Reservoir Dimensioning using the SPIDR® Gauge

Operating oil and gas properties in the Gulf of Mexico can present many challenges on a daily basis. Throw in an occasional storm or two and those challenges become more apparent. One company forced to shut in their wells due to a storm had an idea to take advantage of the upcoming shut-ins to perform much needed testing on a few of their more prolific wells. Halliburton had a proposal for such an occurrence.

The proposal for one specific high rate producer called for sending a unit out for 30 days. Based on reservoir seismic data, an offset drilling prospect existed which suggested the possibility of a separate undrained area. Since the prospect was downdip of the producing well, a high geologic risk was associated with the new prospect. It was hoped that the pressure data would either mitigate the risk, or deem another take point unnecessary.

Through careful planning, a test was designed to either prove or disprove the possibility of drilling another well. Considering the cost to drill, it was very important to capture quality data for analysis. Along the SPIDR® gauge, Wavex Reservoir Dimensioning and Imaging was brought in to interpret the gathered data and provide an independent geologic model to compare with the seismic mapping.

About 2-1/2 months of accurate pressure data was obtained during the peak hurricane season of 2008, which involved several shut-in periods of varying duration. Wavex and Halliburton met with the operator to go over the data. What’s most interesting is the maps were made blindly, meaning no prior knowledge of what the operating company’s maps looked like. To their complete satisfaction, the pressure data derived map was very similar to the geoscientists’ map of the reservoir, meaning that the two potentially separate areas were actually connected. Also, the reserves estimates given by Wavex closely matched what they had themselves reported. The end result of the data gathering and analysis was that no further consideration was given to a prospect which would have resulted in an expensive and unnecessary well.

The operator involved was pleased with the results, that in the future when it comes time for pressure transient testing and analysis, Halliburton will be top on their list.