> This study provided high-quality data and valuable reservoir knowledge in a simple, cost-effective manner. DTI presented the conclusions in an excellent and clear report

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CASE STUDY

**Value for Operator**

The tracer study identified the position of the fracture enabling the operator to conduct a conformance treatment and improve the sweep efficiency. The study gave cost-effective and unambiguous information not attainable by logging or interference tests.


DANISH TECHNOLOGICAL INSTITUTE


CASE STUDY

# Interwell Tracer Study for Fracture Characterization

**Background**

Induced or natural fractures in tight chalk reservoirs can have significant impact on oil recovery since the injection water is passing through the fracture instead of sweeping the matrix.

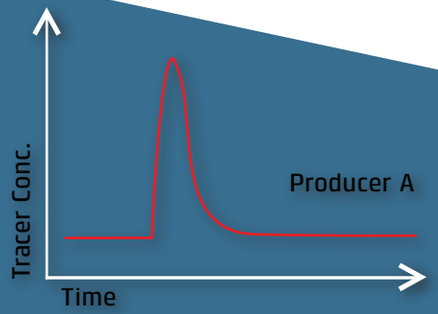
An oilfield operator wished to characterize a high-conductivity fracture between an injector and producer. The objective was to optimize injection water management and, optimally, close the fracture via a conformance treatment.

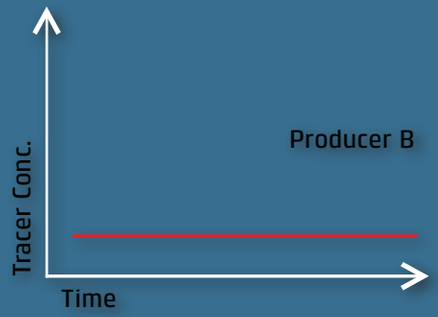
Prior to the tracer study it was unknown whether the injector was connected to Producer A or B. The exact position of the fracture was also unknown.

**The Tracer Operation**

DTI has developed a technology using D2O as a chemical tracer. The tracer is detectable at low concentration levels and can be detected at site using DTI´s analytical equipment.

The tracer was pumped into the injection well via a portable, hydraulic pump. Sampling was performed from the two producers and analyzed immediately by the offshore DTI consultant. This enabled DTI to identify the tracer breakthrough at site, thus saving the operator for unnecessary sampling. The position of a fracture between the injector and Producer A was determined. Data analysis proved that 19% of the injection water was circulating through the fracture.




*Figur 1. Tracer responses in the two monitored producers. Only Producer A is connected to the injector via a fracture. There are no secondary fractures as only one signal is observed.*

*Figure 2. Illustration of an injector-producer pair. The tracer is injected along with the injection water, flows through the fracture and is detected at the production well.*