

MASAR SPECIALIZED COURSE AGENDA

UF-SWRO PLANT OPERATION, COST & FOULING MANAGEMENT

Instructor: **Eng. Mohamad Amin Saad**

An advanced and specialized membrane desalination technology training course was conducted in the beautiful coastal city of San Diego, California, USA. The MASAR course offers independent, user-minded and comprehensive perspectives on various aspects of the technology applications based on hands-on and plant experience of over 37 years worldwide, mostly in the Middle East, Malta and the United States. The courses presentations, problem-solving guidelines and discussions reflect this enormous and unique combination of technical expertise, practical experience and on-site training of plant and business managers, engineers, supervisors, operators and technicians since 1983.

Main Course Subject Highlights

- 1. PRACTICAL PLANT OPERATION & COST MANAGEMENT**
- 2. MEMBRANE PLANT FOULING MANAGEMENT**
- 3. UF-SWRO FOULING POTENTIAL, TYPES & SOURCES**
- 4. UF-SWRO FOULING DETECTION & MEASUREMENT; PERFORMANCE MONITORING AND EVALUATION**
- 5. PLANT MONITORING & DIAGNOSTIC DEMONSTRATIONS**
SilentAlarm & Membrane Autopsy & Fouling Inspection

What Will You Learn?

The course will give you a first-hand experience and knowledge in:

- How to continuously and effectively monitor, evaluate and optimize your membrane desalination plant operation, performance and O&M costs as never before.
- How to detect and measure any developing fouling in your UF and/or SWRO system in real-time and very early, usually when your plant is still seemingly producing the required, design or guaranteed flow and quality, and before any irreversible or catastrophic failures in performance occur.
- How to use new, innovative and proven system monitoring and evaluation methodologies and tools, as well as simple diagnostic techniques to maintain your plant at the highest and most optimum level and minimize its O&M costs on a daily basis, which will maximize and distinguish your

professional contributions to your organization's team effort.

Who Will it Benefit?

This practical and intensive training course is especially designed for membrane-based water desalination and purification plant superintendents, engineers, operators, and maintenance technicians varied levels of field experiences, technical background and field training. Recommended level of experience is 1-5 years direct involvement in day-to-day plant operations. The knowledge and experience you will gain from this course will benefit your plant as well as you personally in your career development and experience-building efforts. What you learn from the MASAR Course experience will not be anything you could be taught by your standard classroom training courses.

Course Instructor

The MASAR course was conducted by Eng. **Mohamad Amin Saad**, President and Principal Consultant & Trainer of MASAR Technologies, Inc., with head offices in the United States. Eng. Saad, one of the water desalination industry's leading and most recognized and experienced experts and trainers, has extensive field, technical and business expertise and field training experience in the water desalination and membrane technology industry totaling over 37 years, especially in designing, monitoring, optimizing and trouble-shooting tens of key brackish, seawater and industrial wastewater RO, UF and other membrane plants around the globe, especially in the Bahrain, Kuwait, Oman, Saudi Arabia, United Arab Emirates, Malta and the United States.

A detailed course Agenda is below.

MASAR ADVANCED COURSE AGENDA

PRACTICAL UF-SWRO PLANT OPERATION OPTIMIZATION AND FOULING MANAGEMENT

Instructor: Eng. Mohamad Amin Saad

I. PRACTICAL PLANT OPERATION OPTIMIZATION

❖ *Optimization Considerations & Criteria*

- Why optimize plant operation?
- Achieving maximum attainable conversion
- Minimizing chemical & energy consumptions
- Managing membrane additions, replacements & rejuvenation
- Optimizing RO membrane cleanings

❖ *UF Integration, Control Philosophy & Criteria*

- Optimizing design & operational integrity with RO
- Optimizing UF maintenance cleans - types and criteria

II. MEMBRANE PLANT FOULING MANAGEMENT

❖ *Objectives of Effective Fouling Management*

❖ *Identification of Fouling Types & Control Strategies*

- Biological fouling
- Organic & TEP fouling
- Colloidal fouling
- Fouling prevention strategies

❖ *Fouling, Performance Measurement & Monitoring*

- Trending-ASTM standard normalization
- Real-time fouling detection, measurement UF/MF Permeability Monitor & SWRO/NF Fouling Monitor
- The **SMART**[™] technology solution
 - Fouling & non-fouling plant case studies

III. PLANT & MEMBRANE DIAGNOSTIC DEMONSTRATIONS

❖ *Seven Golden Troubleshooting Rules-Seven Signs of Trouble*

❖ *Seven Practical Diagnostic Techniques*

❖ *Membrane Autopsy & Fouling Inspection Demonstration*