WI13

Best Practices for a Sustainable PWRI

J. Ochi* (Total E&P France)

SUMMARY

Produced water re-injection or PWRI is an important strategy for deriving value from waste waters because it offers the benefit of an environmentally attractive disposal technique and it can also participate to reservoir sweep improvement and pressure maintenance.

Before any implementation of PWRI project, specifications of produced water quality in terms of solid and oil contents must be determined to allow designing water treatment installations. Also, specifications of injection pressure must be determined to allow designing injection pumps and network. If not designed correctly, PWRI can face injectivity decline which end in loss of production or safety issues in term of cap rock integrity.

A correct PWRI project design is not a simple matter and needs heavy lab experiments, sophisticated tools and the Company's know-how acquired through field experience feedback. The purpose here is to share Total's experience in this domain by presenting the key factors to be considered and the traps to be avoided to make any PWRI project successful.

The presentation should answer questions like: which injection flow regime for PWRI and why, how to determine specifications for water, is there any simple rules, what represent core flood tests with regard to the well, how to link both, how to forecast injection pressure and how to determine maximum allowable pressures, what software to use, how to assess uncertainties, what to do if injectivity deteriorates eventually, is there any remedial technique?

The answers to these questions will be illustrated by field examples with carbonates and sandstones.