



Water management

Conserving and protecting water resources



Statoil

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Statoil is committed to using water responsibly during the life cycle of our development and operating activities.

PROTECTING GROUNDWATER

We conduct baseline assessments to evaluate the quality of the groundwater to ensure that our activities are not negatively affecting the freshwater sources in the area.

Water used in oil and gas production is sourced from rivers, creeks and lakes. This is done in compliance with regulations and permits.

The amount of water used during hydraulic fracturing varies according to geological characteristics. For example, a typical Marcellus horizontal deep shale gas well requires an average of 20.8 million litres (5.5 million gallons) of water per well. The volume needed decreases as technology and methods improve.



Hydraulic fracturing in the Bakken, United States



*Freshwater impoundment,
Marcellus, United States*

Statoil is piloting the use of returned (produced) water for hydraulic fracturing purposes, with the aim of reducing overall water consumption.



HOW THE WATER IS USED

Drilling

Drilling fluids (water combined with additives) are used during the drilling process to transport drill cuttings to the surface, stabilise the formation around the wellbore, and clean, cool and lubricate the drillbit.

Hydraulic fracturing

Water is the main component of fracturing fluid; it is pumped into the well at high pressure to fracture the rock. Fracturing fluid is comprised of approximately 99.5% water and proppant (sand or ceramic pellets), and 0.5% chemical additives.

Returned water

After being injected into the well, a portion of the fracturing fluid will be produced back (returned) to the surface. The amount of fluid that returns to the surface depends on the local geological characteristics. Typically between 15% to 40% of the fluid is returned. The rest of the water remains in the formation and may be slowly produced over a long period of time.

Recycling and disposal

Any water captured during the drilling and hydraulic fracturing process is either recycled or disposed of according to government guidelines and regulations.

In some instances, returned water is sent to industrial waste facilities which process the water for safe disposal.

Returned water can also be recycled or re-injected into abandoned reservoirs. When suitable geology exists, the water can be injected safely into sealed geological formations, typically non-potable saltwater aquifers, which are thousands of metres below the earth's surface.

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Statoil is committed to developing our shale projects in a safe, responsible and open manner.