Subject: FW: Worst Case Discharge Scenario Planning White Paper
From: Doug Helton <doug.helton@noaa.gov>
Date: 5/4/2012 12:50 PM
To: Jeri Greenwell <jeri.greenwell@noaa.gov>, John Tarpley <john.tarpley@noaa.gov>

This is responsive to the depletion of response equipment

-----Original Message-----
From: william.conner [mailto:William.Conner@noaa.gov]
Sent: Monday, May 03, 2010 3:42 AM
To: Beth Dieveney; David Holst; Charlie Henry; Dave Westerholm; David Kennedy; Jainey Bavishi; Richard M Love; Kris Sarri; William Conner; Steve Lehmann
Cc: Doug Helton; Debbie Payton; Mark Dix; Timothy Gallagher
Subject: Worst Case Discharge Scenario Planning White Paper

Attached is a 3-page draft that provides a prospectus on USCG-led effort to do WCD planning. This was made available for comment by the NRT overnight, with comments due this morning. The paper gives a good general sense of what we are facing under a WCD Scenario, at this level of detail. I made a few minor comments and provided a description of our modeling effort.

We should discuss how NOAA should be represented in this process. ORR will offer the long term oil movement model results. But the question is whether other parts of the agency want to be represented as well.

Bill Conner

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Attachments:

WCD_whitepaper draft May 2.doc 27 bytes

WORST CASE DISCHARGE SCENARIO FOR THE MISSISSIPPI CANYON 252 SPILL

This document is intended to define a "Worst Case" discharge from ongoing DEEPWATER HORIZON incident. It will describe the implications of a worst case for national policy makers, as well as identify the strategic planning parameters for the National Response Team to further develop actions in support of the Federal On-scene Coordinator.

Background: While drilling an exploratory well in the Gulf of Mexico, the mobile offshore drilling unit Deepwater Horizon caught fire on the evening of 20 April 2010 and subsequently sank two days later. The safety devices designed to secure the well during such an event failed and now oil is discharging into the Gulf - a situation called a "blow-out."

Worst Case Discharge: While the current flow rate from the oil well is now estimated at 5,000 barrels (bbls) per day, unconstrained, it could potentially increase to approximately 162,000 bbls per day. BP's Response Plan assumed a maximum discharge of 162,000 bbls per day for a 30 day period. This planning factor is based on an unconstrained flow from the well (complete failure of well control equipment at the sea floor). In contrast, the worst case discharge scenario for this event is the same outflow rate at three times the duration. The total volume of oil spilled over 90 days would be 14,580,000 bbls based upon the estimated period to drill relief wells and prevent further discharge.

By comparison, the tank vessel Exxon Valdez spilled about 257,000 bbls of oil into Prince William Sound, and currently is the worst spill in U.S. history. The largest well blow-out oil spill was in 1979 at the IXTOC I exploratory well, in the Bay of Campeche, Mexico, releasing 3.3 million bbls of oil and requiring 295 days to control.

Mitigation Strategies: Stopping the uncontrolled release of oil from the well remains the top response priority and will take approximately 90 days. This will be accomplished using drilling units in water depths of over 5,000 feet. The intervention technique that will be used involves drilling a "relief well" in which a new well about 18,000 feet deep will be drilled to intersect the well that is currently discharging. Once that occurs, heavy drilling fluids will be pumped into the wellbore to overcome the pressure of the reservoir, stopping the flow of oil into the Gulf. Finally, cement will be pumped into the wellbore to permanently abandon the well.

In the interim, experimental 'pollution domes' have been constructed to collect the discharged oil at the source and will be deployed within the next week. They are, however, experimental at this depth. Sub-surface dispersants are currently being tested and show promise. This technique would economize the dispersant inventory.

Resource Constraints: The BP plans for drilling in the deep water portions of the Gulf of Mexico state that in the plans supporting their permit that they have planned

sufficiently to respond to a maximum worst case discharge, based primarily on optimal conditions for mechanical cleanup. Under optimal conditions, recovery of all oil is limited at best. Unfortunately, optimal conditions for on water recovery or treatment of spilled oil exist very infrequently at best, in an open sea environment. No matter how much equipment is available, or of what type, there will be significant quantities of oil that will not be amenable to treatment or recovery until or unless that oil washes up on the shore. Based on this worst-case discharge, dispersant and fire boom inventory will be exhausted within 30 days. Dispersant use can be replenished by increasing manufacturing. Dispersant manufacturers have already been contacted regarding the need for additional production. BP must explore international sources of supply to meet expected fire boom demands.

