.  
 15 And certainly when we're talking about  
 16 Alaska specifically, the end of the moratorium carries no  
 17 guarantees that the permitting work necessary for the 2011  
 18 exploration season will be in place. The primary  
 19 leaseholder in the Alaska OCS was notified that its leases  
 20 would be suspended from exploration as well even though  
 21 they were not in deep water and were operating under none  
 22 of the criteria laid out in the moratorium documents.  
 23 This killed what would have been a critical  
 24 exploration season this summer and sidelined some 600  
 25 Alaska jobs. To this day, to this day there has been no

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1 formal explanation as to why or how Alaska's activity was  
 2 suspended in reaction to an accident thousands of miles  
 3 away. And I want to repeat that. There has been no  
 4 clarification, no documentation, no explanation of why  
 5 Alaska was dragged into this moratoria or what the terms of  
 6 the suspension are. And this is one more reason that the  
 7 suspension has been -- or the moratorium itself has been  
 8 called into legal question.  
 9         Since that court ruling, and I think we all  
 10 here recognize the scathing comments that were made by  
 11 Judge Feldman, but since that court ruling the  
 12 Administration has reissued the moratorium. But again, the  
 13 process is so baffling and so unclear that our Alaskan  
 14 companies can't tell which moratorium they are under,  
 15 because neither set of documents covers or even references  
 16 the class of activities which would be taking place in  
 17 Alaska's OCS.  
 18         In fact, the most recent moratoria documents  
 19 go to great length to describe the comparatively small risk  
 20 of shallow water exploration, which at 150 feet of water is  
 21 exactly what Alaska's leases would be. The arbitrary and  
 22 capricious nature of this continued suspension and  
 23 continued refusal by Interior to explain its actions is  
 24 inexcusable and potentially illegal.  
 25         My sense is that this Administration has

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1 succumbed to political pressure to pull Alaskan activity  
 2 into the moratoria in reaction to the Gulf spill even  
 3 though it had no defensible justification for doing so.  
 4         But, again, this problem goes beyond Alaska,  
 5 and while it may be difficult to appreciate the broader  
 6 impacts of this moratoria on the families, the workers, and  
 7 companies who did nothing wrong and simply want to get back  
 8 to work, the consequences are very real and getting worse.  
 9 The oil and gas industry is not regional. It buys goods  
 10 and services from every single state, and it delivers its  
 11 product to every single state in the nation.  
 12         If the Administration wants a safer offshore  
 13 program, it needs to say what the new requirements are and  
 14 let the leaseholders know that they may resume work as soon  
 15 as they comply. And this has been within your power  
 16 throughout this ordeal, and it really is beyond  
 17 comprehension as to why it's taken so long to verify  
 18 compliance with the additional safety requirements.  
 19         And I know, Director, that your priority --  
 20 or that you view your top priority at Interior as leading  
 21 this SWAT team to go after what you perceive to be the bad  
 22 actors within the agency. But it has been months now since  
 23 the moratoria was imposed, and at this point I believe the  
 24 best thing that you could do is provide a date certain on  
 25 which you are prioritizing your duty as a manager rather

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1 than an unusually aggressive inspector general.  
 2         Interior needs to do its job. The OCS Lands  
 3 Act directs the expeditious development and production of  
 4 American's offshore resources. The Administration is in  
 5 violation of this statute. And it's tearing families apart  
 6 and permanently damaging the national economy.  
 7         I thank you for the opportunity to provide  
 8 my comments, and again, my full statement will hopefully be  
 9 inserted into the record.  
 10         **DIRECTOR BROMWICH:** That you very much,  
 11 Senator. Senator Begich.  
 12         **SENATOR BEGICH:** Thank you very much. Good  
 13 morning, Director Bromwich, and Senator Murkowski, thank  
 14 you for those great words, Commissioner Hartig, Mayor Itta,  
 15 Mayor Sullivan, Ms. Cannon, and fellow Alaskans that are  
 16 here. Director Bromwich, thank you for putting Alaska on  
 17 your itinerary and holding your hearing here this morning.  
 18         As I told Secretary Salazar over a year ago,  
 19 you will soon learn that Alaska will occupy a significant  
 20 portion of your portfolio. It didn't take long for  
 21 Secretary Salazar to come to appreciate that.  
 22         I know this trip is a brief one, and I urge  
 23 you to come back soon. And I'm sure, speaking on behalf of  
 24 the delegation, we will be happy to arrange an opportunity  
 25 to be here a longer period of time, but we thank you for

