



DRILLING, WELLS AND RESERVOIR ENGINEERING

Waterflooding Design and Surveillance

5 day course

Classroom, online or in-house

Course overview

Water injection is the most common way to raise recovery after primary depletion, and also one of the easiest to get wrong: injectors placed across sealing faults, water quality that plugs the sandface, or channels that cycle water back to producers within months. Delegates start with displacement efficiency, mobility ratio, fractional flow and areal and vertical sweep. Pattern selection, injector placement and voidage replacement are worked through for peripheral and pattern floods. Injection water sourcing, treatment and compatibility with formation brine follow. Surveillance takes the latter half: Hall plots, injectivity, voidage ratios, water oil ratio diagnostics, Chan plots, tracers and capacitance resistance models. The programme ends on conformance problems and flood redesign. Delegates leave able to design a waterflood and run a surveillance routine that keeps it efficient.

What you will learn

- Calculate displacement efficiency and mobility ratio for a waterflood
- Estimate areal and vertical sweep from reservoir heterogeneity
- Select flood patterns and injector locations
- Specify injection water quality and compatibility requirements
- Monitor injectivity and voidage replacement with Hall and voidage plots
- Diagnose water breakthrough and channelling from production data and tracers
- Recommend conformance and pattern changes to improve sweep

Who should attend

- Reservoir engineers managing mature fields
- Production engineers
- Surveillance engineers
- Water injection facility engineers
- Asset managers planning secondary recovery

Course outline

- 01 Principles of immiscible displacement
- 02 Mobility, sweep and heterogeneity
- 03 Flood pattern design
- 04 Injection water sourcing and treatment
- 05 Performance prediction methods
- 06 Injection surveillance
- 07 Production diagnostics and tracers
- 08 Conformance control
- 09 Flood optimisation and redesign

Upcoming dates

Dates	Venue	Format	Fee per delegate
30 November to 4 December 2026	Lagos, Nigeria	Classroom	USD 1,325
4 to 8 January 2027	Gaborone, Botswana	Classroom	R19,950
8 to 12 March 2027	Online	Online	R8,500



Fees and how to register

This 5 day course is **R8,500** per delegate online, **R19,950** in the classroom in South Africa, Botswana, Namibia, Lesotho and Eswatini, and **USD 1,325** in the classroom elsewhere in Africa. In-house training is quotation on request. Book 2 or more delegates on this course and save 10%.

To register or request an in-house proposal, visit www.afrisciencegroup.com, email info@afri-science.co.za, or WhatsApp us on **+27 63 479 1136**.

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