

# MASAR Advanced, Practical and Specialized Training Course on

# UF-SWRO PLANT OPERATION, COST AND FOULING MANAGEMENT

August 30, 2015, San Diego, California, USA

An advanced and specialized membrane desalination technology training course will be conducted on **Sunday, August 30, 2015** (08:30-17:00), in the beautiful coastal city of **San Diego, California, USA**. The course's venue is at a downtown hotel located within walking distance from the San Diego Convention Center.

#### **Course Overview**

The MASAR course offers independent, practical and comprehensive perspectives on various aspects of the technology applications based on over 32 years of hands-on and plant experience worldwide, mostly in the UAE, Saudi Arabia, Bahrain, Kuwait, Oman, 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.

## **Technologies to be Covered**

The course's discussions will focus on fresh, practical and proven methodologies, techniques and approaches that address major technical issues related to the operation, maintenance, monitoring and performance of seawater desalination plants utilizing UF and RO membrane processes. It will train participants on how to effectively manage membrane fouling via innovative real-time and early detection, monitoring and resolution before the plant starts to suffer irreversibly or undergo massive and unscheduled cleaning cycles, maintenance shutdowns, membrane replacements and losses in productivity, quality and overall cost effectiveness of desalinated water.

## **Course Format**

The course's format combines formal presentations and group interactive discussions and experience-sharing to encourage proactive participation via questions, input and feedback, and maximize trainee benefits.

The last session of the day will include hands-on demonstrations of a fouled membrane autopsy, fouling inspection and identification. The day concludes with a period of open discussions among attendees and one-on-one questioning & brief consultation.



## What Will You Learn & Gain?

- **KNOWLEDGE & FOCUS**: Learn how to continuously and effectively monitor, evaluate and optimize your membrane desalination plant operation, performance and O&M costs with new tools and simple diagnostic techniques to maintain your plant at the highest and most optimum level and minimize its O&M costs on a daily basis.
- **TECHNOLOGY & TECHNIQUES**: Gain an intimate look on how to use new, innovative and data-proven system monitoring and evaluation innovations and methodologies, and how to apply them at your plant.
- **INNOVATION & TOOLS**: Explore how to detect and measure any developing fouling in your UF/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 occur.
- **EXPERIENCE & PRACTICE**: Attain practical experience from exploring membrane desalination and filtration plant case histories involving hands-on investigations, indepth analyses and problem-resolution ending in major plant performance improvements and cost savings in energy & chemicals consumption and maintenance.
- **REFERENCE & INTERACTION**: Learn how to use the attained knowledge, technology and tools to better protect your plant and your organization's investment while developing and strengthening your own personal and professional career.
- **PARTICIPATIONE & INTERACTION**: Interact with group discussions, experiencesharing, problem-solving and one-on-one consultations to maximize your efficiency and productivity.



#### **Who Should Attend?**

This practical and intensive training course is especially designed for membrane-based water desalination and purification plant superintendents, engineers, operators, and maintenance technicians with 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. What you learn from the MASAR Course experience will not be anything you could be taught by your standard classroom, academic or on-line training courses. Over 500 desalination industry professionals have been trained by MASAR courses and workshops led by Eng. Saad since 2002, and hundreds more as part of his job functions at various companies such as DuPont, ACWA Power International and its project



companies.

## **Course Instructor**

The MASAR course will be conducted by Eng. Mohamad Amin Saad, President and Chief 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 32 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 Bahrain, Kuwait, Oman, Saudi Arabia, United Arab Emirates, Malta and the United States.



MASAR Course Instructor & Coordinator Eng. Saad w

Eng. Saad with Saudi trainees

Presenting a course certificate

#### **MASAR Course Reviews & Evaluations**

Following are trainee comments & evaluation results from past MASAR courses/workshops:

- 1. "The overall presentation was so clear and beneficial", Ahmed A. T., Oman.
- 2. "The program was very effective, relevant, and well designed", Ifran A., India.
- 3. "The instructor has high knowledge of fouling to help me troubleshoot my plant", Ali. A., SWCC, KSA.
- 4. "The course was interesting and a lot of technical and practical information was gained. I want the course offered every year.", Mohammad A. Z., MARAFIQ, KSA.
- 5. "The course content, topics and instructor were excellent", Majeed A. H., EWA, Bahrain.
- 6. " Enjoyed the ability to discuss individual concerns with Eng. Saad", Chee L. F., Australia.
- 7. "Relevant subjects and examples pertaining to my current work", Koh H. Y.Y, Singapore.