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1 being here.  
 2         My message today is twofold. First, I want  
 3 you to understand the sense of urgency that Alaskans feel  
 4 about the future of the oil and gas industry in the state.  
 5 And second, we Alaskans stand ready to do the necessary  
 6 work to responsibly produce the vital energy for our  
 7 country.  
 8         Alaska has long served as the nation's  
 9 energy storehouse. At its height we were producing more  
 10 than 20 percent of domestic production. Today that's down  
 11 to about 13 percent. Many of the cutting-edge techniques  
 12 for small footprints and responsible development were  
 13 pioneered here in Alaska.  
 14         As you know, the size of the resource in  
 15 Alaska's OCS is of international significance. Your agency  
 16 has estimated the mean economic recoverable reserve for  
 17 Chukchi and Beaufort Seas to reach 24 billion barrels of  
 18 oil, over a hundred trillion cubic feet of natural gas.  
 19 Industry obviously agrees with this assessment. Lease Sale  
 20 193 in the Chukchi Sea held in February of 2008 netted 2.6  
 21 billion dollars in proceeds for the federal treasury.  
 22         Unfortunately the timeline to develop these  
 23 resources is long. We can't simply turn on a switch, as  
 24 Senator Murkowski described in her testimony. We've  
 25 already spoke about seismic permits for two operators in

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1 the Alaska OCS, and I trust today's hearing will convince  
 2 you of the need for timely action.

3 In the meantime, the crude oil throughout of  
 4 the Trans-Alaska Pipeline System, the economic lifeline of  
 5 our state, is dwindling. From its peak in the late 1980s  
 6 of 2 million barrels per day, we're down to just over  
 7 600,000 barrels per day. If we don't continue to add  
 8 production, the day in which TAPS is no longer operational  
 9 from an economic standpoint is approaching.

10 While we look forward to bringing the fields  
 11 of Point Thompson and other small offshore -- onshore  
 12 satellite fields on line, they alone cannot reverse the  
 13 trend of declining production. Without doubt, the Beaufort  
 14 and Chukchi Seas are the future of our industry.

15 While we're working hard to lay the  
 16 foundation for Alaska's natural gas pipeline, it's too  
 17 dependent on the futures of OCS reserves to make it an  
 18 economically attractive project. The tragedy surrounding  
 19 the Deepwater Horizon has awoken our country to a risk in  
 20 industry. Alaskans can understand the painful Gulf -- the  
 21 pain of the Gulf residents like those of no other state.  
 22 Obviously we need to address those risks head on. Said  
 23 another way, we cannot -- we cannot and must not simply  
 24 retreat. Our nation and this state can't afford further  
 25 delay.

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1 In 2009, during the worst economic recession  
 2 since the Great Depression, our nation consumed 7.1 billion  
 3 barrels of oil. With recovery in the economy, the number  
 4 will grow. Under the most optimistic projections from  
 5 improvements in renewable energy, our nation will still  
 6 need billions of barrels of oil for years to come.

7 On a state level, years of economic  
 8 diversification still leave Alaska's economy highly  
 9 dependent on oil and gas development. As you know, federal  
 10 leases are only for ten years. With billions spent,  
 11 several international oil companies have little to show for  
 12 their investment. At the same time, we have a  
 13 responsibility to the American public and workforce.

14 I've always said that we will only be able  
 15 to securely access the resource of our Arctic if we have  
 16 the public's confidence that we can do it responsibly.  
 17 That's why I've introduced several legislation -- several  
 18 pieces of legislation last summer to address oil spill  
 19 technology and research, revenue sharing, and understanding  
 20 the needs of new shipping and traffic brought on by the  
 21 melting ice.

22 Colleagues of the commerce committee have  
 23 recognized this work, and we were successful in including a  
 24 number of these provisions in the Shore Act, the  
 25 committee's recent legislation to address offshore oil

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1 development.

