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BP's Deepwater Oil Spill - Some Less Technical Issues - and Open Thread

Posted by Gail the Actuary on July 2, 2010 - 10:36am
Topic: Environment/Sustainability
Tags: deepwater horizon, oil spill [list all tags]

Storm watch update Friday, 11:30 am from Chuck Watson:

> Meteorologists are watching a low pressure system that has formed off the tail end of a front that passed through the Southeastern US (this is the same system that pushed Alex into Mexico). The low has a small chance of forming a tropical storm (the National Hurricane Center says 10%). The bad news is that it looks like it will pass directly over the Gulf coast from east to west, right over the spill area. The winds and embedded thunderstorms will disrupt the booms and make skimming difficult or impossible. The good news is that it looks like a wet system, and offshore winds ahead of the storm may help blow oil offshore and disperse/dilute the oil. We really don't have a good model for how storms interact with a spill of this size, so we will learn a lot from the Gulf's pain. - Chuck

Gail's Post:

It is easy to blame BP for all of the problems relating to the oil spill, and I am sure that at least part of the problem lies with BP. In fact, we are now reading that criminal charges many be placed against BP. But what are some of the other issues?

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mberg.com/apps/news?pid=newsarchive&sid=aqHOzC1vF.oM">criminal charges many be placed against BP. But what are some of the other issues?

Clearly one of the issues is the role profitability plays in decision making, given our capitalistic approach to running businesses. When profits are being squeezed, as they were with the drop in oil prices from $147 to half that amount, it is especially easy to cut corners, to keep projects close to profitable. If profitability is a company's number one goal, it can lead to all kinds of bad decisions, no matter what the field. For oil and natural gas, it can mean cutting corners on safety. For health care, it can mean over treatment of those who can pay for it, and under treatment of those who cannot. In the food industry, it can means unhealthy over-processed foods based on cheap ingredients are the primary ones that reach the market.

For almost 30 years, since Ronald Regan became president in 1981, the push has been for smaller government and lower taxes. This has meant closer to unfettered growth of companies seeking profits, with little concern for the long-term benefit to the public. And of course, our other institutions have come to depend on these profits. Without the profits of BP and many other

public companies, our pension plans would have no hope of paying out the benefits that they have promised. So there is a real need for continued profits, and in fact growing profits, to make the financial system "work" as it was intended. When these pressures, and the lack of regulation are put together, we have a system that is almost certainly headed for problems. (And not just in the oil and gas industry!)

Minerals Management Service (MMS) was supposed to be regulating BP. But in fact, evidence shows they were doing a pretty poor job of regulation.

One of the issues for regulators is that in a very technical industry like oil and gas drilling, MMS employees really need to have worked recently in the industry, to be up to date on what the technology is. Another issue is that with technology constantly changing, and the types of wells being drilled constantly changing (deeper for example), a very bureaucratic approach to regulation doesn't work very well. Another issue is that government employees tend to be paid much less well than people in high paid industries --for example, oil company geologists and physicians in private practice. This is likely to mean that it is difficult for MMS to attract the best employees, and that there will be a lot of turnover among the employees who are there. According to the WSJ:

> Ms. Kendall says the MMS has only 60 inspectors for the Gulf of Mexico region to cover nearly 4,000 facilities. The agency also has trouble recruiting inspectors, according to her prepared remarks, because oil and gas companies pay "considerably" more than the agency. When inspectors can be recruited, she adds, they receive primarily on-the-job training, using guidelines and instructions that "appear to be considerably out of date" and developed between 1984 and 1991.
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> Ms. Kendall says the agency's regulations governing accident investigations are also sparse, limited to "five brief paragraphs."

BP, and the oil industry in general, very much under-planned for the possibility of a huge spill hitting land. But this lack of planning seems to have been encouraged by a mandated approach to analyzing the possibility of oil spills that the MMS (or a contractor) developed. According to the WSJ:

BP Relied on Faulty U.S. Data

> BP PLC and other big oil companies based their plans for responding to a big oil spill in the Gulf of Mexico on U.S. government projections that gave very low odds of oil hitting shore, even in the case of a spill much larger than the current one.
>
> The government models, which oil companies are required to use but have not been updated since 2004, assumed that most of the oil would rapidly evaporate or get broken up by waves or weather. In the weeks since the Deepwater Horizon caught fire and sank, real life has proven these models, prepared by the Interior Department's Mineral Management Service, wrong.

The model in question is OSRA, an acronym for "oil spill risk analysis." According to the same

WSJ article:

> That model projected that a spill of oil on the surface in the Mississippi Canyon area, located 68 miles offshore, would have just an 11% chance of making landfall in Plaquemines Parish, La., after 30 days. In reality, Plaquemines, the area hardest hit by the current spill, got its first tar balls 22 days after the explosion.

At least part of the problem is that the MMS is assuming that oil slicks will dissipate within 10 days, because of evaporation and natural weathering. When this assumption is included in models, it means that the chance of oil slicks hitting shore will be very low.

We don't know how such poor models were developed and disseminated. In yesterday's thread, we tried to look a bit at what information is available. Apparently most of the work on the model since 2000 was done by MMS employees, rather than outside contractors. The analyses were presented at International Oil Spill Conferences.

There are a lot of questions remaining to be resolved. I have only been able to touch on a few issues in this thread. It is clear, though, that part of the problems lay outside of BP.