



**International Desalination Association**  
**WORLD CONGRESS 2011**

On Desalination and Water Reuse  
*"Desalination: Sustainable Solutions  
for a Thirsty Planet"*

**FINAL PROGRAM**

PERTH CONVENTION  
and EXHIBITION CENTRE  
Perth, Western Australia  
4 – 9 September 2011

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## TECHNICAL PROGRAM

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Since the last World Congress in Dubai in November 2009, it is estimated that more than a thousand desalination plants have been built, increasing the world's new fresh water supply by more than 10 GL/d.

Nowhere in the world has this growth in desalination capacity been more spectacular than in Australia, population 22m. No less than six major seawater desalination plants have been built or commenced in all mainland state capitals since the first, the Perth Seawater Desalination Plant, was commissioned in November 2006. Total capacity of nearly 1.6 GL/d of drinking water has been added to Australia's urban drinking water resources.

The Australian plants have set new benchmarks for environmental performance, reducing impact of intakes and outfalls and plant location. Operational carbon footprint has also been significantly reduced by extensive purchase of wind powered renewable energy to offset energy consumed.

The Millennium drought (1997 – 2010) was the worst in recorded history and affected all mainland states. In south west Western Australia, a drying climate has also seen surface runoff reduce to 30% of historic averages in the past 30 years.

The Australian Experience will be presented in the opening plenary sessions, telling the story of Australian desalination, industry achievements and research.

The Perth World Congress received around 400 abstracts from which 155 oral presentations have been selected. There are 27 topics being presented over four days, ranging from finance and commercial issues through to water resources management and the latest membrane and distillation technical developments. For the first time, the number of concurrent streams has been increased from three to four to accommodate the increasing number of submitted papers.

The topics have been selected to be generally consistent with the IDA Journal:

The Australian Experience	Membrane Systems
Commercial Issues	Membrane Technology
Energy Sources, Use and Efficiency	Pre and Post Treatment
Environment and Public Health	Recycling and Reuse
Future Separation Technologies	Research and Development
General	Thermal Systems
Intakes and Outfalls	Thermal Technology
Materials	Water Resources Management

The Research and Development session, co-ordinated by the IDA Board's R&D Committee, is new and comprises invited speakers from leading research organisations across the globe. These thought leaders will stimulate and challenge delegates not only by their presentations, but by being accessible for discussion and debate throughout the Congress.

We are indebted to more than 60 Session Co-ordinators and Co-chairs (at least three for each session) who have reviewed abstracts and papers, selected oral and poster presentations and will chair the sessions for each topic in Perth.

All the detailed work of the Co-ordinators and Co-chairs is managed by Darlene Seta in the Topsfield office of IDA. This is a particularly demanding role and Darlene's extensive experience and knowledge has been greatly appreciated.

The IDA World Congress brings together some of the most outstanding minds in the industry. These include academics, operators, researchers, managers, financiers and educators from the private sector, Government and academia. It is a unique opportunity to network, ask questions and learn of advancements in desalination technology as the industry continues to grow, to improve efficiency, recovery and salt rejection and reduce carbon footprint.

We trust you find the IDA World Congress Perth 2011 technical program to be enjoyable, stimulating and challenging. We look forward to seeing you there.



Neil Palmer and Gary Crisp  
Technical Program Co-chairs, IDA World Congress 2011



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## **The Australian Experience**

*Monday, September 05, 2011*

*11.30 AM-1.00 PM Riverside Theatre*

This session will address the Australian experience in desalination. The Perth Seawater Desalination Plant was commissioned in 2006 and has been lauded on one of the most environmentally friendly desalination plants in the world. Australia has another 5 large seawater desalination plants to serve Brisbane, Sydney, Melbourne, Adelaide and a second plant is being commissioned for Perth. In this session you will also hear about the Melbourne plant at Wonthaggi (450 MLD) which is one of the largest RO plants in the world. Australia is often labeled the driest continent on earth. The remarkable growth of desalination capacity, and its ongoing role in ensuring urban water security is central to the Australian Experience.



