WRITTEN STATEMENT OF
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ON
OFFSHORE DRILLING IN CUBA AND THE BAHAMAS: THE U.S. COAST GUARD'S OIL SPILL READINESS & RESPONSE PLANNING

BEFORE
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COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
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Thank you Chairman LoBiondo and Members of the Subcommittee for the opportunity to testify on the Department of Commerce's National Oceanic and Atmospheric Administration's (NOAA) role in emergency response to oil and chemical spills and, more specifically, activities taken in support of the United States Coast Guard (USCG) efforts to ensure that U.S. waters and shorelines are prepared for potential threats from drilling in foreign waters off of Florida.

My name is Debbie Payton and I am the Chief of the Emergency Response Division within NOAA's Office of Response and Restoration. My testimony today will focus on NOAA's response and preparedness role and what NOAA's role has been in supporting the USCG for preparedness activities for upcoming drilling in the waters off Cuba and the Bahamas.

NOAA's mission is to understand and predict changes in the Earth's environment and conserve and manage coastal and marine resources to meet our nation's economic, social and environmental needs. NOAA serves the nation with forecasting of atmospheres and oceans, oceanographic, hydrographic and meteorological observations, research on oceans, atmospheres and the environment, and services to integrate these sciences with societal needs.

NOAA's Response and Preparedness Role

Thousands of incidents occur each year in which oil or chemicals are released into the environment as a result of accidents or natural disasters. Spills into our coastal waters, whether accidental or intentional, can harm people and the environment and cause substantial disruption of marine transportation with potential widespread economic impacts. The USCG is the Federal On-Scene Coordinator and has the primary responsibility for managing coastal oil spill response and clean-up activities in the coastal zone. During an oil spill, NOAA's Scientific Support Coordinators deliver technical and scientific expertise to the USCG. NOAA's Scientific Support Coordinators are

located around the country in USCG Districts, ready to respond around the clock to any emergencies involving the release of oil or hazardous substances into the oceans, shorelines, and related areas.

NOAA has three critical roles in spill response and damage assessment mandated by the *Oil Pollution Act* of 1990 and the National Contingency Plan:

1. During the emergency response, NOAA serves as a conduit for scientific information to the Federal On-Scene Coordinator. NOAA provides scientific expertise in the fields of biology, chemistry, oceanography, toxicology, and economics. We also specialize in trajectory predictions for spilled oil, observations of oil on water, assessment of highly valued or sensitive environmental areas, and shoreline surveys to determine clean-up priorities.
2. As a natural resource trustee, NOAA conducts a joint Natural Resource Damage Assessment (NRDA) with other federal, state and tribal trustees to assess and restore natural resources injured by an oil spill. NRDA also assesses the short and potential long term lost uses of those resources, such as recreational fishing, canoeing, and swimming, with the goal of implementing restoration projects to address these injuries.
3. Finally, NOAA represents the Department of Commerce in spill response decision-making activities through the 15-agency National Response Team.

With over thirty years of experience and using state-of-the-art technology, NOAA continues to serve the nation by providing its expertise and a suite of products and services for making science-based decisions. NOAA develops tools, guidelines, and small, field-oriented job aids to assist preparedness for response communities. In addition, NOAA provides standard techniques for observing oil, assessing shoreline impact, and evaluating and selecting cleanup technologies that have been widely accepted by response agencies.

Environmental Sensitivity Index (ESI) maps are used to identify vulnerable resources and habitats in advance of emergencies so that appropriate response actions can be planned. NOAA works with local experts to develop or update these maps throughout the country. ESI maps are published in hardcopy and digital formats, and translators are maintained to assist in using the data in geographic information system environments.

Some of the more widely distributed tools that NOAA develops include a trajectory forecasting tool, GNOME (General NOAA Operational Modeling Environment); the oil weathering model, ADIOS (Automated Data Inquiry for Oil Spills); the chemical hazards tools, CAMEO (Computer Aided Management of Emergency Operations); and the Chemical Reactivity Worksheet. Used with pre-determined oceanographic information and user-specified winds and scenario data (Location Files), GNOME provides a mechanism for end-users to explore various potential spill scenarios. ADIOS provides planners and responders with information on how thousands of different oils could physically or chemically change over time under various scenarios. The CAMEO program, developed jointly with the Environmental Protection Agency, provides first responders with information and tools for chemical incidents.

NOAA also provides training to individuals in industry and government on the scientific aspects of oil and chemical spill response. The goal of NOAA's training is to transfer scientific expertise and experience to the broadest possible audience. Successful training promotes more efficient planning and spill response.

Current Status of Threat Assessment from Deepwater Drilling off Cuba

Over the past year, a NOAA Scientific Support Coordinator has worked with District 7 Coast Guard staff to review and update Area Contingency Plans. As part of that effort, NOAA studied the potential threat to U.S. East Coast and Gulf of Mexico shorelines from deepwater oil well development in the Florida Straits and off of the Bahamas.

This NOAA study follows on earlier modeling studies by the Bureau of Ocean Energy Management (BOEM) and by Applied Science Associates for REPSOL, the energy company that will conduct the exploratory drilling at the first proposed drilling site approximately 16 miles offshore of the northern coast of Cuba. These modeling efforts, while carried out by NOAA, were supported with data from BOEM.