2 I'm also following up on the pledge to  
 3 educate senate colleagues about the changing Arctic. For  
 4 example, just recently, accompanied by Senator Stabenow in  
 5 the village of Barrow and up on the North Slope, we chaired  
 6 a commerce committee hearing to gather information, and we  
 7 heard several things from the folks up north.

8 From the Coast Guard Admiral Colvin we heard  
 9 about the challenge of current logistics and dire need for  
 10 the North Slope response capabilities. From the head of  
 11 NOAA's weather service we heard about the need for greater  
 12 investment and understanding the Arctic Ocean currents and  
 13 Arctic changing weather patterns. From Mayor Itta and the  
 14 people of Barrow we heard the need to respect the thousands  
 15 of years of tradition and knowledge resulting from the way  
 16 of life. From the scientific community of Barrow, the hub  
 17 of the U.S. Arctic Research, we heard the willingness to do  
 18 the job and understanding of how to get the results through  
 19 coordinated research and logistics.

20 I know your tenure is short here, and also  
 21 your tenure at the Bureau has been very short, but your  
 22 focus has understandably been on the Gulf of Mexico, but  
 23 the future and responsibility of energy supply is here in  
 24 Alaska.

25 And I want to emphasize very clearly, and I

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1 can't do it enough, and that is the timing and the urgency.  
 2 We have schedules here that work in a certain way, and  
 3 laying out the rules so the industry can respond is the  
 4 critical piece. I agree with Senator Murkowski, it seems  
 5 like here is another hearing, here is another opportunity,  
 6 here is another discussion. Set the rules, let the  
 7 industry move forward. We know and we have proven that we  
 8 can do development in Alaska in a responsible way.

9 The other thing I'd encourage the Bureau to  
 10 do, is even though you have great issues down in the Gulf,  
 11 up here we want you to continue to work and communicate  
 12 with our leaseholders. They have great ideas. As I  
 13 mentioned in my testimony, the technology that's being used  
 14 around the world was developed mostly here in Alaska in  
 15 unusual conditions and challenges. I would encourage you  
 16 to work with them, listen to their ideas, and try to figure  
 17 out what's the right way and the right approach.

18 But we know if we do not move forward on  
 19 development of oil and gas development in Alaska, you not  
 20 only put Alaska's economy at risk, you put American's  
 21 economy at risk and our national security at risk. I would  
 22 hope you would look at it in a timely manner.

23 And really, from the bottom of my heart,  
 24 thank you for being here and listening to Alaskans. Again,  
 25 we will gladly bring you back here.

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1           **DIRECTOR BROMWICH:** Thank you very much,  
 2 senator. Mayor Itta.  
 3           **MAYOR ITTA:** Thank you. (Speaking Inupiaq),  
 4 and welcome to Alaska Director Bromwich. I'm grateful for  
 5 your interest in hearing what Alaskans have to say about  
 6 offshore development, and I do sincerely appreciate this  
 7 opportunity to address and be a part of this panel and  
 8 address the issue.  
 9           Again, my name is Edward Itta. My Inupiaq  
 10 name is Saagen (ph). I'm a hunter and a whaler and born  
 11 and raised in Barrow, along with my fellow Inupiat. Our  
 12 ancestors have lived on the Arctic Coast for centuries  
 13 before Columbus discovered America. And Alaska's Arctic is  
 14 truly our home.  
 15           Nowadays we're seeing a lot of change in our  
 16 landscape, and I'm not going to dwell on the particulars,  
 17 I'm sure that you already have become aware of the main  
 18 issues, and it, without a doubt, makes us nervous. It's  
 19 affecting our ability to hunt whales in some years, and to  
 20 us it appears that it's going to get worse before it gets  
 21 any better.  
 22           As a people, we are culturally dependent on  
 23 our traditional subsistence whaling activities. Our  
 24 identity, our traditional subsistence whaling activities  
 25 are tied in and bound together with the health of the

