

ONE HUNDRED ELEVENTH CONGRESS
Congress of the United States
House of Representatives
COMMITTEE ON ENERGY AND COMMERCE
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WASHINGTON, DC 20515-6115

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June 23, 2010

Mr. Tony Hayward
Chief Executive Officer
BP PLC
1 St. James's Square
London SW1 Y 4PD
United Kingdom

Dear Mr. Hayward:

I write to request information related to the integrity of the wellbore and casing at the Deepwater Horizon leak site, as well as to request further information on the design, testing, timeframe and likelihood of success for the relief wells being drilled today. While BP has repeatedly stated that the relief well would be completed by mid-August¹, I am concerned that possible damage to the wellbore and casing and the difficulty of the operation itself could result in more weeks or months before the flow of oil and gas is finally stopped.

As you know, there has been speculation that the wellbore and casing at the Deepwater Horizon leak site may have been damaged and that leaks of oil and gas may already be coming through the sea floor or through the pipe itself. The risks of this occurring were increased by BP's decision to use a more risky drill pipe casing design, and because the riser pipe was both inadequately centered in the well-bore and inadequately cemented.² Damage to these already vulnerable systems could have occurred through a number of events: via the initial explosions that sunk the rig, through erosion from the high pressures and volumes of oil and gas associated with the leak and possible washout from the formation, or due to the failed "Top Kill" efforts which blasted 30,000 barrels of drilling mud under high pressure into the well.

¹ For example, statements made by BP's Lamar McKay at the June 15, 2010 hearing of the Energy and Environment Subcommittee and those made by BP's Tony Hayward at the June 17, 2010 hearing of the Oversight and Investigations Subcommittee.

² See <http://energycommerce.house.gov/documents/20100614/Hayward.BP.2010.6.14.pdf> for an excellent summary of these issues

In fact, in his June 17 press briefing, Admiral Thad Allen stated that “I think that one thing that nobody knows is the condition of the wellbore from below the blow out preventer down to the actual oil field itself. And we don’t know, we don’t know if the wellbore has been compromised or not. One of the reasons we did not continue with top kill at higher pressures, there was a concern that if we increased the pressure too hard it might do damage to the casings and the wellbore. What we didn’t want was open communication of any oil from the reservoir outside the wellbore that might get into the formation and work its way to the sub sea floor and then result in uncontrolled discharge at that point.”

In a June 18, 2010 article in the Times Picayune,³ Bob Bea of the University of California at Berkeley indicated that there is reason to believe that oil and gas is leaking from places other than the containment cap. BP officials said that a disk that is part of the subsea safety infrastructure may have failed in the initial April 20th explosion, which may have contributed to the failure of the “top-kill”⁴. As reported by the *Wall Street Journal*, people familiar with BP’s “top-kill” attempt have speculated that some drilling mud may have escaped the well into the surrounding rock.

In addition to concerns related to the condition of the wellbore, I am also concerned that the relief well design, testing and likelihood of success may prove the August timeframe to be optimistic. At the June 15, 2010 hearing of the Energy and Environment Subcommittee, BP’s Lamar McKay stated in response to questions that “the design of the relief well is very, very similar to the original well.” In light of the well-documented and extensive problems associated with the original well’s design, this statement is worrisome to contemplate. Moreover, it can take more than one attempt to plug a well using a relief well. For example, it took nearly 10 months to permanently halt the Ixtoc oil spill.

In the June 17, 2010 hearing of the Oversight and Investigations Subcommittee, you testified that you believed the reservoir contained 50 million barrels of oil. The damage that such a quantity of oil could do, should it all leak into the Gulf of Mexico, would be staggering. It is imperative that the efforts to permanently halt the flow of oil are successful. Consequently, I ask for your prompt responses to the following questions:

Questions on relief well design and timeframe

- 1) Please provide documents related to the design of the current relief wells.
 - a. Please include all documents related to the type of liner being used for the relief wells. Will it be a full-string system such as that used at the Macondo well, a system that includes a liner with a tie-back which provides more barriers to block any flow of oil and gas, or some other design?
 - b. Please include all documents related to the cement jobs being performed on the relief wells. Have and will cement bond logs be used after each

³ http://blog.nola.com/2010_gulf_oil_spill/print.html?entry=/2010/06/oil_spill_containment_efforts.html

⁴ “BP Cites Broken Disk in Top Kill Failure,” *Wall Street Journal*, June 2, 2010

cement job or remedial cement job in order to ensure the integrity of the cement job?

