TESTIMONY OF
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Chairman Markey, and Members of the Subcommittee, thank you for the opportunity to testify on the role of the U.S. Environmental Protection Agency (EPA) in the use of dispersants in the Deepwater Horizon oil spill response. My testimony today will provide an overview of EPA's role and activities in the affected Gulf Coast region following the April 20, 2010 Deepwater Horizon explosion and resulting oil spill. I will also discuss EPA's latest findings on the toxicity of dispersants used in the Gulf that were released earlier this month.

Oil Spill Response

The National Contingency Plan (NCP) is the federal government's blueprint for responding to both oil spills and hazardous substance releases. Additionally, it provides the federal government with a framework for notification, communication, and responsibility for oil spill response. Under the NCP, the EPA or the United States Coast Guard (USCG) provide federal On-Scene Coordinators (FOSCs) for the inland and coastal zones, respectively, to direct or oversee responses to oil spills. The exact lines between the inland and coastal zones are determined by Regional Response Teams (RRTs) and established by Memoranda of Agreement

(MOAs) between regional EPA and USCG offices. USCG is the FOSC for the Deepwater Horizon oil spill response.

Other federal agencies with related authorities and expertise may be called upon to support the FOSC. The NCP established the National Response Team (NRT), comprised of fifteen federal agencies, to assist responders by formulating policies, providing information, technical advice, and access to resources and equipment for preparedness and response to oil spills and hazardous substance releases. EPA serves as chair of the NRT and the USCG serves as vice-chair.

In addition to the NRT, there are thirteen RRTs, one for each of EPA's ten regional offices and one each for Alaska, the Caribbean, and the Pacific Basin. RRTs are co-chaired by each EPA Region and its USCG counterpart. The RRTs are also comprised of representatives from other federal agencies and state representation, and frequently assist the FOSCs who lead spill response efforts. The RRTs help OSCs in their spill response decision making, and can help identify and mobilize specialized resources. For example, through the RRT, the FOSC can request and receive assistance on natural resource issues from the Department of the Interior (DOI), the Department of Commerce, and the States, or borrow specialized equipment from the Department of Defense or other agencies. Involvement of the RRT in these response decisions and activities helps ensure efficient agency coordination while providing the FOSC with the assistance necessary to conduct successful spill response actions.

Under the NCP, authority to use dispersants rests with the FOSC but requires concurrence of certain RRT members. For example, RRT representatives from EPA, DOI, the Department of Commerce's National Oceanic and Atmospheric Administration (NOAA), and the states with jurisdiction over the navigable waters under consideration may pre-authorize

application of approved dispersant products so that the FOSC can authorize dispersant use without obtaining further concurrences. The USCG also serves as NRT chair for this specific incident under the NCP and since the Spill of National Significance designation under the Oil Pollution Act (OPA).

EPA is also responsible for maintaining the NCP Product Schedule, which lists chemical and biological products available for federal OSCs to use in spill response and cleanup efforts. Due to the unique nature of each spill, and the potential range of impacts to natural resources, FOSCs help determine which products, if any, should be used in a particular spill response. If the application of a product is pre-authorized by the RRT, then the FOSC may decide to use the product in a particular response. If the product application does not have pre-authorization from the RRT, then the FOSC must obtain concurrence from the EPA representative and the representatives of states with jurisdiction over the navigable waters under threat. In addition, the FOSC must consult with representatives of DOI and NOAA, as natural resource trustee agencies before authorizing incident-specific use of a dispersant.

Use of Oil Dispersants in the Gulf

In order to ensure consensus on the use of dispersant, the USCG, as the Federal On-Scene Coordinator, in consultation with EPA, DOI, NOAA, and the State of Louisiana, authorized BP to apply dispersants on the water surface to mitigate the shoreline impacts on fisheries, nurseries, wetlands and other sensitive environments. Dispersants contain a mixture of chemicals, that, when applied directly to the spilled oil, can disperse oil into smaller drops that mix vertically and horizontally in the water column. Microscopic organisms are then able to act rapidly to degrade oil within the droplets. While dispersant use on the surface was preapproved for the Gulf, the

RRT did activate and confirm the use for the surface and convened again in consultation with the NRT to assist the FOSC in making the determination for the sub-surface application of dispersant.