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1 bowhead whale, those of us in the coastal communities.  
 2 That is the nature of our being, and that cannot change  
 3 without causing a cultural crisis for our people.  
 4           Over the years we have routinely partnered  
 5 with industry in oil and gas development onshore. We're  
 6 approaching 40 years now of working successfully with the  
 7 industry. And the offshore development introduces a whole  
 8 new set of issues. And we have opposed it on principle  
 9 because of the dangers that it introduces to the whale  
 10 migration and other subsistence resources.  
 11           When Shell proposed its exploration program  
 12 for the Beaufort Sea back in 2006, MMS -- excuse me -- did  
 13 nothing as the oversight agency to alleviate our deep  
 14 concerns. The fact is that during the permitting process  
 15 it appeared that MMS was in lockstep with the applicant.  
 16           A primary concern was that MMS had  
 17 determined that there was no significant impact that had  
 18 not been appropriately mitigated, and we obviously felt  
 19 otherwise. The permit had failed to recognize the conflict  
 20 avoidance agreements with the whalers as a condition of the  
 21 permit. The conflict avoidance agreement, known as the  
 22 CAA, had previously been a standard feature for any  
 23 nearshore activity.  
 24           As mayor of the North Slope Borough, I  
 25 believe in litigation as a last resort, but under those

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1 circumstances I felt that I had no recourse but to seek  
 2 relief in court, and that is unfortunate.  
 3           Unfortunately, as I said, even though the  
 4 court stopped the program in 2007, we're still not sure  
 5 that we have the agency's attention. MMS seems to have  
 6 ignored the science and expressions of concerns from its  
 7 own scientists. I'm sure that you're aware that the  
 8 national five-year OCS plan was vacated by the District of  
 9 Columbia circuit court, as well as more recently the  
 10 federal district court in Alaska ruled that the agency  
 11 failed to conduct a proper NEPA analysis with respect to  
 12 Lease Sale 193. And again, I say that is unfortunate.  
 13           This year brought even more news. In March  
 14 the GOA [sic] of 2010 issued a report critical of the MMS  
 15 Alaska office. The General Accounting Office report  
 16 confirmed the concern I raised in 2007, that the agency had  
 17 failed to appropriately analyze the impacts and ignored the  
 18 science. The GAO report stated that MMS scientists'  
 19 opinions were either ignored or altered by management.  
 20           Between the agencies' recent record in court  
 21 and the fact that the Department of Interior accepted the  
 22 GAO's findings, I think we all should acknowledge that  
 23 we've got to make some changes. Ironically, MMS's attempts  
 24 to help industry by downplaying subsistence and  
 25 environmental concerns have had the opposite effect by

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1 creating the basis for valid court challenges.  
 2           The net result is that nobody's interests  
 3 are advanced, not ours, not industry, not local community,  
 4 much less the agency. Since the Obama Administration  
 5 signalled its intention to continue the Arctic OCS program  
 6 in spring of 2009, my approach has been to try and avoid  
 7 litigation.  
 8           I want to condense my statements here and  
 9 just delete some of my statements in the interest of time.  
 10 But I'm committed to setting a precedent for a world-class  
 11 mitigation, monitoring, baseline sciences, and other  
 12 measures that should be standard. In the event that OCS  
 13 development goes ahead, this approach ensures that what  
 14 will happen in a way happens that honors our cultural needs  
 15 and our unique position as the only people who will feel  
 16 the full force of any damage that is done offshore.  
 17           In that regard, I've laid a set of policy  
 18 positions that my staff is ready to hand out designed to  
 19 advance this project, and they represent a way forward, I  
 20 believe, for agency, for industry, and our local community.  
 21           In closing, I'm very eager to start our  
 22 relationship on a positive note, Director Bromwich, but  
 23 please understand my fear that BOEM is still MMS under a  
 24 different assembly of letters, that is my fear, that the  
 25 culture of MMS is still in place in Alaska.

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1 I don't like to be the bearer -- the  
 2 messenger of bad tidings, but someone needs to speak up in  
 3 public and say why it is that progress in the Arctic  
 4 offshore program is stalled. It's because in Alaska your  
 5 agency hasn't seriously listened to local communities. We  
 6 need to change that.

7 I realize that this is not much of a  
 8 welcome, and I apologize, I sincerely do, but I'm ready, as  
 9 I stated, to cooperate in the development of a responsible  
 10 Arctic OCS program, and I've been working with industry to  
 11 find common ground. And we've had some success.

