

A Comparison of Oil Well Disasters in the Gulf of Mexico and Kuwait

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Introduction

In light of the recent events in the Gulf of Mexico, the Deepwater Horizon oil spill has been on everyone's mind. In a country where we are extremely reliant on fossil fuels, the Deepwater Horizon oil spill is more than an environmental disaster but is also an economic and security crisis. Since April 20, 2010 when the drilling rig exploded, several attempts to stop the flow of oil into the Gulf have been employed. As of now, oil is still gushing into the water from the deepwater well that is located 5,000 feet below the surface. Current estimates suggest that 60,000 barrels per day are flowing into the Gulf. The situation in the Gulf of Mexico, was compared with the most well-known oil spill in U.S. history, the Exxon Valdez, a similar oil spill in the Gulf of Mexico - the Ixtoc I, and to the largest oil disaster in the history of the world which occurred in Kuwait during the Gulf War. Luckily, our client—Professor Bill Hunt—was working in Kuwait in 1991 to deal with the impact of the uncontrolled fires in the oil fields and has been able to supply us with detailed information regarding the spill and the fires.

Methods

Our analysis led us to comparing the disaster in Kuwait to Deepwater Horizon in hopes of determining how does one well in the Gulf of Mexico compare with uncontrolled high pressure wells on fire in Kuwait's Greater Burgan Field. In addition we will discuss how the Deepwater Horizon well compares the Exxon Valdes, an earlier spill in the Gulf of Mexico, and with the uncontrolled Kuwait wells.

Our professor told us that the high pressure wells (HPW) in Kuwait were 15,000 pounds per square inch (PSI) and that a high pressure well in the United States (Texas) was 5,000 PSI. There are 297 HPW in the Greater Burgan Field out of 700 wells that were on fire during the Kuwaiti oil fires.

We assumed that the 403 medium pressure wells (MPW) were equivalent to 200 HPW, giving us an effective total of 497 high pressure wells that we used in our calculations. We calculated the burning wells like this: 297 HPW + 400 MPW = 297 HPW + 200 HPW = 497 HPW.



Left Picture: Deepwater Horizon platform fire
 Right Picture: A single oil well fire in Kuwait

Reference

Deepwater photos courtesy of NASA/GSFC, MODIS Rapid Response
 All Kuwait Pictures are courtesy to Professor Bill Hunt
 The Deepwater Oil Rig fire picture is taken by the US Coast Guard

Results

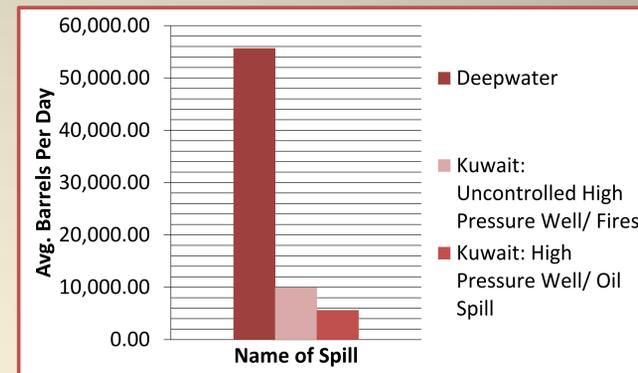


Table 1. Deepwater vs. Kuwait Wells

Kuwait vs. Deepwater Based on Amount of Oil Spilled

Name of Spill	Number of Wells	Avg. Rate Overall (barrels per day)	Avg. Rate One Well (barrels per day)	# of Kuwait Wells to Equal 1 Deepwater Well for Avg. Rate
Deepwater	1	55,684.89	55,684.89	9.89
Kuwait	297	1,671,921.90	5,629.37	

Kuwait vs. Deepwater Based on Amount of Oil Burned

Name of Spill	Number of Wells	Avg. Rate Overall (barrels per day)	Avg. Rate One Well (barrels per day)	# of Kuwait Wells to Equal 1 Deepwater Well for Avg. Rate
Deepwater	1	55,684.89	55,756.00	5.59
Kuwait: New Combo of Wells	497	4,952,947.00	9,965.69	

Discussion

- We estimate the cost of the spill in terms of the number of barrels spilled is about 74 million dollars. This price is not including the price of sealing the well or the cost of cleaning up the environmental damage in the Gulf of Mexico.
- Based on the values of the rate of barrels spilt in a day for one well that we calculated for the Kuwait oil spill, we found that the Deepwater oil spill releases between 6 to 10 times a HPW in Kuwait. This means that the pressure of the Deepwater well is greater than 15,000 PSI.

Acknowledgement

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