



BP's Deepwater Oil Spill - Details of the Cement Kill - and Open Thread

Posted by [Heading Out](#) on August 9, 2010 - 10:25am

Topic: [Environment/Sustainability](#)

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BP's website is [now showing](#) that the cement plug is effective:

The pressure testing following the cementing operations indicates we have an effective cement plug in the casing which was the desired outcome.

In recent days, additional details of the Deepwater Horizon well cementing operation have emerged from the press conferences of [Kent Wells](#) and [Admiral Allen](#).

Admiral Allen held the first and shorter conference on Friday, and there were only two external questions, so perhaps interest is now fading fast as the well is now effectively plugged. It is not yet legally plugged and the need for certain procedures to comply with regulation was part of the discussion today.

Admiral Allen noted that after injecting the well with cement, a separating fluid was injected and then the cement pumped down to the bottom of the hole by injecting mud behind the separating fluid. He again spoke to the finding that the cement had only gone down the production casing, and not the annulus.

As I've told you in previous briefings, we're starting about 4-1/2 feet away from the well horizontally, and we'll drill down at a very, very slight angle. If for some reason they penetrate the annulus in the process of doing that, they'll prepare – they'll be prepared to go ahead and assess the condition of the annulus at that point and go ahead and submit the well in.

We do not believe that the second try will be needed to go into the casing pipe because the indications are from the cement that was put in from the top is that the casing has been filled with cement down at that level, but we will not be sure of that until we finish the pressure checks that I mentioned earlier. But if the – if the pressure checks hold and we have indication the casing has been sealed off with cement, then the killing alone would require only going into the annulus. But we will not know that until the pressure checks are complete on the – on the cementing that was done yesterday and we actually enter the annulus itself and understand what the condition is at that time.

The sense of those comments is that if the cement followed the oil path and sealed it, then there wasn't a leak in the annulus, since all the cement went down through the casing. Thus he likely is now expecting that when the relief well intersects the annulus and the cement within it, it is not going to find any hydrocarbons. (These will be detected in the returns of the mud to the surface as they continue to circulate fluid through the drill bit on the relief well.)

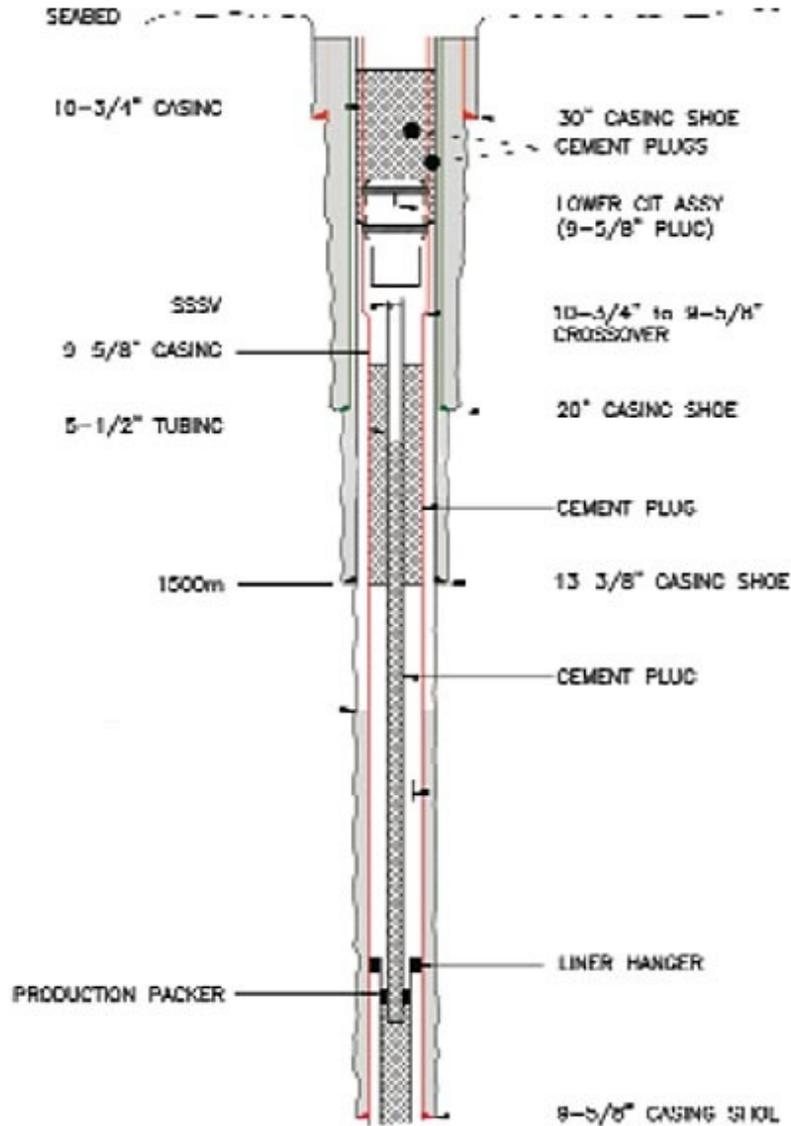
It is going to take another week or so to reach and penetrate the annulus and assess its condition, but after that the finale will come quickly. Kent Wells noted that the relief well has drilled beyond the last set of casing, that was just set, for an additional 15 ft, and this has given them the space to run the cement bond log and the first ranging run to ensure the positions of the wells remain as desired. The next drilling run (of about 30 ft) will likely take place on Sunday, and he too felt that the intersection would be in the August 13-15th time frame. (Incidentally the finding that the leak was from the cement in the shoe of the well, and not in the annulus could well mean that the cement bond log test, even if run, would not have found the original leak in the Deepwater well, since it was below the range over which the instrument would run - as the need to drill out the cement in the relief well before running it illustrates. Similarly the discussion about the number of centering pieces on the production casing may also no longer be pertinent to the failure).

However, if the oil flow was constrained only through the center of the production casing, then there should be no hydrocarbon in the annulus, and to verify that they may, perhaps drill longer and further down the annulus than otherwise planned. (This to get down to the area of the shoe to ensure that the cement job already completed has sealed off any possible paths upwards outside the casing).

In response to a question, Kent Wells stated that BP had pumped 500 barrels of cement down the well, and of this roughly 200 barrels went into the formation, with 300 barrels left in the casing.

At the time of the conference (3 pm Central) BP was running the pressure test on the well, having raised the pressure above the plug, it was being held constant, watching to see if there is any leakage that would drop the pressure and indicate the need for a fix.)

He also pointed out that for the abandonment procedure required for the well, BP will have to replace the current BOP with a functional one that would allow them then to insert a new drilling pipe into the top of the well. They will use this pipe to create a second plug up near the top of the well, prior to carrying out the removal of the top sections of the casing (as I showed in an earlier presentation) at a level below the sea bed. This will provide the original BOP for forensic examination. The final top plug might look [something like this](#):



Side view showing the removed top part of the casing and the two cement plugs required to seal the well below the seabed.



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