12 I sincerely hope that you will hear my  
 13 message as a plea for help, not as an attempt to drive a  
 14 wedge between us. And, again, thank you for the  
 15 opportunity to share my troubled thoughts with you, thank  
 16 you.

17 **DIRECTOR BROMWICH:** Thank you very much,  
 18 Mayor Itta, I very much appreciate your comments. Mayor  
 19 Sullivan.

20 **MAYOR SULLIVAN:** Yes, thank you very much.  
 21 For the record, my name is Dan Sullivan, I'm the mayor of  
 22 Anchorage, Alaska. Director Bromwich, welcome on behalf of  
 23 the City of Anchorage. I know it's your first visit here,  
 24 so for you and your staff, I hope your trip is a good one  
 25 and I appreciate the opportunity to testify today.

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1 We're very proud of Anchorage. A great  
 2 city. A city that grew into the modern urban center with  
 3 the outstanding public facilities and business  
 4 opportunities that we have as a direct result of oil and  
 5 gas production.

6 I'm a fourth generation Alaskan. For over a  
 7 hundred years my family has lived and worked in Alaska with  
 8 the goal of making it an even better place for those who  
 9 follow. I can't quite match Mayor Itta's legacy in Alaska,  
 10 but for generations this has been home, and our goal is to  
 11 make sure that it stays a very viable place to live.

12 I worked on the Trans-Alaska Pipeline in the  
 13 1970s, including working in Prudhoe Bay where, in the harsh  
 14 Arctic conditions, oil has been safely produced and shipped  
 15 for over 30 years. I've witnessed firsthand the benefit  
 16 that TAPS has had on our state, and I envision the day when  
 17 we will finally be able to access our next generation  
 18 offshore resources to the benefit of the next generation of  
 19 Alaskans and the American public.

20 I'm testifying today to oppose any further  
 21 delay of development of Alaska's offshore oil and gas  
 22 resources. Alaska's economic future is literally at stake  
 23 with this decision. Our state operating budget depends on  
 24 resource development, oil production providing over 90  
 25 percent of our operating budget. The Trans-Alaska Pipeline

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1 that I helped build is now shipping only one-third as much  
 2 oil as it did at its peak, as Senator Begich mentioned.  
 3 But furthermore, we're losing about six percent production  
 4 a year. In five to ten years the very function of the  
 5 pipeline is in jeopardy. We must take advantage of every  
 6 opportunity to keep the pipeline full, both for Alaska's  
 7 future and for the economic health of our country.

8 Now, given what we did not know about the  
 9 deepwater accident, the drilling suspensions announced by  
 10 Interior Secretary Salazar on July 12th, 2010, were perhaps  
 11 understandable. We can't go backwards now, what was done  
 12 is done, but now is the time to move forward.

13 The potential loss of jobs, capital  
 14 investment, and local, state, and federal revenues that the  
 15 current offshore moratorium is likely to impose is  
 16 tremendous and directly affects us here in Anchorage, which  
 17 is home to over 40 percent of our state's residents.

18 Senator Begich mentioned the potential for  
 19 over 25 billion barrels of oil, over a hundred trillion  
 20 cubic feet of natural gas. But that translates into real  
 21 jobs, over 35,000 additional Alaskan jobs for over 50 years  
 22 with payroll over \$70 billion over that period.

23 Development there is key to the economic future of Alaska,  
 24 and certainly for Anchorage.

25 Access to Alaska's resources is fundamental

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1 to our national security. If the U.S. government doesn't  
 2 provide a reasonable regulatory environment, the  
 3 multi-national companies who make the capital investments  
 4 for new exploration and production will make those  
 5 investments outside our country, funneling hundreds of  
 6 millions, even billions of dollars to foreign economies  
 7 that very likely do not have the stringent regulatory  
 8 framework to support America's interests.

9 I want to take this time to express my  
 10 deepest sympathies for those families who lost loved ones  
 11 in the Gulf accident. I think we've learned a lot from the  
 12 Deepwater accident. But imagine if it had occurred outside  
 13 America, how much more devastating would the damage be? I  
 14 trust you to take the macro view of the world and to  
 15 balance our long-term national interests, and I trust that  
 16 both government and industry have learned from this  
 17 incident and will do better in the future.

