



BP's Deepwater Oil Spill - What Research Reports were Saying - and Open Thread

Posted by [Gail the Actuary](#) on July 4, 2010 - 10:56am

Topic: [Environment/Sustainability](#)

Tags: [deepwater horizon](#), [oil spill](#) [[list all tags](#)]

Chuck Watson's storm update, Sunday 5:40 pm

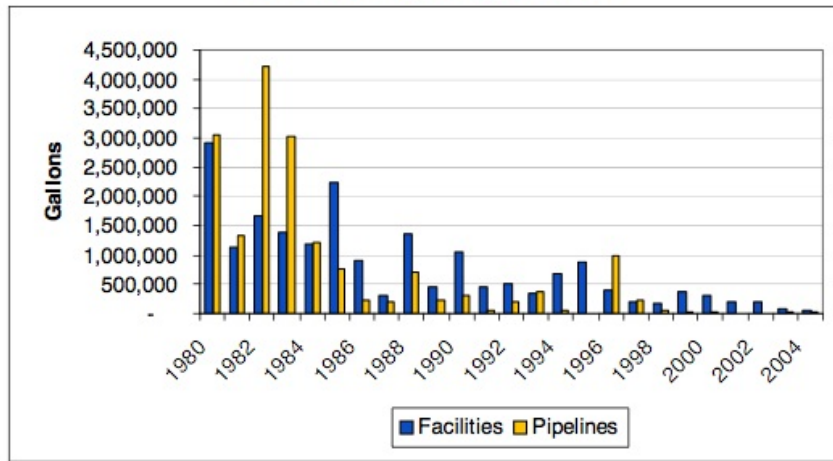
The low pressure system that has been moving over the Gulf and oil spill response area should be making landfall over Louisiana late Monday. Some skimming is restarting, but seas are still choppy and operations limited. The connection from the Helix Producer I platform to the well is still being delayed, as waves must be 3ft or less. There is another system off the coast of Belize that is becoming better organized. Models are showing it develop in to a tropical storm and following a track similar to Alex. Not good news - this promises another week of unsettled weather, and the potential for a tropical storm (perhaps 35%) or even a hurricane (10% chance) transiting the Gulf in 4 to 5 days, sending another rash of waves over the response area.

Gail's post

Every area of science or of business has its own area of research, literature, presentations and conferences. Since people in the field tend to read the same literature, this defines the "group think" of the field--whether right or wrong. I can only barely scratch the surface of oil spill literature, but I thought I would point out a few things I found.

On April 30, 2010, the US Congressional Research Service issued a report called [Oil Spills in U.S. Coastal Waters: Background, Governance, and Issues for Congress](#). An important graph in the report is this one:

Figure A-2. Volume of Oil Spills into U.S. Coastal Waters from Facilities and Pipelines, 1980-2004



Source: Prepared by CRS with data from USCG Oil Spill Compendium.

Note: The above USCG data include incidents from land-based facilities and pipelines, as well as oil industry facilities and pipelines in state (nearshore) and federal (offshore) waters.

The rather clear indication from Figure A-2 is that oil spills in US waters are pretty much going away. Even if the information was put together from other sources, this is what regulators and people working for oil companies would be looking at. It would be easy to get the idea that the whole issue of oil spills really didn't need too much vigilance now. Technology improvements over the years and better regulation regarding shipping had practically eliminated oil spills, so why worry about (or spend much government money on) oil spills any more?

regulation regarding shipping had practically eliminated oil spills, so why worry about (or spend much government money on) oil spills any more?

Economic Costs of Oil Spills

One of the issues discussed in the [Congressional Research report](#) noted above is the [economic cost of oil spills](#). There are three major types of costs of spills:

- Cleanup Costs
- Natural Resource Damages, including the cost of returning resources to the pre-damage condition
- Other Economic Costs, such as loss of tourism or interruption of local businesses

One reference that is cited is a 1999 report by Dagmar Etkin called [Estimating Cleanup Costs for Oil Spills](#). This report shows (among other things) that even excluding the Exxon Valdez Oil Spill, US average clean-up costs are three times those of elsewhere in the world.



Figure 2: Average cleanup cost per tonne spilled (in 1997 U.S. \$), based on analysis of oil spill cost data in the *OSIR International Oil Spill Database*.

A person might wonder, if, in the litigious US society, costs are defined differently than elsewhere in the world. If a bird is coated with oil, are other countries going to the same expense to try to save it? If tourism is down, are people who lost business, (plus their lawyers) being compensated? Does the government work very hard at keeping costs down, or do bureaucratic rules keep costs up?

I did a back of the envelope cost calculation using the European costs. If the spill lasts for 120 days and averages 40,000 barrels a day, a total of 4.8 million barrels (or 655,000 metric tonnes) would be spilled. European costs adjusted to 2010 dollars, the cost would amount to about \$11,266 per metric tonne, resulting in total costs of something like \$7.4 billion. US costs would be at least three times as much.

When decision-makers are deciding what clean-up actions to take, a major consideration is cost. There is a section in the same paper by Etkin called **Cleanup Strategies**. It points out cleaning up oil off-shore is a whole lot cheaper than cleaning up oil once it hits shore, and that the use of dispersants is usually a whole lot cheaper than the manual clean up of shorelines.

Choices made in cleanup strategies and the decision-making process in the aftermath of a spill can significantly affect cleanup costs. Cleanup costs are often directly correlated with spill impact, particularly shoreline impact, so that reducing the spill impact can result in reducing the spill response costs (Etkin, 1998b,c). Likewise money well spent on an effective cleanup can significantly reduce later natural resource and property damage claims.

When oil spills near a potentially sensitive coastline or resource (and near a potentially sensitive public), the most cost-effective approach to a cleanup operation is to invest as much equipment, personnel, and energy into keeping the oil away from the shoreline or sensitive resource. One unpublished study by an economist (Franken, 1991) suggests that in spill incidents in which the oil impacts a coastline, as much as 90–99% of the cost of cleanup is associated with shoreline cleanup procedures, especially when manual methods are employed. Franken (1991) showed that the cost of removing oil off shore (by either dispersants or mechanical recovery) averaged \$7,350/tonne, whereas shoreline cleanup ran as

high as \$147,000–\$294,000/tonne.

Conferences

There are [International Oil Spill Conferences](#) (IOSCs) every three years, and regional conferences more often. About the next conference, we read:

The 21st Triennial International Oil Spill Conference will be held May 23-26, 2011 at the Oregon Convention Center in Portland, Oregon, USA. Over 2,000 people from 50 countries are expected to attend the technical sessions and view more than 250 exhibits. The Conference theme for 2011 is: "Industry and Government Working Together".

There IOISC has [searchable archives](#) with more than 3,000 papers.

General

I have only barely scratched the surface, but I expect these are the kinds of references people in the oil industry are reading. I am sure that someone working in the area could present much more.



This work is licensed under a [Creative Commons Attribution-Share Alike 3.0 United States License](#).