



OptaSense Delivers Full VSP Package While Providing Significant Cost Savings

North Sea

The Challenge

A major operator in the North Sea wanted a more cost-effective way to accurately measure reservoir compaction and capture reservoir imaging for a life-of-field development. Measurements typically require full wellbore intervention using wireline. This method required taking the producing wells offline, resulting in costly lost production. Additionally, it also typically requires the hiring of seismic survey vessels with a towed source array to provide an acoustic source for the measurement. These vessels are subject to an exclusion zone around platforms leaving gaps in subsurface data.

Utilizing a supply vessel with Dynamic Positioning (DP) and mobile fixed source arrangement allows the source to be deployed much closer to platform, giving

better subsurface data coverage and improved results. The high-cost and limited availability of these dedicated survey vessels also contributes to the poor economics of this measurement acquisition method compared to market rates for standard DP supply vessel.

The operator decided to look at Distributed Fiber-optic Sensing (DFOS) as an alternative to conventional seismic acquisition, however, there was a perception that the seismic data provided by fiber-optic sensing would not have the level of quality needed to achieve the desired measurement results.

After considering several fiber-optic service providers, the operator selected OptaSense to acquire high-quality seismic data based the proposed technical

Problem:

- Need for accurate measurement of reservoir compaction and imaging over life of field development
- Conventional measurement required well intervention and production down time
- Expensive specialized seismic survey vessels

Solution:

- OptaSense Distributed Fiber-optic Sensing Solution
 - Multiple wells recorded simultaneously
 - 3rd party vendors used for navigation and contracted supply vessels used for airgun source
 - Recording parameters optimized onsite

Value Delivered:

- High-quality data recordings
- Reduced cost and rig time savings
- Quick turnaround of data allowed for use on future wells

solution and the amount of previous experience in the seismic acquisition market.

The Solution

As part of the DFOS seismic monitoring solution, OptaSense engineers recommended that the operator:

1. Record three wells simultaneously for the duration of the project;
2. Use third-party vendors for navigation and have airgun source supply positioned on contracted supply vessels, negating need to hire specialized seismic vessels.
3. Optimize recording parameters onsite to reduce rig time operations.

The solution offered by OptaSense allowed the operator to acquire high quality seismic data will also delivering considerable cost savings over the life of the field since these measurements have to be continually repeated to measure movement of overburden and reservoir fluids.

Delivered Value

The seismic data quality delivered was of such quality that the operator extended the program to cover imaging as well as the

reservoir compaction. An additional three weeks of work was secured based on the "first raw DAS data record" supplied by OptaSense to the client. This initial DAS seismic measurement was key as a baseline against which all future measurements would be made.

Operationally, the client was able to use a standard supply vessel with OptaSense equipment deployed on the back of the deck at significant cost savings. Due to the abundant availability of these types of supply vessels, the timing of the survey was optimized around platform operations bringing new development online.

In addition to the reduced rig time and money saved using supply vessels rather than specialized seismic vessels, this novel approach also resulted in significant indirect cost savings as well. The quick turnaround of data allowed it to be used to assist in placement and setting of casing for the next well (and future wells.)

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