It is critical to note that in conducting a study using a range of environmental conditions based on historical information, the results are a composite of a number of scenarios. The results give percentages of the scenarios that impact each area (represented as grid cells) and do not say where the oil will go for any specific spill; the results provide statistics on where the oil is most likely to go based on historical oceanographic and meteorological information. The grid cells considered in these modeling studies are quite large, 10 nautical miles x 10 nautical miles. The oil is represented as particles in the model. Any time there are enough particles in a grid cell to reach a "level of concern" the cell is considered "impacted." What that means is that the oil may be 10 nautical miles offshore, but the model will count it as a shoreline impact. This choice of resolution is driven by the size of the model and the resolution of the current and wind data available. For planning purposes, this is a conservative approach.

In addition, given the distance the oil would have to travel, any oil that might reach U.S. shorelines would likely be in the form of widely scattered tar balls. In the event of a spill, only one scenario will play out and how much oil comes to the United States and in what form will be dependent on the scenario characteristics, e.g., how much oil is released over what period of time. In the event of a real incident, NOAA will support the USCG efforts to protect U.S. interests by providing daily forecasting based on the actual scenario and environmental conditions at that time.

NOAA used GNOME to run thousands of trajectory scenarios. A GNOME scenario predicts how an oil spill will spread and move based on a set of release characteristics, currents, winds and oil type. A tool called the Trajectory Analysis Planner (TAP) was used to compile these results and provide a way to view the statistics. For this study, 20 start sites were considered, covering the region from the western edge of Cuba to the Bahamas. The following data were used:

1. Predicted ocean current fields generated by the Princeton Regional Ocean Forecast System, which is an ocean circulation model developed for BOEM.

2. Modeled wind data assimilating actual wind measurements collected in the region during the six-year period from late 1993 to 1998.

For this study, the spilled oil was assumed to be medium crude oil, which industry experts consider the type of oil most likely to be found at the potential well sites. The actual oil may prove to have different characteristics than assumed in this study. The results provided here will specifically address the first known drill site. For this site, a release of medium crude over 90 days at 75,000 barrels per day was considered. The model was run out for 120 days (30 days beyond the release duration).

TAP and GNOME account for the weathering processes of evaporation, dispersion, photo-oxidation, and biodegradation, which reduce the amount of oil on the water over time. TAP and GNOME do not account for emulsification which would increase the volume of oil without changing the mass of oil on the water. It is important to note that neither model accounts for subsurface movement of oil. For this study, neither model accounted for any response actions, such as dispersant application, burning, or skimming.

Three major ocean currents dominate the movement of spilled oil in the region.

1. The Loop Current flows northward into the Gulf of Mexico, and then loops clockwise turning southeastward along the west Florida coast to join the Florida Current.

2. The Florida Current is a strong current (3 – 6 knots at the core) that flows eastward from the Gulf of Mexico through the Florida Straits then turns northward, joining the Gulf Stream.

3. The Gulf Stream, a powerful Atlantic Ocean current (up to five knots at the core), flows northward along the East Coast of the United States before separating from the coast near Cape Hatteras, eventually crossing the Atlantic.

The Florida Current – Gulf Stream current system would dominate the movement of spilled oil from the first proposed drilling site offshore of the northern coast of Cuba at any time of the year. The strong surface currents at its core could potentially move spilled oil more than 70 nautical miles in 24 hours. This powerful current system would make it difficult for oil spilled from the drilling site to cross the 80-mile-wide Florida Straits to impact the Florida Keys before being swept northeastward. Winds also would play a key role in determining where and when oil comes ashore.

The study was carried out for several sites from west of Cuba (in the Yucatan Straits) to areas east of Cay Sal and offshore of Grand Bahamas. The following is a summary of the major findings from the study for consideration of oil released from the site of the first proposed drilling site offshore of Cuba; results from other potential release sites vary considerably. Given the scope of potential results, this summary provided in this testimony focuses on the first site:

1. In general, while most of the oil remains offshore in the Gulf Stream, the most threatened area of the US Coast is the eastern shore of Florida. Approximately 40 percent of the scenarios modeled resulted in some portion of the spilled oil coming into cells that could impact areas on the east side of Florida. The Florida Keys are less at risk because of the powerful eastward currents in the Florida Straits.

2. Although probabilities decrease northward from the Florida border, some scenarios result in shoreline risk as far north as Charleston, South Carolina.

3. From Charleston north to the Chesapeake Bay, probabilities again decrease, but, given the closeness of the Gulf Stream where it turns offshore near Cape Hatteras and the 100 square nautical mile grid size, the Cape Hatteras area risk is higher.

4. North of Chesapeake Bay, none of the modeled scenarios predicted shoreline threats above what would be discernable from background tar balls.

5. Gulf of Mexico shorelines are at low risk.

Using these results, the USCG is working with area committees, consisting of representatives from federal, state, and local governments, to update Area Contingency Plans in areas that have a potential for impact.

Conclusion

In the wake of the Deepwater Horizon oil spill, we are all reminded of the fragility of our coastal ecosystems and the dependence of coastal economies on the health and prosperity of our seas.

NOAA is committed to working with our state and federal partners, the oil industry, as well as the international community to provide cutting edge science to support a robust and effective planning process to ensure we are as prepared as possible, should a spill occur in this region.

Thank you for the opportunity to testify before you today. I look forward to any questions you may have.