

From: Marcia K McNutt [mcnutt@usgs.gov]
Sent: Monday, May 31, 2010 3:21 PM
To: Thad.W.Allen@uscg.dhs.gov; David_Hayes@ios.doi.gov
CC: kensalazar@ios.doi.gov; SCHU; Laura_Davis@ios.doi.gov; Brian_Screnar@ios.doi.gov
Subject: Steps forward for containment
Attachments: Secretary Salazar May 31 2010_Final.pdf

Secretary Salazar asked that I provide a brief synopsis to accompany this briefing package from BP of the way ahead to contain the flow from the leaking well and provide the most reliable possible containment until the relief wells can succeed with a bottom kill.

(1) Handouts 3-7 summarize the results of the top kill procedure and the theory that rupture of a collapse disk in the 16" casing at about 1000' depth make a top kill exceptionally difficult and inadvisable. While this interpretation is consistent with all of the data in hand, it is not a unique interpretation. It is, however, the "no regrets" interpretation, in that it results in conservative decisions that would not lead to further environmental damage (such as a breach of the seafloor by hydrocarbons exiting through overpressured geologic formations).

Containment of the oil is now the top priority while the drilling of relief wells is expedited.

(2) Slides 8-12 describe the near-term (e.g., this week) containment effort. The team is on schedule to cut the riser tonight, slice off the top of the lower-marine riser package (LMRP) tomorrow, and install one of several designs of LMRP caps on Wednesday (#7 is preferred choice on account of weight if ready, otherwise likely to use #5). The cap is designed to capture as much of the oil and gas as possible, but likely it will take a few days to optimize the flow up the riser to the Enterprise (imagine getting the draft in a chimney to work correctly).

As described on the "Risks" on slide 12, there is some chance of exceeding the capacity of this system to take up all of the gas and oil based on the bounds that the FRTG determined. The system can handle 15,000 barrels per day of oil and 75,000 cu ft/day of gas, but the amount of oil may be exceeded especially if the yield goes up by 20% with the riser removed from the system.

(3) For that reason, the team is also designing a secondary flow capture system (slides 13-15) that can be thought of as an overflow system to catch any overflow in gas and oil. This system will take advantage of the top kill manifolds that were used to pump mud, but turn them around to draw the excess oil and gas up to the Q4000 semi-submersible. The Q-4000 cannot store the oil and gas, but will be able to flare off the smaller amounts that it will be pulling up from the seafloor. This system also provides a backup for the main oil containment at the Enterprise should its ability to sustain maximum yield (or any yield) suffer down time.

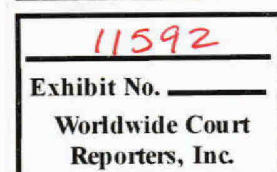
The remaining problem with this system of containment is hurricane season, which will soon be upon us (July and August). With the riser hanging down from the Enterprise, it takes 3 days to roll up the riser to evacuate the area in case of a hurricane so that the ship can outrun it. Three days ahead of time, the trajectory of a hurricane is so poorly known that the prudent course of action would have to be to assume that just about any hurricane headed towards the Gulf could potentially impact this site. By the time the ship and the Q-4000 rolled up their risers, outran the storm, returned, and reconnected, 10 days or more of oil spill could occur unchecked. This is unacceptable.

(4) Slides 16-18 show a longer-term containment system that will allow the surface containment vessels to disconnect from risers that float just below the thermocline, and thus do not need to be rolled up. Ships can thus wait until just before a storm hits to leave the scene, narrowing the time window for evacuation and thus increasing the certainty that evacuation is really required. Furthermore, the manifold on the seafloor is equipped with valves that allow the flow to be choked back to the minimum such that pressures do not exceed the amount for hydrocarbons to exit to the formations. Dispersants would be automatically dispensed for any hydrocarbon that is released, if permitted. This system would reduce the amount of time that the flow would not be collected from 10 days or more down to 3 to 4 days, depending on the storm. This system would be installed by late June.

(5) Finally, the relief wells are making good progress. BP is experimenting with deploying on the drill bit the tool that is used to help find the direction to the existing hole. This procedure has never been done before. The tool is usually tripped downhole separately on a logging run, taking extra time away from drilling.

Please let me know if you have any questions or would like additional context.

Marcia



CONFIDENTIAL

DSE002-006177

TREX 011592.0001