**Sample Evaluation Statistics** (Based on 3 IDA Congress workshops (Bahamas, Singapore & Dubai, UAE, and 6 MASAR courses (Bahrain, Oman, Saudi Arabia & UAE)

Percentage of evaluation responders/total no. of attendees: 81.9%	185/226
Category	Avg. Score
Training highly, reasonably or fairly met its stated objectives & my training needs	90%
Presentation quality	85%
Quality & usefulness of technical material	81%
Experience & knowledge of Instructor	<b>87%</b>
I would recommend or attend a future training workshop/course	90%
Overall value, relevancy & cost benefit of workshop/course	87%

MASAR Technologies, Inc., USA +1 520 544-5657 <u>www.masartraining.com</u> <u>training@masar.com</u>

## Main Course Subject Highlights (see full Agenda below)

#### **MORNING SESSION**

#### 1. PRACTICAL PLANT OPERATION & COST MANAGEMENT

Optimization Considerations - How & what to optimize? SWRO recovery ratio, productivity & availability. UF/RO Integration & control philosophy & criteria. UF flux & permeability. Chemical & energy consumptions. Membrane additions, replacements & cleaning.

#### 2. MEMBRANE PLANT FOULING MANAGEMENT

*Objectives* & *criteria of effective and comprehensive fouling management. Practical fouling identification, trouble-shooting and control strategies. Fouling impact on O&M costs.* 

#### **AFTERNOON SESSION**

#### 3. UF-SWRO FOULING POTENTIAL, TYPES & SOURCES

Membrane fouling potential & sources Identification of classic Types of fouling: Biological fouling. Organic & TEP fouling. Colloidal & iron fouling.

4. UF-SWRO FOULING DETECTION & MEASUREMENT; PERFOMANCE MONITORING AND EVALUATION

Trending - ASTM Standard normalization & performance evaluation. Real-time fouling detection, measurement & performance monitoring. Early-warning UF/MF Permeability Monitor & SWRO/NF Fouling Monitor. Fouling & non-fouling UF-SWRO plant studies.

#### 5. **PLANT MONITORING & DIAGNOSTIC DEMONSTRATIONS** *SilentAlarm & MASAR<sup>®</sup> Software Solution Demonstration. Seven Practical Diagnostic Troubleshooting Techniques. Membrane Autopsy & Fouling Inspection Demonstration.*

#### 6. OPEN DISCUSSION: EXPERIENCE-SHARING, FEEDBACK & QUESTIONS



MASAR Course CD-ROM & Workbook



# MASAR SPECIALIZED COURSE AGENDA

**UF-SWRO PLANT OPERATION, COST & FOULING MANAGEMENT** 

www.masartraining.com

Sunday, August 30, 2015, 08:30-17:00; San Diego, California, United States

Instructor: Eng. Mohamad Amin Saad

#### WELCOME, INTRODUCTIONS & AGENDA/CD REVIEW

#### I. MEMBRANE PLANT FOULING MANAGEMENT

- Objectives & criteria of effective and comprehensive fouling management
- Practical fouling identification, trouble-shooting and control strategies & techniques
- Fouling impact on O&M costs

#### A. UF-SWRO FOULING POTENTIAL, TYPES & SOURCES

- Membrane fouling potential & sources
- Identification of classic Types of fouling:
  - Biological fouling
  - Organic & TEP fouling
  - Colloidal & iron fouling



1030-1045

1200-1330

0830-0845

0845 - 1030

- **B. FOULING, DETECTION, MEASUREMENT AND PERFORMANCE MONITORING & EVALUATION** 1045-1200
  - Trending ASTM Standard normalization & performance evaluation
  - Real-time fouling detection, measurement & performance monitoring
  - Fouling & non-fouling UF-SWRO plant case studies