18 You should continue your work to evaluate  
 19 regulatory structures that improve safety and spill  
 20 response so that offshore energy production can be done  
 21 responsibly, taking heed to protect the environment,  
 22 workers, American consumers, and our economy. We must be  
 23 cautious, however, to avoid overburdensome regulations that  
 24 cause significant market disruptions, price volatility, and  
 25 higher prices for American energy consumers.

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1 We must, as a nation, responsibly move  
 2 forward with domestic offshore energy production to meet  
 3 our current and future energy needs by building a robust  
 4 and inclusive OCS leasing program that includes both the  
 5 Beaufort and Chukchi Seas. The health of my city, my  
 6 state, and my nation depend on increased American energy  
 7 independence, and Alaska's vast energy resources are  
 8 essential to that goal.

9 So thank you again for the opportunity to  
 10 testify, and I want to thank my fellow panelists for their  
 11 comments as well.

12 **DIRECTOR BROMWICH:** Thank you very much,  
 13 Mayor Sullivan. Mr. Hartig.

14 **COMMISSIONER HARTIG:** Thank you, Director  
 15 Bromwich. It's an honor to participate today on this panel  
 16 of our distinguished elected officials and to present the  
 17 testimony of our governor, Sean Parnell, today. And I'm  
 18 also gratified by the number of people that showed up for  
 19 this hearing and to see many of our state elected officials  
 20 and others that have been tracking these issues for many  
 21 years.

22 Let me begin by recognizing our key  
 23 responsibility, the prudent development of our state's  
 24 great natural resource for the benefit of all Alaskans and  
 25 all the people of the United States.

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1 The state of Alaska and its people have been  
 2 meeting this responsibility for over three decades with 84  
 3 exploratory oil and gas wells drilled in Alaska's offshore  
 4 without a single major incident, without a single major  
 5 spill.

6 There are certainly lessons to be learned  
 7 from the tragedy in the Gulf of Mexico, a hard lesson, and  
 8 certainly the need for continued vigilance. But there are  
 9 also critical differences between the Gulf and Alaska, and  
 10 those differences, which I'll speak to in a moment, do not  
 11 justify the continuation of the moratorium on drilling on  
 12 offshore Alaska. And the state strongly encourages the  
 13 Bureau to lift the moratorium, to allow prudent development  
 14 of our state's great oil and gas potential to continue.

15 I will focus on three points supporting the  
 16 lifting of the moratorium in Alaska. The differences in  
 17 environmental conditions in the Gulf and Alaska; the  
 18 differences in geological formations leading to well  
 19 pressures and blowout risks; and the regulatory framework  
 20 and oversight that have led to the decades of safe oil and  
 21 gas production offshore in our state.

22 First, there are the environmental  
 23 differences. Many of our producing Alaskan offshore wells  
 24 are being tapped from stable, manmade gravel islands, a way  
 25 of operating that very closely resembles onshore

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1 operations. Blowout preventers and other critical  
 2 infrastructure and equipment are accessible for inspection,  
 3 maintenance, and repair.

4 The waters are relatively shallow where  
 5 drilling might occur offshore of Alaska, and the state  
 6 waters of the Beaufort Sea, and a large part of the  
 7 federally managed OCS, the water is no deeper than 65 feet.  
 8 Almost all leased acreage in the Beaufort Sea OCS lie  
 9 inboard of the 330 foot contour, and all current Chukchi  
 10 Sea leases are in waters of 100 to 160 foot depths. This  
 11 should be compared to the 5,000 foot depth where the  
 12 Deepwater Horizon rig was located.

13 Where blowout preventers and other critical  
 14 infrastructure and devices cannot be located onshore, it  
 15 will still be at depths where divers can operate. This is  
 16 in contrast to the deepwater wells in the Gulf of Mexico  
 17 where remotely operated vehicles are required to work on  
 18 the seafloor.

19 Second, geology presents another significant  
 20 difference. The geologic profile in the Gulf of Mexico,  
 21 with its deeply buried and compacted deposits of  
 22 alternating sands and muddy sediments, results in  
 23 extraordinary poor pressures. This makes deep drilling  
 24 especially difficult because of -- the high drilling mud  
 25 densities needed to control the pressure can fracture the

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1 formation, leading to the loss of drilling fluid and  
 2 potentially triggering a blowout.

