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Oil Spill Hearings Begin Tuesday - 'Nitrogen Cement' and 'Failure to Place Cement Plug' Testimony Likely

Posted by Gail the Actuary on May 11, 2010 - 12:18am
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There are at least a couple of new oil spill related stories of interest, regarding testimony that is to begin Tuesday regarding what was the cause of the Deepwater Horizon blowout. One of these stories concerns the use of **nitrogen gas in the cement mix**; the other relates to **failure to place the cement plug** before removing the drilling mud.

Excerpts from these stories are below the fold. Perhaps readers can add their comments, as well as other news they hear about the testimony, as it becomes available.

Nitrogen-Cement Mix Is Focus of Gulf Inquiry

> In seeking to narrow the possible causes of the drilling disaster in the Gulf of Mexico, government investigators are focusing on the role of a tricky type of cement used in sealing the lower section of the oil well.
>
> Halliburton, the contractor for the cementing job on the Deepwater Horizon well that blew on April 20, used a type of nitrogen-charged cement to close off the bottom of the well, 13,000 feet below the sea bed. The nitrogen gas was blended into regular cement to make a substance that was puffier and lighter than the cement generally used in oil drilling.
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> Experts said this type of cement can form a stronger bond in certain types of rock, but is also more difficult to use than standard cement, requiring great care in mixing and application.
>
> A supervisor on the rig has said he had not seen nitrogen cement used before in the deepest part of a well, and investigators are examining whether it contributed to the catastrophic explosion that killed 11 workers and caused a continuing oil leak estimated to exceed 200,000 gallons a day.

A Wall Street Journal article reports that testimony will be made that Halliburton is going to testify that failure to place a cement plug was the problem, and that this testimony will be corroborated to some extent by testimony by Transocean.

Two Oil Firms Tie Rig Blast to 'Plug'

Mr. Probert plans to testify Tuesday that Halliburton had finished an earlier step, cementing the casing, which is the area in the hole outside the pipe, and that pressure tests showed the casing had been properly constructed.

It is at that point that it is common practice to pour wet cement down into the pipe. The wet cement, which is heavier than the drilling mud, sinks down through the mud and then hardens into a plug thousands of feet down in the well.

At that point, the mud is removed and replaced by seawater, but the cement plug holds back any underground gas.

In this case, a decision was made, shortly before the explosion, to perform the remaining tasks in reverse order, the expected Halliburton testimony to the Senate indicates.

"We understand that the drilling contractor then proceeded to displace the riser with seawater prior to the planned placement of the final cement plug...," Mr. Probert says in the prepared testimony, which was reviewed by The Wall Street Journal.

Lloyd Heinze, chairman of the petroleum engineering department at Texas Tech University, agrees that this is an unusual approach. "Normally, you would not evacuate the riser until you were done with the last plug at the seafloor," he said in an interview.

A worker who was on the drilling rig said in an interview that Halliburton was getting ready to set a final cement plug at 8,000 feet below the rig when workers received other instructions. "Usually we set the cement plug at that point and let it set for six hours, then displace the well," said the worker.

According to this worker, BP requested permission from the federal Minerals Management Service to displace, or remove, the mud before the final plugging operation had begun. The mud in the well weighed 14.3 pounds per gallon; it was replaced by seawater that weighed nearly 50% less. BP didn't respond to request for comment on this account, nor did the MMS.

Perhaps commenters can add additional stories, and their views on the testimony, as more information becomes available.