v.	CERTIFICATE AWARDS & CONCLUSION	1700
IV.	<b>OPEN DISCUSSION, FEEDBACK &amp; QUESTIONS</b>	1615-1700
III.	<ul> <li>PLANT MONITORING &amp; DIAGNOSTIC DEMONSTRATIONS</li> <li>◆ SILENTALARM<sup>™</sup> Software Solution Demonstration</li> <li>◆ Seven Practical Diagnostic Troubleshooting Techniques</li> <li>◆ Membrane Autopsy &amp; Fouling Inspection Demonstration</li> </ul>	1515-1415
	<ul> <li>Optimization Considerations - How &amp; what to optimize?</li> <li>SWRO recovery ratio, productivity &amp; availability</li> <li>UF/RO Integration, control philosophy &amp; criteria</li> <li>UF flux &amp; permeability</li> <li>Chemical &amp; energy consumptions</li> <li>Membrane additions, replacements &amp; cleaning</li> </ul>	1500-1515
II.	PRACTICAL PLANT OPERATIONAL & COST MANAGEMENT	1330-1500

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## **MASAR Training Course Registration Fees**

- A. Early-bird Rate (*register by July 19, 2015*): US\$550 per trainee.
- B. **Special** (*July 20 August 21, 2015*)): **US\$600** per trainee.
- C. Full-day: (August 21-29, 2015, and ALL on-site/walk-ins): US\$650 per trainee.
- D. Half-day (morning or afternoon): US\$350 per trainee (includes lunch).
- E. Group US\$500 per trainee 4 or more registrants.

(*Group rate applies when ALL trainees are registered and paid for at the same time by the same organization*). **Valid through August 21, 2015**.

**Cancellation Policy: No refunds** after July 1, 2015 - registrant substitution is allowed if notified by August 23, 2015, to allow for updating the attendee's registration and certificate. If you are not able to attend or substitute with someone, we will send your Course CD-ROM to your mailing address within 2 weeks after the course. A PDF version of the Workbook will also be emailed to you.

## To register for the course and reserve your seat

For on-line registration, please go to: <u>http://masar.com/training/masarcoursereg.html</u>.

For individual and group registrations, you can also fill out the corresponding Registration Form below, and email the completed form back to <u>margaret@masar.com</u>.

#### Your registration fee includes:

A comprehensive, **Course CD-ROM**, with all presentation slides, relevant technical publications by the instructor, useful references and on-line resources. It is designed with web-style links, colorful graphics and illustrations for on-the-job continuing education and reference by plant operators, engineers, supervisors, consultants, vendors and others.
 An illustrative printed **Course Workbook** for presentation reference and note-taking, questions, etc., during the course and afterwards.

3. Certificate of Completion (to qualified attendees).

4. **Coffee/refreshments/snacks** all day (with two 15-min session breaks in the morning and afternoon).

5. Lunch & soft drinks (90-minute break).

Our training courses are distinct in the water desalination industry today where attendees receive a high-quality, interactive and multi-media CD-ROM with all presentations and technical materials. Attendees also get the opportunity to initiate one-on-one consultations with the instructor on their specific plant issues related to operational, fouling and O&M cost management.

<u>Contact us</u> today to inquire on our MASAR Intensive Training Course, or send an email to <u>margaret@masar.com</u>



# MASAR SPECIALIZED COURSE

UF-SWRO PLANT OPERATION, COST & FOULING MANAGEMENT Sunday, August 30, 2015, 08:30-17:00; San Diego, California, United States Instructor: Eng. Mohamad Amin Saad (mas@masar.com)

# **INDIVIDUAL REGISTRATION FORM**

Please fill out this form in full and select your payment option to complete your registration. We will contact you within 24 hours to confirm your registration and payment and provide you with updated course information. Thank you.

ATTENDEE INFORMATION	
Name	
Organization/Company	
Department	
Position/Title	
Email Address (We will confirm your registration at this address - make sure it is a valid)	
Mobile/Cell No. (include country and city codes please)	
Mailing Address	



# **PAYMENT INFORMATION**

To guarantee your registration, please complete the information below and submit by one of the following methods:

Email: margaret@masar.com Fax: +1 520-544-5657 (USA)

We will contact you within 24 hours with registration confirmation.

## **MASAR Training Course Registration Fees**

- 1. Early-bird (*register by July 19, 2015*): US\$550 per trainee.
- 2. Special (July 20 August 21, 2015): **US\$600** per trainee.
- 3. Full-day (*August 21-29, 2015 and ALL on-site/walk-ins*): **US\$650** per trainee.
- 4. Half-day (*morning or afternoon*): **US\$350** per trainee (includes lunch).