3 The geology in Alaska offshore is very  
 4 different with less recent and less voluminous  
 5 sedimentation. This means that our geological environment  
 6 is not nearly as prone as the high pressures and associated  
 7 blowout risks found in the Gulf.

8 Finally, regulatory processes and agency  
 9 resources are already in place to assure safe drilling  
 10 offshore in Alaska. Alaska's Oil and Gas Conservation  
 11 Commission, AOGCC, oversees drilling in Alaskan state  
 12 waters through its regulation, permitting, and inspection  
 13 of wells and equipment. The AOGCC is a separate  
 14 independent agency within the executive branch. Its status  
 15 as an independent expert agency helps assure well safety  
 16 risks are addressed based on good science and energy.

17 Anyone, though, that has spent time  
 18 responding to oil spills, like my agency, especially in the  
 19 marine environment, knows that the importance lies in  
 20 preventing spills. All of the state agencies with  
 21 oversight responsibilities are focused on this objective.  
 22 The State of Alaska has zero tolerance for spills.

23 Still, we must be prepared to respond if a  
 24 spill occurs, and Alaska has some of the most stringent oil  
 25 spill prevention response standards in the world. These

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1 standards apply both in state waters and the federal OCS by  
 2 virtue of the Alaska Coastal Management Program. These  
 3 standards are administered by my agency, ADEC. Our  
 4 requirements mandate a company have both the plans and the  
 5 resources to contain and clean up the realistic maximum oil  
 6 discharge. All such plans are reviewed by ADEC staff  
 7 through a public process. We also require plans to control  
 8 a well within 15 days of loss of well control.

9 In closing, Alaska's OCS is an important  
 10 part of our nation's energy future. Alaska is committed to  
 11 responsible development of our oil and gas potential. As  
 12 tragic as the events in the Gulf are, the Bureau must  
 13 assess the risks and opportunities in Alaska based on  
 14 conditions and resources present here, not in the Gulf. We  
 15 believe this assessment should lead to the conclusion that  
 16 the processes and safeguards we have in place today should  
 17 allow leasing and exploration activity to resume now in the  
 18 Alaska OCS. Thank you again.

19 **DIRECTOR BROMWICH:** Thank you very much.  
 20 President Cannon.

21 **MS. CANNON:** (Speaking Inupiaq). First, I'd  
 22 like to say thank you for this opportunity. My name is  
 23 Caroline Cannon, and currently I'm the president of the  
 24 tribe of Native village of Point Hope, which consists of  
 25 974 tribal members. Tikigaq is the Inupiaq name for Point

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1 Hope, one of the oldest continuous inhabitants of North  
 2 America.

3 I'm proud to say that I also am part of the  
 4 whaling process, meaning I whaled the last 30 years with  
 5 our community. I'm proud to say that I prepare and help  
 6 along with the whaling. I could never take my hat off. I  
 7 remember the old whaling captains. I keep in mind when I  
 8 speak on behalf of my people that I continue to carry  
 9 along, my mentors that taught me, how precious our land and  
 10 ocean is, and continue. That we are Inupiat, we were  
 11 created in the Arctic Ocean.

12 I'd like to bring a message here today that  
 13 we rely on that ocean, it's our garden. Many has been said  
 14 today how precious it is and how crucial and harsh the  
 15 ocean can be, and yet it provides a lot.

16 With that I just want to thank everyone for  
 17 giving me this opportunity to speak on behalf of the  
 18 tribes. And I, again, want to stress that I represent the  
 19 Native village of Point Hope.

20 The proposed work from Shell, Conoco,  
 21 S.T.A.D.s oil and others pose significant threats to the  
 22 bowhead whale along with other marine mammal species and  
 23 fish that feed our people. The assault on our garden, our  
 24 school, one of the nation's national treasures, never  
 25 stops. It is up to the Administration to set aside the

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1 lease sale, halt exploration and drilling in our garden,  
 2 and to stop gambling with the precious natural resource by  
 3 permanently protecting the Beaufort, Chukchi, and Bering  
 4 Sea.