### **AUSTRALIA'S MAJOR URBAN SEAWATER DESALINATION PROGRAM**

**Presented by:** Ms. Sue Murphy  
Chief Executive Officer, Water Corporation,

### **IN SEARCH OF WATER SECURITY**

**Presented by:** Mr. David Furukawa  
Chief Scientific Officer, National Centre of  
Excellence in Desalination

### **THE MEMCOR STORY**

**Presented by:** Albert Goller  
Managing Director, Siemens

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## **Commercial Issues**

*Monday, September 05, 2011*

*2.00 PM-5.30 PM Riverview 4*

Privatization in desalination and water reuse has been a key element to the booming developments that have been observed in the last decade in the desalination market. The introduction of privatization has also contributed to diversifying the technology and finding correct trade-offs between reliability, technical risks and price competitiveness. Project financing, particularly in current markets has become very difficult and the industry needs to be prepared to face new and more stringent rules in project financing and project delivery. Are there alternative financing configurations that are going to facilitate the continuing flow of investment capital into much needed water supplies? This session will provide an overview on major desalination plants worldwide, and assessment of risks and opportunities for main parties contributing to projects, benchmarking, legal aspects and alternatives to finance projects in tough economic climates, and ways of adopting IWPP model to water reuse projects.

## CO-CHAIRS

*Mr. Graham Dooley, Australia*

*Mr. Ghassan Ejeh, Belgium*

## ORAL PRESENTATIONS:

2.00 – 2.30

### **SOREK 150 MILLION M3/YEAR SEAWATER DESALINATION FACILITY BUILD, OPERATE AND TRANSFER (BOT) PROJECT**

**Authors:** Mr. Fredi Lokiec

**Paper's Country of Attribution:** Israel

**Presented by:** Mr. Fredi Lokiec

IDAWC REF: PER11-066

2.30 – 3.00

### **HOW AND WHY THE SPANISH COMPANIES OF DESALINATION HAVE BEEN INTERNATIONALIZED**

**Authors:** Prof. Borja Montano,

Dr. Joaquan Melgarejo

**Paper's Country of Attribution:** Spain

**Presented by:** Prof. Borja Montano

IDAWC REF: PER11-081

3.00 – 3.30

### **COST MODELING OF DESALINATION SYSTEMS**

**Authors:** Mr. Kenneth Moore, Mr. Robert Huehmer,  
Mr. Juan Gomez, Mr. Jason Curl

**Paper's Country of Attribution:** Australia

**Presented by:** Mr. Robert Huehmer

IDAWC REF: PER11-302

3.30 – 4.00

### **REFRESHMENT BREAK**

4.00 – 5.30

### **COMMERCIAL ISSUES: A PANEL DISCUSSION**

#### **Panelist**

**Mr. Michel Canet**, Veolia Water Solutions, France

**Mr. Graham Dooley**, Chairman of Osmoflo,  
Australia

**Mr. Paddy Padmanathan**, the CEO of Acwa Power,  
Saudi Arabia

**Jose Antonio Sanchez Vega**, President and  
Concessions Director, Valoriza Agua, Spain

**Dr. Lan Weiguang**, Chairman of Sinomem Pty Ltd,  
China and Singapore

#### **Topics of discussion**

- The future of the (IWPP)
- Newer, emerging forms of investor financing for smaller scale projects
- General economic crisis
- General economic crisis: Effect of Arab Spring

## POSTER PRESENTATIONS:

### ANALYSIS OF COST OF WATER PRODUCTION FROM SEAWATER DESALINATION IN KINGDOM OF SAUDI ARABIA

**Authors:** Mr. Saud Bin Marshad,  
Dr. Adebayo J. Adeloje

**Paper's Country of Attribution:** Saudi Arabia

**Presented by:** Mr. Saud Bin Marshad

IDAWC REF: PER11-345



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## Intakes and Outfalls

*Monday, September 05, 2011*

*2.00 PM-5.30 PM M+1+2+3*

Seawater abstraction systems are of vital importance to desalination technology and are a major contribution to desalination costs and reliability of operation. Seawater intake design needs to adapt to increasing environmental sensitivity applied to desalination projects worldwide and new technologies are developing in order not only to improve seawater abstraction reliability and quality of the seawater feed but also to improve the environmental impact associated with the seawater abstraction and discharge. This session provides an overview.

