



Achieving Successful Groundwater Recharge and Recovery Through Wells

Presenters

- David Pyne – ASR Systems, USA dpayne@asrsystems.ws;
- Russell Martin – Wallbridge Gilbert Aztec, Australia rmartin@wga.com.au;

Speaker affiliation level of experience in the subject matter

David Pyne has over 40 years of experience with ASR wells, including feasibility studies, design, permitting, construction services, operation and performance review for several hundred ASR projects in the USA and international. Since 1994 he has presented ASR workshops at ISMAR and other conferences, along with Dr Herman Bouwer, Russell Martin and others). He coined the term “Aquifer Storage Recovery,” and has written a book, now in its second edition, entitled “Aquifer Storage Recovery: A Guide to Groundwater Recharge Through Wells.” He has a Bachelor of Science degree in Civil Engineering from Duke University and a Masters degree in Environmental Sciences from the University of Florida, specializing in Water Resources Engineering.

Russell Martin has over 35 years of experience in Hydrogeology across the Public and Private sectors. He holds a Bachelor of Science degree from the University of Canterbury and a Master’s degree in Hydrogeology from the Flinders University of South Australia. Russell has worked on more than 60 large scale, multi-faceted MAR/ASR projects across Australia and internationally. Currently he leads the International Association of Hydrogeologists (IAH) Working Group on Clogging during MAR and has delivered numerous technical workshops and training on the topic of MAR.

Objectives/ Outcomes of the Workshop

A “Course Description” for the ISMAR 11 ASR Workshop was as follows:

“The aim of this workshop is to provide attendees with an appreciation and practical understanding of the technical, scientific, engineering design and other issues that need to be addressed when developing Managed Aquifer Recharge (MAR) systems that utilize wells, whether aquifer recharge (AR) wells, aquifer storage recovery (ASR) wells, aquifer storage transfer recovery (ASTR) wells, or other emerging new adaptations of ASR.”

“Successful and sustainable recharge via wells requires a collaborative effort by scientists and engineers from across multiple disciplines. Failure of some MAR systems can be attributed directly to the poor design of the wells; inadequate characterization of the source and receiving water; poor engineering design or miscommunication concerning the primary objectives of the MAR system. ASR wells are quite different from standard water supply wells or injection wells.”

ISMAR 12 WORKSHOP – MONDAY, 28 APRIL 2024



“This workshop will guide participants through the pre-requisites for, and technical feasibility of ASR systems for a variety of water sources, aquifer types and end uses. The primary focus of the workshop will be on the key technical issues associated with planning, feasibility assessment, design, construction, operation and performance evaluation of recharge and recovery systems via wells. Economic and regulatory issues that impact well performance will also be addressed.

Case studies will be used to illustrate the key considerations that need to be employed to deliver successful, integrated and sustainable ASR operations.”

Content of Workshop

- An outline for the four-hour ISMAR 11 ASR Workshop was as follows:
- *Introduction to Well Recharge/ ASR (David Pyne)*
 - *What are the challenges to successful well recharge?*
 - *Design of ASR wells and wellhead facilities*
 - *Phased Approach to Successful ASR*
 - *ASR Applications/ Objectives*
 - *Operation of ASR Wells*
 - *Selected Technical Considerations (Russell Martin)*
 - *Clogging and Unclogging in ASR wells*
 - *Operating Pressures*
 - *Geochemical/ Microbial Considerations*

Attendee knowledge; experience requirements

The workshop is aimed at MAR practitioners across all experience levels (Basic; Intermediate, or Advanced). Some prior knowledge of MAR techniques and terminology is useful but not essential.