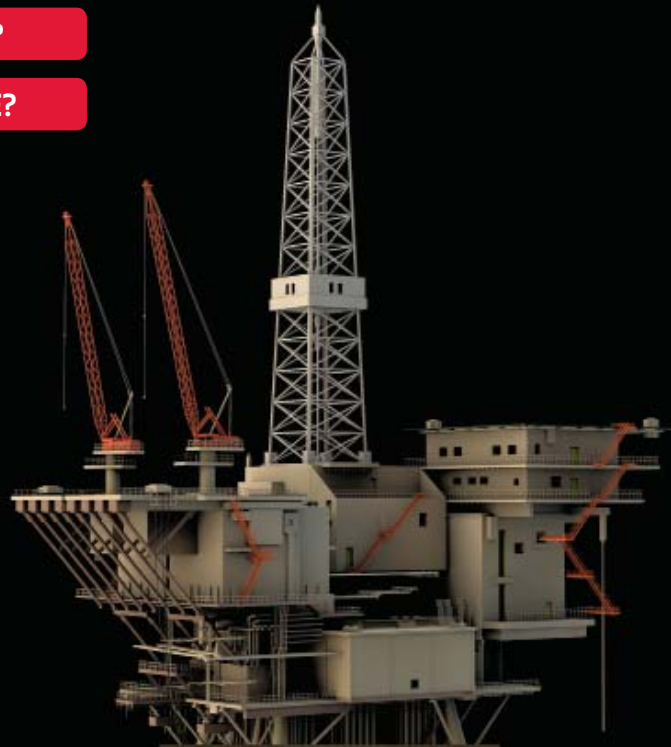


# Improved insight into oil well inflow without risk

ARE ALL YOUR ZONES PRODUCING?

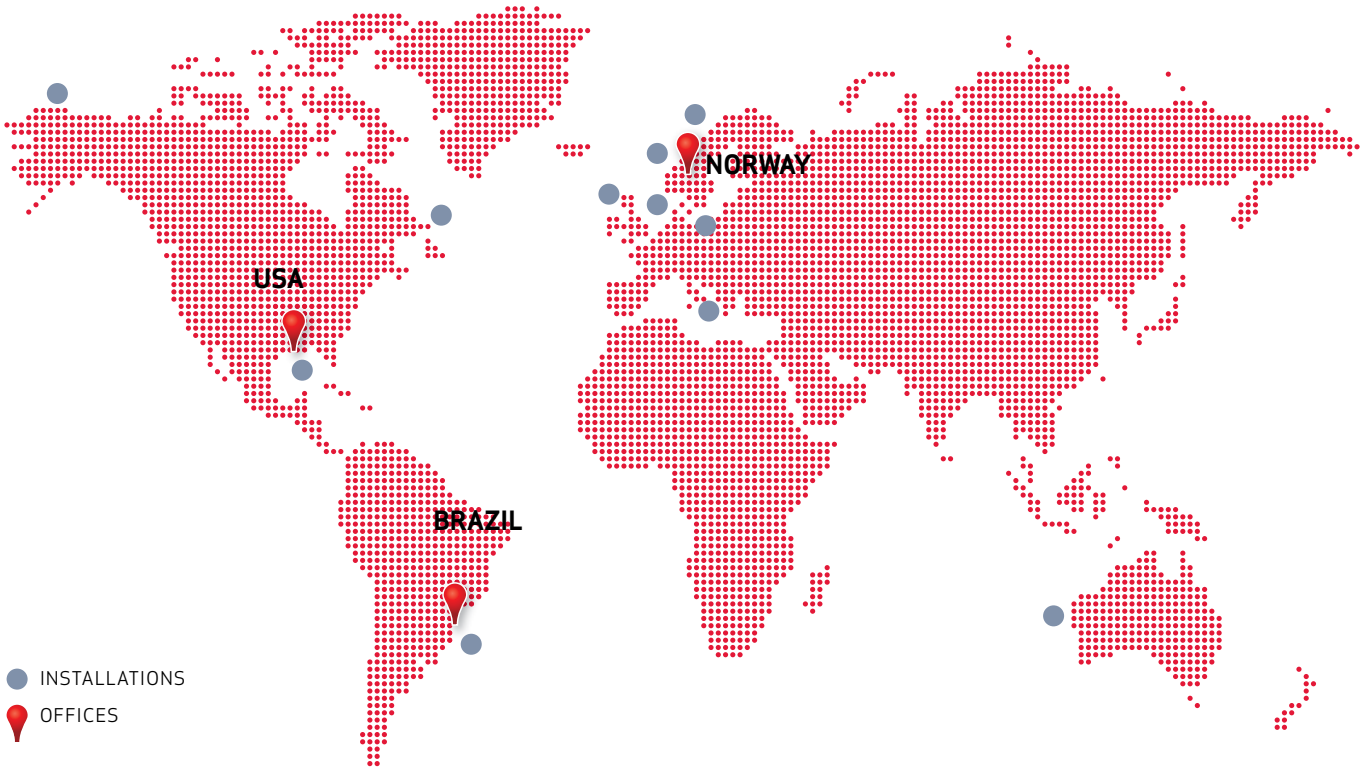
WHERE IS WATER BREAKING INTO THE WELL?

HOW DOES PRODUCTION EVOLVE OVER TIME?



