

Chairman Thune, Ranking Member Nelson and distinguished members of the Committee, thank you for giving me the opportunity to appear before you today. My name is Nancy E. Kinner and I am a Professor of Civil and Environmental Engineering at the University of New Hampshire. I am also the UNH Co-Director of the Coastal Response Research Center, a NOAA-funded partnership, and the Director of the Center for Spills in the Environment, a center that expands the scope of interaction to other governmental agencies, the private sector and NGOs. The mission of the Centers is to conduct and oversee research on spill response, assessment and restoration and make sure that research is transformed into practice. In addition, we serve as a hub for spill research, and facilitate collaboration among all stakeholders in the spill response community, including those affiliated with industry, government, research and NGOs.

The Centers were created in 2004 because many research and development needs existed with respect to spills. It may seem unusual that an oil spill center would be located in New Hampshire, but that makes sense when the goal is to have an independent and highly credible voice that can speak freely during a crisis and mediate difficult discussions among diverse stakeholders.

For example, we were asked to facilitate a discussion during the DWH spill, among 50 renowned scientists, to evaluate whether dispersants should continue to be used. After examining the available data and the science, regarding the potential impact of dispersant use on the environment, the conclusion was that use of dispersants and the effects of dispersing the oil were generally less harmful than allowing the oil to migrate into sensitive wetlands and nearshore coastal habitats and therefore dispersant use should continue.

There are many ways to improve the safety of offshore and oil and gas production. But when oil is being spilled, there is no single "silver bullet" response technology that provides a universal solution. As I like to tell my students, "oil spills are bad, and cause very bad things to happen." The goal of response is to minimize, as much as possible, the damage. Hence, the challenge is to translate the results of oil spill research and development into better response.

In the wake of the DWH, there has been a large influx of money into research and there are many oil spill-related papers being published each month as a direct result of this funding. The question is how much of this research will result in improvements to oil spill response. Unfortunately, the answer might be... "Not very much!"

Why not? **First**, the research that needs to be done to improve response is often not conducted, because researchers rarely interact with responders. (They don't go to the same parties.) **Second**, it is difficult for scientists to simulate the real environment. For example, to answer the question as to whether chemical dispersants should be added to a subsea blowout, scientists need to simulate the mixing that occurs at a deep wellhead where many, many gallons of oil and gas are billowing out rapidly at very high pressure. That is, to say the least, a very challenging environment to simulate in a laboratory, test tank or with mathematical modeling.

Third, scientific journals rarely publish papers where the experiments do not show any measurable changes. Yet, there is often very useful information from research that shows no effects. For example, if oil was added to very cold seawater that contained naturally-occurring microorganisms and the oil concentration did not change over time, the results would probably not be publishable. Yet responders fighting a spill in the Arctic Ocean would want to know that oil might not be degraded as rapidly as in warmer water.

So how can we address these challenges? (Well) we can bring responders and scientists together in a partnership to develop

research needs and design and conduct experiments to address those needs. But, even if we started that process today, the results of the research would not be available for several years. In the interim, we can sort through the large amount of research published, to determine if, and how, it can improve response.

Here's one example of how our Centers, in partnership with NOAA and EPA, are doing this. We have convened 70+ scientists to review the literature and determine what is known and what is uncertain about the state-of-the-science of dispersants and dispersed oil in spill response, especially as it applies to the Arctic. My job is to facilitate those discussions, which as you may imagine can be quite interesting. What never ceases to amaze me is how a diverse group of researchers and response scientists can come to consensus when the focus is on the details of the science. I see this approach as a path forward on many thorny issues.

In summary, there are many questions that must be addressed to improve response when oil is spilled, especially as we consider drilling in more inter-continental shelf regions and in the face of the energy renaissance in the U.S. We must take advantage of current and future investments in research, translating them into better

response. I believe we can accomplish this by bringing responders and scientists together in partnership to determine what is known and what is uncertain with respect to response science. Once identified, those uncertainties can be used to define research needs and design experiments whose results can be translated into improved response decision-making that does a better job of minimizing the damage spills cause.

Thank you for giving me the opportunity to speak before you today. I would be happy to answer any questions.

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