## CO-CHAIRS

*Mr. Michael Green, Australia*

*Mr. Rob Heilbronn, Australia*

*Mr. Ali Redha Hussain, Bahrain*

## ORAL PRESENTATIONS:

*2.00 - 2.30*

### INJECTION WELL OPTIONS FOR THE SUSTAINABLE DISPOSAL OF DESALINATION CONCENTRATE

**Authors:** Dr. Robert G. Maliva,  
Dr. Thomas M. Missimer, Mr. Russell Fontaine

**Paper's Country of Attribution:** USA

**Presented by:** Dr. Robert G. Maliva

IDAWC REF: PER11-008

*2.30 - 3.00*

### EVOLUTION OF A NEGATIVELY BUOYANT JET IN THE NEAR AND INTERMEDIATE FIELD

**Authors:** Dr. Raed Bashitialshaaer,  
Dr. Prof. Magnus Per Larson,  
Dr. Prof. Kenneth M. Persson

**Paper's Country of Attribution:** Sweden

**Presented by:** Dr. Raed Bashitialshaaer

IDAWC REF: PER11-205

3.00 - 3.30

### **DYNAMIC COUPLING OF NEAR-FIELD AND FAR-FIELD MODELS FOR SIMULATING OUTFALLS**

**Authors:** Mr. Robin Morelissen,  
Mr. Theo van de Kaaij, Mr. Bas van Vossen,  
Dr. Tobias Bleninger

**Paper's Country of Attribution:** Netherlands

**Presented by:** Mr. Bas van Vossen  
IDAWC REF: PER11-014

3.30 – 4.00

### **REFRESHMENT BREAK**

4.00 - 4.30

### **ASSESSING COOLING WATER RECIRCULATION BEHAVIOUR WITH A SCENARIO-BASED ADAPTIVE MODELLING APPROACH**

**Authors:** Mr. Anton de Fockert, Ms. Jamie Lescinski,  
Mr. Robin Morelissen, Mr. Jacques de Beer

**Paper's Country of Attribution:** Netherlands

**Presented by:** Mr. Anton de Fockert  
IDAWC REF: PER11-097

4.30 - 5.00

### **DESIGN AND CONSTRUCTION OF SLANT AND VERTICAL WELLS FOR DESALINATION INTAKE**

**Authors:** Dr. Dennis Edgar Williams

**Paper's Country of Attribution:** USA

**Presented by:** Dr. Dennis Edgar Williams  
IDAWC REF: PER11-050

5.00 - 5.30

### **DESIGN CONSIDERATIONS AND INTERACTIONS FOR TUNNELLED SEAWATER INTAKE AND BRINE OUTFALL SYSTEMS**

**Authors:** Mr. Peter Baudish, Mr. Noel A. Lavery,  
Mr. Ralph Nicholas Burch, Mr. Daryll D. Pain, Mr.  
Doug G. Franklin, Mr. Philip J. Banks

**Paper's Country of Attribution:** Australia

**Presented by:** Mr. Peter Baudish  
IDAWC REF: PER11-242

## **POSTER PRESENTATIONS:**

### **MODELING OF BRINE DISCHARGES USING BOTH A PILOT PLANT AND DIFFERENTIAL EQUATIONS**

**Authors:** Dr. Prof. Jesus Ildefonso Diaz,  
Engr. Juan Maria Sanchez , Engr. Noemi Sanchez,  
Engr. Marisol Veneros, Mr. Domingo Zarzo

**Paper's Country of Attribution:** Spain

**Presented by:** Engr. Noemi Sanchez  
IDAWC REF: PER11-049



## **MANAGEMENT OF DRINKING WATER QUALITY FROM SEAWATER DESALINATION: CASE STUDIES FROM WESTERN AUSTRALIA**

**Authors:** Dr. Andrew Bath, Mr. Steven Christie

**Paper's Country of Attribution:** Australia

**Presented by:** Dr. Andrew Bath

IDAWC REF: PER11-294

## **DESALINATION PLANT AND BRINE DISCHARGE, DIFFERENT ARRANGEMENTS FOR THE ARABIAN GULF**

**Authors:** Dr. Raed Bashitialshaaer,

Dr. Prof. Kenneth M. Persson

**Paper's Country of Attribution:** Sweden

**Presented by:** Dr. Raed Bashitialshaaer

IDAWC REF: PER11-207

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## **Membrane Technology Part I**

*Monday, September 05, 2011*

*2.00 PM-5.30 PM Bellevue 1*

The dramatic growth in membrane technology is based on progress achieved by significant efforts in R&D and experimental testing in pilot and operating plants around the world. From manipulated osmosis, nano tube based membranes, leveraging nanotechnology to membrane post-treatment are just some of the aspects discussed in the session. The scientific cooperation in process and membrane R&D brings progress today and outlines future directions for membrane technology.

### **CO-CHAIRS**

*Prof. Jean-Philippe Croue, Saudi Arabia*

*Prof. In S. Kim, South Korea*

*Dr. Costas Pelekani, Australia*

*Dr. Prof. Harvey Winters, USA*

### **ORAL PRESENTATIONS:**

*2.00 – 2.30*

#### **MEMBRANE FOULING BY MARINE ALGAL BLOOM: THE ROLE OF TRANSPARENT EXOPOLYMER PARTICLES (TEP)**

**Authors:** Engr. Loreen Ople Villacorte,

Mr. Dino Berenstein, Engr. Helga Ninoska Calix

Ponce, Prof. Maria D. Kennedy,

Dr. Prof. Gary Lee Amy, Dr. Prof. Jan C. Schippers

**Paper's Country of Attribution:** Netherlands

**Presented by:** Prof. Maria D. Kennedy

IDAWC REF: PER11-257

2.30 – 3.00

**ROLE OF CERAMIC MEMBRANES IN  
TREATING IMPAIRED QUALITY WATER  
SOURCES**

**Authors:** Mr. Changwon Ha, Mr. Juma Z. Hamad,  
Prof. Maria D. Kennedy, Dr. Prof. Gary Lee Amy  
**Paper's Country of Attribution:** Saudi Arabia  
**Presented by:** Mr. Changwon Ha  
IDAWC REF: PER11-270