The application of dispersant is part of a broader environmental response strategy to minimize environmental impacts. The spill management strategies, practices, and technologies that have been implemented include containment, mechanical removal techniques (booming and skimming operations), *in-situ* burning, and dispersant use. Environmental tradeoffs are associated with the widespread use of large quantities of dispersant. However, dispersants are generally less toxic than oil; they reduce risks to shorelines, and degrade quickly over several days to weeks, according to modeling results. To be clear, dispersants were only used where oil was present.

In addition, the use of dispersants at the source of the leak represents a novel approach to addressing the significant environmental threat posed by the spill. Due to the unprecedented nature of this event in which oil was continuing to spill into the Gulf from the wellhead, the USCG, as the Federal On-Scene Coordinator, in consultation with an activation of the full RRT and EPA, approved subsurface dispersant application. This approval was contingent on rigorous, constant monitoring for potential environmental effects, as recommended by EPA. Subsurface use of the dispersant is believed to have been effective at reducing the amount of oil reaching the surface and has also resulted in significant reductions in total amount of dispersants used.

On May 10, 2010, EPA and USCG issued a directive requiring BP to implement a monitoring and assessment plan for both subsurface and surface applications of dispersants. Additionally, on May 26, 2010, EPA and USCG directed BP to significantly decrease the overall

volume of dispersant used. In the month following the directive, the total volume of dispersants used fell by 75% from their peak levels.

We have now passed the 100th day of the oil spill tragedy. We are relieved that the well was capped and sealed on July 15 and that no dispersant has been applied since July 19. We hope and expect that this will continue to be the case. However, this tragedy does not end with the sealing of the well. The President and the EPA are committed to the long-term recovery and restoration of the Gulf Coast, one of our most precious ecosystems. EPA continues to rigorously monitor the air, water, and sediments for the presence of dispersants and crude oil components that could have an impact on health or the environment. All monitoring information and data are posted on EPA's website at: http://www.epa.gov/bpspill/.

According to NOAA's subsurface data, out of more than 2000 water samples that were analyzed for dispersant constituents propylene glycol and 2-butoxy ethanol, only one station had a positive occurrence for propylene glycol from a sample collected close to the wellhead. Additional monitoring and testing is ongoing and all data will be properly reviewed through the quality assurance process.

EPA Releases Toxicity Testing Data for Eight Oil Dispersants

Because of the unprecedented volumes of dispersant being used in this spill, Addendum 2 to the May 10, 2010 directive required BP to determine whether a less toxic, equally effective product was available. When the company failed to provide this information, EPA began its own scientific testing of eight dispersant products on the National Contingency Plan Product Schedule to confirm the accuracy of the data being provided by the manufacturers and to make the best informed decision on appropriate dispersant use. As part of an overall assessment of BP's use of

Corexit 9500A, EPA conducted toxicity tests with mysid shrimp and silverside fish to ensure that the response proceeded in a cautious and protective manner in determining the relative hazard of pollutants.

EPA initiated testing to ensure that decisions about ongoing dispersant use in the Gulf of Mexico continued to be grounded in the best available science and data. This includes screening tests to assess cytotoxicity (cell death), endocrine activity, and acute toxicity of eight available dispersants. *In vitro* assays were used to test the degree to which these eight dispersants are toxic to various types of mammalian cells. EPA also tested the potential for each dispersant to exhibit endocrine activity because some of the dispersants include nonylphenol ethoxylates (NPE). NPE breaks down in the environment to nonylphenol (NP), a substance that could potentially cause endocrine disruption. On June 30, 2010, EPA released the results of the initial round of toxicity testing that showed that two dispersants showed a weak signal in one of the four estrogen receptor (ER) assays, but integrating over all of the ER and androgen receptor (AR) results these data do not indicate that any of the eight dispersants display biologically significant endocrine activity via the androgen or estrogen signaling pathways. None of the dispersants triggered cell death at the concentrations of dispersants expected in the Gulf.