Environmental Impacts: In a worse case discharge scenario, expansion of the oil has a broad and variant geographic impact based largely on weather and currents. Within 90 days, the U.S. Gulf Coast region would experience the heaviest impact, while the coasts of Southern Florida and northward to the Mid-Atlantic could experience lighter or even sporadic impacts. Emulsified oil and tarballs can be carried hundreds of miles, and often persist in the marine environment for decades as was evident in the Exxon Valdez incident response. Internationally, the 90 day outlook includes a high probability of lighter, sporadic impacts to Mexico, Cuba, and the Bahamas. The end result for the predicted impact areas will be both immediate and ongoing coastal clean-up efforts for years.

Impacts to living marine resources would mostly occur in the areas of fresh or emulsified oil. Emulsified oil and tarballs mainly affect wildlife through coating and smothering.

Waste generated from the clean-up associated with a worst case discharge scenario will be significant. The Environmental Protection Agency (EPA) is assessing disposal options based on the current discharge rate. As additional areas of the Gulf Region are impacted, local and regional capacity for waste removal will diminish. Extensive, multi-state planning will need to occur to indentify alternate options for disposal of the hazardous waste aligned with existing state and federal regulations.

Economic Effects: The impact of the spill on the Marine Transportation System on the U.S. Gulf of Mexico ports will be significant and layered, ranging from vessel delays to complete port closures. With six of the top ten U.S. ports by tonnage in the Gulf of Mexico and approximately 50,000 domestic and international vessel arrivals annually, the impact to the nation will be felt most in the energy and agriculture sectors. Vessels will require U.S. Coast Guard approval to transit through the spill zone and likely to be delayed, so they can be cleaned at pre-designated decontamination stations. A worst-case discharge may result in port closures for heavily impacted areas. Offshore

drilling may also be affected by the spill; toxic vapors from the spill may require evacuation of platforms in advance of spill projections.

A comprehensive assessment of economic effect is being undertaken by a working group chaired by the White House Council of Economic Advisors.

International Implications: Customary International law, as well as multi-lateral treaties and conventions require the U.S. to immediately notify other countries likely to be affected by pollution, as well as the competent international organizations. These countries are to cooperate with spill response to the extent possible. The notification should be conducted by the Department of State, who will also coordinate assistance from foreign governments. In addition, the United States has specific oil spill response agreements with some nation States, such as Mexico, which we can take advantage of if necessary for assistance.

Funding: While in this case, the Responsible Party BP is liable for response efforts ("all removal costs") associated with the oil spill, the Oil Spill Liability Trust Fund (OSLTF) is available to front immediate costs. The U.S. Coast Guard has determined the emergency fund portion of the OSLTF is inadequate for this event. As of Friday April 30, 2010, $20 million was still available in the emergency fund. At present, the OSLTF has approximately $1.6 billion in its principal fund. It is virtually assured the Administration will be required to seek legislative authority to exceed the $100 million transfer cap and possibly the current statutory ceiling of $1 billion per event and $500 million for natural resource damage. It is foreseeable that the OSLTF balance of $1.6 billion may not be adequate.

Response Planning Caveats: Uncertainties due to mechanical problems, problems during the drilling operations, or inclement weather could result in delays in completing the relief well. Hurricanes and tropical storms are a threat; inclement weather generally limits response options and their effectiveness. Wind and waves can reduce the efficacy of protective or collection boom by causing oil to splash over the boom into the exclusion area. Strong currents can carry oil under the boom into an exclusion area as well. Large waves can prohibit in-situ burning because large waves make it difficult to collect enough oil to ignite the fire to burn off the pollution. High winds limit aerial dispersant application because the winds can carry the dispersant away from the pollution.

Potential positive mitigating factors include the potential that the 'pollution domes' prevent the uncontrolled release of oil at the source, minimizing the surface impacts. If the application of sub-sea dispersants proves to be an effective method to focus the application of dispersants, surface impacts may be mitigated and the need to produce additional dispersant inventories may be reduced.