Case study: North Sea

STRATA-Vision, StarTrak positioned injector well perfectly, saved operator $1.2 million USD

An operator was planning to drill a North Sea injector well to increase production from surrounding wells. It was critical to ensure proper placement of the injector well to sustain production rates as placing it in the wrong location could lead to a costly investment with no return.

For the pre-well study, the operator had only conducted X-ray fluorescence (XRF) testing in a total of four samples from an offset well. Although four samples were collected in sandstone formations, they represented two different formations.

The limited data collected proved insufficient to confidently differentiate between the formations, and the operator was concerned that it would be impossible to select the proper placement for the injector well without gathering more downhole data. This would require a sidetrack with additional tool runs, significantly increasing costs.

The customer asked Baker Hughes to help find a solution on proper placement for the water injection well. Baker Hughes leveraged data from the **STRATA-Vision™ advanced cuttings analysis service**, which had already been applied in another nearby well.

The data provided Baker Hughes with more insight into the elemental composition of the sandstone formation.

Using the STRATA-Vision service, the cuttings were analyzed and the elements titanium (Ti), zirconium (Zr), and strontium (Sr) were identified as key markers for differentiation between the sandstone formations. Combined with resistivity imaging data from an offset well, Baker Hughes also identified the formation top as well as the presence of cross-bedding on one of the formations, when compared to the other formation, which was structureless.

The Baker Hughes team had also run the **StarTrak™ high-definition imaging service** in one of the nearby wells and this data was also used to lower any remaining uncertainty. These images clearly showed the presence of cross-bedding in one formation compared to a structureless appearance of the other formation.

By using the STRATA-Vision service combined with the StarTrak service, the customer was able to position the injector well in the optimal location to boost production from its other wells.

Although there were initial concerns there was not enough data to position the injector well without sidetracking, Baker Hughes was able to utilize the STRATA-Vision service to analyze available cuttings and provide a solution without the cost of additional data-collection runs. As a result, STRATA-Vision saved the operator $1.2 million USD.

Challenges

- Differentiate between similar sandstone formations without gathering more data
- Avoid sidetracks or additional trips
- Enable proper placement of injector well

Results

- Properly positioned the customer's injector well
- Saved up to $1.2 million USD by eliminating the need for a sidetrack and extra tool runs
- Identified formation using the customer's existing data

Using the STRATA-Vision service, Baker Hughes analyzed existing cuttings and identified the proper location for the injector well.