EPA also conducted acute toxicity tests on mysid shrimp and silverside fish to determine lethal concentrations of the eight dispersants alone, the Louisiana Sweet Crude oil alone, and a mixture of the Louisiana Sweet Crude oil with each of the eight dispersants. These are coastal species found in the Gulf and were tested during a juvenile life stage, when organisms are even more sensitive to pollutant stress. These phase 1 results demonstrate that the dispersants, when tested alone, displayed roughly the same toxicities (slightly toxic to practically non-toxic). JD-2000 and COREXIT 9500 were generally less toxic to small fish and JD-2000 and SAF-RON

Gold were less toxic to the mysid shrimp. Test results are posted at: http://www.epa.gov/bpspill/dispersants-testing.html#phase1. The results from the second phase of testing, released on August 2, 2010, demonstrate that for all eight dispersants in both test species, the dispersant alone was less toxic than the dispersant-oil mixture. The dispersant-oil mixtures can be generally categorized in the moderately toxic range. Oil alone was found to be more toxic to mysid shrimp than the eight dispersants when tested alone (and data for the silverside fish was inconclusive and are being re-tested with oil alone). Tests on oil alone had similar toxicity to mysid shrimp as the tests on dispersant-oil mixtures, with the exception of the mixture of Nokomis 3-AA and oil, which was found to be more toxic. http://www.epa.gov/bpspill/reports/phase2dispersant-toxtest.pdf

Results indicate that the eight dispersants, when tested alone and in combination with oil, are similar to one another. This confirms that the dispersant used in response to the Gulf oil spill, Corexit 9500A, is generally no more or less toxic than the other available and tested alternatives.

These externally peer reviewed results are publicly available on EPA's website at: http://www.epa.gov/bpspill/dispersants-testing.html.

These tests were designed to determine toxicity effects so that a relative comparison could be made. They were conducted over a range of concentrations, including those much greater than what aquatic life is expected to encounter in the Gulf. While these data are important, to date, for subsurface monitoring, we have not seen dissolved oxygen levels approach levels of concern to aquatic life and no excessive mortality in rotifers.

While more needs to be done, we see that the dispersants are working to help keep oil away from our precious shorelines and away from sensitive coastal ecosystems. We also know

that the dispersants are less toxic than the oil released into the Gulf. To date, EPA monitoring has not found dispersant chemicals near coasts or wetlands. These results are posted at: http://www.epa.gov/bpspill/water.html. EPA will continue its environmental monitoring to identify any changes in conditions that could have an impact on human health or the environment.

Regarding the safety of seafood from the Gulf, while FDA has the lead for seafood safety issues, I want to simply mention that to date, every seafood sample from reopened waters has passed sensory testing for contamination with oil and dispersant. Modeling data on the individual components of the dispersant indicate that the dispersants used to combat the oil spill break down rapidly and become highly dispersed in Gulf waters. Science, to date, also indicates that dispersants do not accumulate in seafood. Thus, all our evidence shows that seafood from the reopened Gulf waters is safe to eat.

Research and Development

This crisis has made it evident that additional research is needed. The Administration requested supplemental funds for dispersant research associated with the Deepwater Horizon oil spill which this Congress approved with the passage of the Supplemental Appropriations Act of 2010. EPA will engage academic institutions and other federal agencies, such as NOAA and DOI, who have the knowledge and expertise to supplement EPA's efforts. The additional $2.0 million requested by the President and approved by Congress will support research on the short and long-term environmental and human health effects associated with oil spill response technologies and dispersant use, and will further our research efforts to include innovative approaches to spill remediation. EPA in concert with our federal partners, will pursue an

aggressive research agenda to address the mechanisms of environmental fate, effects, and transport of dispersants.

Summary and Conclusions

EPA will continue to provide full support to the USCG and the Unified Command and will continue to take a science-based approach to dispersant use. We will continue monitoring, identifying, and responding to potential public health and environmental concerns, including waste management and beach cleanup. In coordination with our federal, state, and local partners, EPA is committed to protecting Gulf Coast communities from the adverse environmental effects of the Deepwater Horizon oil spill.

We will persist in asking the hard questions until we more fully understand the long-term effects of the Gulf oil spill and conduct the investigations required to enable the Gulf's recovery. We have taken nothing for granted. EPA has constantly questioned, verified, and validated decisions with monitoring, analysis, and use of the best available science and data.

EPA is fully committed to working with the people of the Gulf Coast, our federal partners, the scientific community and NGOs toward the recovery of the Gulf of Mexico and the restoration of its precious ecosystem. At this time, I welcome any questions you may have.