ISMAR 12 WORKSHOP – MONDAY, 28 APRIL 2024

MAR Scheme Design Considerations for Bore Recharge (Science meets Engineering)

Presenters

Corné Engelbrecht (Support Presenter) - Senior Hydrogeologist & Regional Water Lead (WA) at Wallbridge Gilbert Aztec (WGA)

Russell Martin (Lead Presenter) - Senior Principal Hydrogeologist & Group Hydrogeology Technical Lead at Wallbridge Gilbert Aztec (WGA)

Kes Murray (Support Presenter) - Senior Hydrogeologist & Regional Hydrogeology Technical Lead (WA) at Wallbridge Gilbert Aztec (WGA)

Objective(s) / Outcome(s) of the Workshop

The objective of the workshop is to guide attendees through the critical considerations and examples involved in the design and engineering of a Managed Aquifer Recharge (MAR) scheme. Participants will explore the implications of poorly defined scheme objectives and learn about essential preliminary design components, covering aspects from source water collection to treatment, transfer, and recharge. The workshop will also delve into multi-criteria analyses for evaluating preliminary design options. The anticipated outcome is that attendees will gain a comprehensive understanding of the key factors and methodologies necessary for effectively planning and implementing a MAR scheme.

Content of the Workshop

- Bore design considerations
- Overview of different drilling methods Importance of bore development
- Aquifer testing (discharge and injection testing) Screen placement
- Material selection Grouting
- Safe Operating Pressures (SOP)
- Practical / worked example (based on provided lithological log) Engineering considerations
- Headworks design (including practical / worked example) Scheme design Process Flow Diagrams (PFDs)
- Scheme design Piping & Instrumentation Diagrams (P&IDs) Instrumentation
- Water quality dosing
- Hydrogeology & Engineering considerations

Attendee knowledge / experience requirements

Basic hydrogeology or water engineering

Any other requirements

Attendees to bring notebook and pen (or electronic equivalent) for design sketches.