5 The currents could carry out an oil spill  
 6 right into our communities, or to important nesting areas  
 7 for birds and other wildlife we depend on. There is not  
 8 any infrastructures to respond to an oil spill in the  
 9 Arctic Ocean. The nearest Coast Guard facility is 800  
 10 miles away. Our people have been asking for a time-out on  
 11 exploration activity and seismic testing because of the  
 12 risk. We have been asking, through scientific review,  
 13 baseline data to be gathered before an exploration and oil  
 14 development occur in the Arctic Ocean. Our community and  
 15 our traditional knowledge needs to be included in any  
 16 studies done in the Arctic Ocean.

17 The ice is so unpredictable. Our hunting  
 18 has suffered. Keep in mind, that comes with climate  
 19 change. We live it. Scientists and oil companies cannot  
 20 prove that oil can be cleaned up in a broken ice condition.  
 21 And I thank you for this opportunity. Thank you.

22 **DIRECTOR BROMWICH:** Thank you, very much. I  
 23 want to thank all the public officials who appeared on this  
 24 panel. We've listened, we're heard what you've said, we  
 25 will very much take it into account as we move forward.

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1 In concluding this session, I just want to  
 2 repeat some of the observations I made at the outset, and  
 3 to describe a little bit about what the process will be  
 4 going forward.

5 This is, as I mentioned, the fifth of eight  
 6 public forums of this kind that we're conducting throughout  
 7 the country. The final three will be in the first half of  
 8 September in Houston, Texas; Biloxi, Mississippi; and  
 9 Lafayette, Louisiana.

10 The purpose is to continue to gather  
 11 information that is relevant on the central issues that  
 12 underlie the moratorium, that is drilling safety, spill  
 13 containment, and spill response. And after the information  
 14 is developed and collected, I'm obligated to supply a  
 15 report to Secretary Salazar no later than October 31st, and  
 16 I hope a good deal before that, that will lay out the  
 17 information that we have gathered and the issues as we see  
 18 them.

19 We will benefit not only from the  
 20 information we're gathering at these public forums, but  
 21 from the tremendous amount of work that's currently going  
 22 on and in a variety of quarters, most notably my industry.  
 23 As I think I mentioned before, there are industry tasks  
 24 forces that have recognized the deficiencies that have  
 25 existed in drilling safety, spill containment, and spill

1 response. Those task forces are due to report next week.  
2 They were originally supposed to report this week, they are  
3 going to report next week, and we will report the contents  
4 of their findings at our later forums.

5 By the same token, BP is delivering reports  
6 next week, which is going to be a summary of the lessons  
7 that they have learned from the Deepwater Horizon incident,  
8 which will, I think, be applicable not only to the Gulf but  
9 also to exploration and drilling here. I don't think it  
10 would be responsible to take substantial action without  
11 having all of that information and that learning, taking it  
12 into account and developing what we think is an appropriate  
13 set of rules to allow drilling and exploration to go  
14 forward. That's our intention, that's our objective.

15 In terms of urgency, I can tell that you 90  
16 percent of my personal time is being spent on  
17 moratorium-related issues, because we know how important  
18 the issue is, both here in Alaska and throughout the  
19 country.

20 So thank you very much everyone for  
21 attending. Thank you public officials for your  
22 presentations, and we look forward to continue exchanges of  
23 information as we go forward. Thank you very much.

24 (Meeting recessed at 12:00 noon)  
25

1 CERTIFICATE  
2 I, LEONARD J. DiPAOLO, Registered Professional  
3 Reporter, Certified Realtime Reporter, and Notary Public in  
4 and for the State of Alaska, do hereby certify:

5 That the proceedings were taken before me at the time  
6 and place herein set forth; that the testimony and  
7 proceedings were reported stenographically by me and later  
8 transcribed under my direction by computer transcription;  
9 that the foregoing is a true record of the testimony and  
10 proceedings taken at that time to the best of my ability;  
11 and that I am not a party to nor have I any interest in the  
12 outcome of the action herein contained.

13 IN WITNESS WHEREOF, I have hereunto set my  
14 hand and affixed my seal this \_\_\_\_\_ day  
15 of \_\_\_\_\_, 2010.

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\_\_\_\_\_  
LEONARD J. DiPAOLO  
Notary Public for Alaska  
My Commission Expires: 2-3-2012

#2013

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