- c. Please include all documents related to the blowout preventers being used for the relief wells. Are the as-built engineering documents up-to-date and available to operators on the drilling rigs?
 - d. Have these blowout preventers been tested prior to deployment to ensure that the sort of problems reported to have occurred on the blowout preventer used on the Macondo well (related to battery power for the dead-man switch, potential failure of the control system to be connected to the shear ram, hydraulic fluid pressure leaks and other problems) do not exist?
 - e. How many blind shear rams will the blowout preventers used for the relief well have? Who manufactured the blowout preventers that will be used? Have system integration tests been performed on them?
 - f. What sorts of imaging or other monitoring technologies will be built into the blowout preventers used on the relief wells? Will these technologies be left in place in order to monitor for leaks once the Macondo well is sealed?
 - g. Please include all documents related to planned or ongoing testing of the relief wells that will occur prior to the first attempt to plug the Macondo well.
- 2) Please provide documents related to the timeframes for relief well drilling, testing and use.
- a. Please include all documents related to the expected schedule for the completion of the drilling, casing and cementing of each relief well.
 - b. Please include all documents related to the schedule for the testing of each relief well prior to the start of the “kill” operation.
 - c. Please include all documents related to the anticipated schedule and timeframe for killing the well. How long could each step, including filling the relief well with drilling mud, take if all goes according to plan? How long might it take from the beginning of the “kill” operation until the Macondo well is plugged?
 - d. What is the likelihood that filling the relief wells with drilling mud will result in fractures and a subsequent loss of pressure? Please provide all relevant documents.
 - e. In the event that the first attempt to locate the Macondo well fails, how long will it take in order to prepare a second or subsequent attempt(s)? How long will the second or subsequent attempt(s) take? Please provide a time estimate for each step needed to prepare for a second or subsequent attempt.
 - f. Are there any known magnetic anomalies in the area or geological formations that might give rise to such anomalies in the area that will make detection of the Macondo well pipe more difficult? If so, please provide all relevant documents.

Questions on the condition of the wellbore and reports of sea floor leaks

- 3) Please provide documents related to the condition of the wellbore.
 - a. Has BP attempted to determine whether the casing inside the wellbore has been damaged and if so, what were the results? Please provide all measurements, images, and other documents related to the condition of the wellbore, as well as any future plans for such measurements going forward.
 - b. Has BP confirmed or attempted to confirm the presence of hydrocarbons leaking from anywhere other than the containment cap? If so, what were the results? Please provide all related documents.
 - c. Has BP surveyed the vicinity of the well to look for any leaks from the sea floor? If so, what area was surveyed? Please provide all measurements, images, and other documents related to any survey(s) to identify hydrocarbon leakage from the sea floor. If no survey has been performed, why not?

- 4) Please provide documents related to stopping a worst-case scenario blowout:
 - a. If hydrocarbons are leaking directly into the ocean from the wellbore or the sea floor, will this complicate, delay or otherwise impede BP's efforts to plug the flow using the relief wells? If so, how? If not, why not?
 - b. If BP discovers, during the relief well "kill" efforts, that hydrocarbons are also leaking from a location significantly above the target reservoir, what options exist to contain such leakage? Please provide all relevant documentation.
 - c. Please provide all documents related to the geologic formation in which the Macondo well is located. Are there significant deposits of oil and gas in formations above the target reservoir? Please provide an estimate of the total amount of oil and gas that is contained in i) the Macondo well target formation and ii) each formation above the target formation that could leak hydrocarbons into the annulus as a result of poor cementing, damage caused by the initial explosion(s), or the failed Top Kill effort.

Questions on other potential hydrocarbon reservoirs in the well

- 5) Please provide documents related to the possibility that the initial drilling encountered leakage from other formations above the target reservoir.
 - a. In order to understand the geological complexity of the well, please provide all geological logs, including the mud log, and all geophysical logs, including resistivity and porosity logs.
 - b. A May 23, 2010 article entitled "Documents show BP chose a less-expensive, less-reliable method for completing well in Gulf oil spill" in the Orlando Sentinel stated that well records indicate that in late February, there was a loss in drilling mud pressure. According to the article, this could mean that the mud fractured layers of sand or shale in the formation and vanished. The article goes on to state that in early March, the pressure of the oil and gas encountered overwhelmed the pressure of the drilling

mud. In mid-April, a loss of drilling mud was reportedly again experienced. Do any or all of these events indicate that oil and gas could be flowing from somewhere other than the target reservoir? If so, please explain fully, and if not, why not?

Thank you very much for your attention to this important matter. Please provide your response no later than Friday July 2, 2010. If you have any questions or concerns, please have your staff contact Dr. Michal Freedhoff of the Energy and Environment Subcommittee staff at 202-225-2836.

Sincerely,



Edward J. Markey
Chairman

Energy and Environment Subcommittee

cc: Honorable Henry Waxman, Chairman
Honorable Joe Barton, Ranking Member
Honorable Fred Upton, Ranking Member