## Payment by CREDIT CARD

(for payment via **PayPal**, go to <u>http://www.masar.com/training/masarcoursereg.html</u> and make your payment on line via PayPal icons provided on the page)

We accept: WSA MasterCaro DISCOVER

Credit Card Type	□ Visa □ MC □ Discover □ AMEX
Credit Card Number	
Name as it appears on the credit card	
Expiration Date	
3-Digit code on back of the card	
Card Holder Signature	
Payment in U.S. Dollars (check one)	□ \$ <b>525</b> □ \$ <b>575</b> □ \$625 □ \$325 ( <i>Half-Day</i> )

## Your registration fee includes:

- 1. A comprehensive, course CD-ROM, with all presentation slides, relevant technical publications by the instructor, useful references and on-line resources. It is designed with web-style links, colorful graphics and illustrations for on-the-job continuing education and reference by plant operators, engineers, supervisors, consultants, vendors and others.
- 2. An illustrative printed course Workbook for presentation reference and note-taking, questions, etc., during the course and afterwards.
- 3. Certificate of Completion (to qualified attendees).
- 4. Coffee/refreshments/snacks all day (with two 15-min session breaks in the morning and afternoon).
- 5. Lunch & soft drinks (90-minute break).

#### If you have any questions, please contact:

Margaret Saad, Client Services Manager/Training Coordinator Email: <u>margaret@masar.com</u> Telephone: +1 520-544-5657 (USA)

## THANK YOU FOR REGISTERING FOR THE COURSE



# MASAR SPECIALIZED COURSE

**UF-SWRO PLANT OPERATION, COST & FOULING MANAGEMENT** 

Sunday, August 30, 2015, 08:30-17:00; San Diego, California, United States Instructor: Eng. Mohamad Amin Saad (<u>mas@masar.com</u>)

# **GROUP REGISTRATION FORM**

The **discounted group registration rate** of US**\$500** per trainee applies to a **minimum of 4 attendees** registered and paid for by the same organization or company at the same time.

Please fill out this form in full and select your payment option to complete your registration. We will contact you within 24 hours to confirm your registration and payment and provide you with updated course information. Thank you.

<b>ORGANIZATION/COMPANY INFORMATION</b>		
Orga	nization/Company Name	
Conta	act Name	
Depa	rtment	
Emai	l Address	
Telep	hone/Mobile No.	
Mailir	ng Address	
Num	Number of Course Attendees	
ATTENDEE INFORMATION		
No.	Name	Email Address
No.		
No. 1		
No. 1 2		
No. 1 2 3		
No. 1 2 3 4		
No. 1 2 3 4 5		
No. 1 2 3 4 5 6		
No. 1 2 3 4 5 6 7		



# **PAYMENT INFORMATION**

To guarantee your registrations, please complete the information below and submit by one of the following methods:

Email: <u>margaret@masar.com</u> Fax: +1 520-544-5657 (USA)

We will contact you within 24 hours with registration confirmation.

## **MASAR Training Course Registration Fees**

Group Rate: **US\$500** per trainee - 4 or more registrants.

(*Group rate applies when ALL trainees are registered and paid for at the same time by the same organization or company*). **Valid through August 21, 2015**.

### 1. Payment by PURCHASE ORDER (PO)\*

Purchase Order No. Please attach a copy of the Purchase Order	
Purchase Order Date	
* Your organization will be invoiced upon receipt of the PO. Payments will be accepted via a bank wire transfer, international bank draft or corp. credit card.	

#### 2. Payment by CREDIT CARD

(for payment via **PayPaI**, go to <u>http://www.masar.com/training/masarcoursereg.html</u> and make your payment on line via PayPaI icons provided on the page)

We accept:

Corporate Credit Card Type	□ Visa □ MC □ Discover □ AMEX
Corporate Credit Card Number	
Name as it appears on the credit card	
Expiration Date	
3-Digit code on back of the card	
Authorized Signature	
Total Amount in U.S. Dollars (No. of attendees X \$500/attendee)	

If you have any questions, please contact: Margaret Saad, Client Services Manager/Training Coordinator Email: <u>margaret@masar.com</u> Telephone: +1 520-544-5657 (USA)

## THANK YOU FOR REGISTERING FOR THE COURSE