*Is your reservoir  
out of focus?*

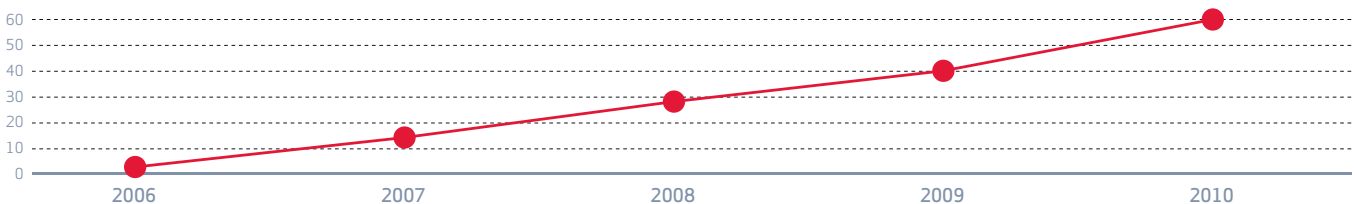
### The RESMAN footprint



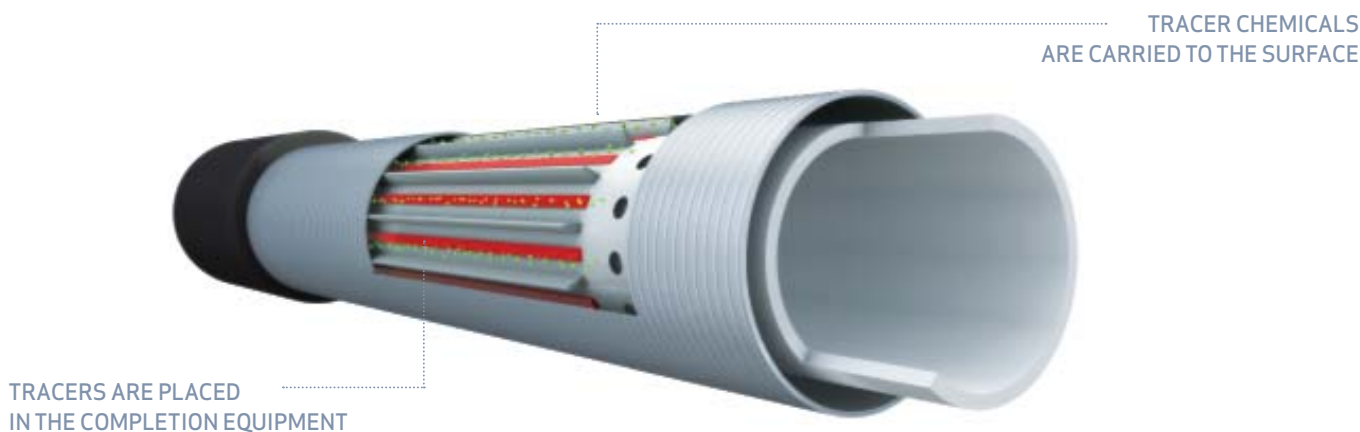
## Since its inception in 2005, RESMAN has developed its technology with great success

The company today has 30 highly educated and competent employees. Our main office and headquarters is in Trondheim, Norway. We have sales offices in Houston and Rio de Janeiro and our footprint is growing. By the end of this year, 2011, we will have installed our products in more than 100 wells, in Norway, the UK, Denmark, Germany, Italy, the Gulf of Mexico, Alaska, Newfoundland, Australia and Brazil. The feedback from our customers is clear; we are filling a gap in their need for reservoir monitoring that is wireless, cost effective and low risk. I believe RESMAN has a game changing technology and is destined to be one of the greatest successes in the industry. *Torger Skillingstad, CEO*

### Annual revenue (in million NOK)



RESMAN tracer technology is a means of obtaining reservoir and well surveillance information without risky and costly intervention operations or cables that require extensive modifications to completion hardware.



### CHEMICAL FINGERPRINTING

RESMAN tracers are designed to release a unique chemical fingerprint when contacted by the target fluid (oil or water). Up to 30 fingerprints are currently available for either oil or water inflow detection.

### WIRELESS SENSORS IN THE COMPLETION

A selection of tracers is strategically placed in the completion equipment (such as sand screens or specially designed carriers) across the reservoir interval. Reservoir fluids contact the tracer strips and carry the very low concentration of tracer chemical to the surface where the produced fluids are sampled.

### INFLOW INSIGHT

Analysis of the fluid samples identifies which fingerprints are present or not present. This information provides the operator with knowledge about which segments of the reservoir interval are flowing and insight into the proportional distribution of the inflow. Water sensitive tracers can also be deployed alongside the oil sensitive tracers that provide the location of water break-thru.

## What are the typical applications?

Knowing the inflow distribution, location of water break-thru and integrity of the completion equipment is fundamental to reservoir management decision making. Information from RESMAN technology can be used in decisions about optimizing completion design, stimulation effectiveness, waterflood strategy, reservoir drainage and many other reservoir management challenges.

Obtaining surveillance information from across the reservoir in today's hostile operating conditions and complex wellbores is so costly and risky using conventional techniques that in many cases it is never obtained. RESMAN offers the operator the capability to obtain reservoir and wellbore surveillance in these environments with effectively zero risk.

## Versatile technology that delivers results

Three application examples that illustrate the flexibility, ease of deployment and excellent performance of RESMAN technology. In these examples the tracer strips are integrated into completion components during the manufacturing process and the completion is installed without any change from normal procedures.

### CONVENTIONAL SAND SCREENS – HORIZONTAL WELL

RESMAN strips have been integrated into conventional sand screens and installed at various locations along the reservoir interval in long horizontal wells. Signals from the tracers have provided the operator with direct evidence the toe of the well was producing in equal proportion to the other sections of the well.

### INFLOW CONTROL DEVICES (ICD)

Wells utilizing ICD screens have demonstrated good results in determining the inflow distribution and identifying which sections of a completion were under performing.

### WATER BREAK THROUGH

Strips that are dormant while in contact with oil and then release the tracer when contacted by produced water have allowed operators to identify the location of water break-thru. This information allows the operator to improve overall reservoir management and ultimate recovery.

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