

# Application Data

## Water injection



### Benefits

- Stimulates production
- Can make a marginal development viable
- Pumphead & wetted materials manufactured in specialist alloy stainless steel to cope with high H<sub>2</sub>S content
- Pumps generally in accordance with API 674
- HPS5000 is 5 cylinder so output is very smooth, improved further by using pulsation dampers
- Unit can be packaged packaged for extreme temperature use (-20°C to +50°C)
- Same pumps can be used for pipeline flushing, decommissioning, cleaning & hydrostatic pressure testing

### Typical Pumps & Performances

Pump	Performance	Application
HPS3000 (API674)	<b>484lpm at 250bar</b> (29m <sup>3</sup> /hr / 4385bpd at 3,625psi)	Water injection
HPS5000 (API 674)	<b>806lpm at 250bar</b> (48m <sup>3</sup> /hr / 7302bpd at 3,625psi)	Water injection

Primary production refers to oil that is recovered naturally from a producing well, Enhanced Oil Recovery (EOR) increases the amount of oil recovered by using water injection (waterflood). Used onshore & offshore, injection wells are drilled into a reservoir & water injected at high pressure, thereby increasing reservoir pressure which moves the oil.

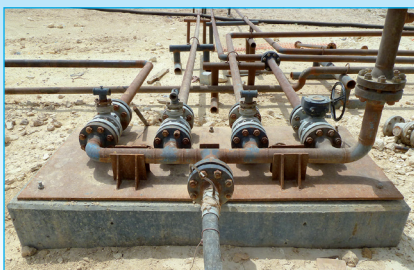
The water used for this process is usually brine but can also be produced water from the well.

Filtration is often necessary to ensure that no materials clog the well pores & needs to be treated to reduce any bacteria growth.

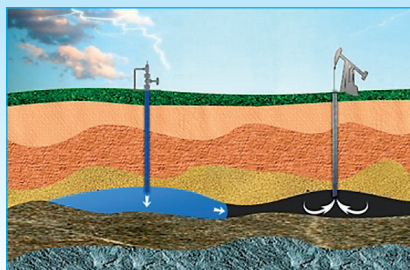
Primary production usually only recovers 30-35% of the oil. Water injection can recover 5-50% of the oil remaining in the reservoir, greatly enhancing the productivity & economics of the development. This form of EOR is typically more productive when there are relatively small amounts of primary production.



Tatweer Petroleum oilfield in Bahrain



Water injection manifold



The water injection process



Multiple pumps linked together

This information is intended to be a guide only. The required pump size & performance can vary depending on many factors including rate of work required, hardness of deposit or work piece, operator skill, site access etc.

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