



## Evaluating Well Performance, Deterioration and Corrective Actions for MAR Wells

**Thomas Hanna** is employed as a the Technical Director/Hydrogeologist for Johnson Screens where he works in areas of well design, construction, rehabilitation and development. He received his Bachelor of Science Degree in Geology from Michigan State University and Master of Science Degree in Geology from Western Michigan University. He is a Register Professional Geologist in the states of Arizona, Kentucky and Wyoming.

Before working for Johnson Screens Mr. Hanna worked over 15 years as a hydrogeologist for several ground-water consulting firms including Hydrologic Consultants, Inc., Papadopulos Associates, and Golder Associates. His experiences include hydrogeologic investigations, design and optimization of well efficiencies for mine dewatering and water supply investigations.

Mr. Hanna has authored the Operational Stage of the Well, tree chapters of the 3<sup>rd</sup> Edition of Ground Water and Wells, and numerous technical papers. He has been an instructor and invited lecturer for many ground-water organizations and universities.

**Michael (Mike) Schnieders** is the lead hydrogeologist and president of Water Systems Engineering, Inc., a diagnostic laboratory and consulting firm in Ottawa, Kansas. Mike received his Bachelor of Science Degree in Geology from Kansas State University and a Master of Science in Geology from Wichita State University. Mike is a Registered Professional Geologist and a Professional Hydrologist with a distinction in groundwater.

Mike co-authored the Operational Stage of the Well along with numerous technical papers on water resources, well fouling, and water testing. Mike was the National Ground Water Association's 2017 McElhiney Distinguished Lecturer in Water Well Technology.

## ISMAR 12 WORKSHOP – MONDAY, 28 APRIL 2024



### **Workshop Objectives**

Evaluating well performance and determining corrective actions can be accomplished with a methodology to guide when rehabilitation needs to be done to maintain efficiency and reduce operational costs in MAR wells. MAR wells will deteriorate at varying rates depending on many factors including: well design, hydrogeology, operations, water chemistry, microbiology, rehabilitation history and well usage. Changes that occur during the life cycle are different for every water well and are dependent on a number of factors. Participants will learn that by creating a baseline and tracking changes in the operating parameters of the well can be monitored and a determination can be made as to when and what type of corrective action needs to be done.

### **Workshop Content**

The work shop will consist of a series of lectures that are based on the book: Operational Stage of the Well – Evaluating the forms of well deterioration and developing corrective actions, 2016, Hanna, T.M, Schnieders, M.J. and Schnieders, J.H.

### **Who Should Attend**

The workshop will be of benefit to water-well professionals that are engaged in the design, operation and ownership of water-supply wells. A basic understanding of water well design and operations will be beneficial, but not required.