3.00 – 3.30

**LD(LOW DIFFERENTIAL PRESSURE)  
-TECHNOLOGY FOR BIOFOULING CONTROL  
- PILOT STUDY IN NEWATER APPLICATION  
AT SINGAPORE**

**Authors:** Dr. Hongyu Eric Liu, Mr. Takahisa Konishi,  
Dr. Kouji Maruyama, Ms. Makiko Namba,  
Mr. Shinya Sunano, Mr. Toshiyuki Kawashima,  
Dr. Craig Bartels, Mr. Yasuo Oda  
**Paper's Country of Attribution:** Japan  
**Presented by:** Dr. Hongyu Eric Liu  
IDAWC REF: PER11-025

3.30 – 4.00

**REFRESHMENT BREAK**

4.00 – 4.30

**RESOLUTION OF PERVASIVE AND  
RESISTANT BIOFOULING ISSUES AT W.E.B.  
ARUBA N.V. SWRO PLANT**

**Authors:** Mr. Ted Prato, Engr. Filomeno A.  
Marchena, Mr. Erik Schoepke, Ronald Bean  
**Paper's Country of Attribution:** Aruba  
**Presented by:** Ronald Bean  
IDAWC REF: PER11-316

4.30 – 5.00

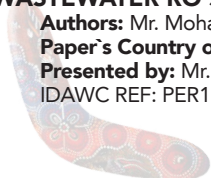
**RO MEMBRANE BIOFOULING: PROBLEMS  
AND SOLUTIONS**

**Authors:** Dr. Erich Wittmann, Dr. Merzak Belkhodja,  
Mr. Yangjae Lee, Mr. Pierre-Jean Remize, Mr. Harry  
Brouwer, Dr. Jean Christophe Schrotter  
**Paper's Country of Attribution:** France  
**Presented by:** Dr. Erich Wittmann  
IDAWC REF: PER11-288

5.00 – 5.30

**A RELATIONSHIP BETWEEN CALCIUM  
PHOSPHATE AND SILICA FOULING IN  
WASTEWATER RO SYSTEMS**

**Authors:** Mr. Mohannad AlMalki, Ms. Vana Abbas  
**Paper's Country of Attribution:** USA  
**Presented by:** Mr. Mohannad AlMalki  
IDAWC REF: PER11-010



## POSTER PRESENTATIONS:



### **NEW ANTISCALANT FOR CALCIUM FLUORIDE DEPOSITION CONTROL IN REVERSE OSMOSIS PLANTS**

**Authors:** Dr. Suresh Patel, Engr. Anna Chomiak, Mrs. Marta Farriols

**Paper's Country of Attribution:** United Kingdom

**Presented by:** Mrs. Marta Farriols

IDAWC REF: PER11-061

### **METHODS OF ENERGY SAVING VIA IMPROVING SWRO MEMBRANE**

**Authors:** Mr. Jong Min Lee, Ms. Yeo Jin Kim, Mr. Ik Jae Kim, Mr. Hyung Gyu Park, Dr. Sung Pyo Hong, Dr. Ja Young Koo

**Paper's Country of Attribution:** South Korea

**Presented by:** Mr. Jong Min Lee

IDAWC REF: PER11-072

### **LD (LOW-DIFFERENTIAL-PRESSURE)-TECHNOLOGY FOR BIOFOULING CONTROL – DESIGN CONCEPT SUPPORTED BY MICROBIOLOGICAL ANALYSIS**

**Authors:** Mr. Takahisa Konishi, Dr. Kouji Maruyama, Ms. Makiko Namba, Mr. Makoto Kobuke, Mr. Munehiro Nozoe, Dr. Hongyu Eric Liu, Mr. Takashi Akiyama, Mr. Masahiko Hirose

**Paper's Country of Attribution:** Japan

**Presented by:** Mr. Takahisa Konishi

IDAWC REF: PER11-082

### **CHARACTERIZATION OF NEW AND FOULED SWRO MEMBRANES BY ATR-FTIR SPECTROSCOPY**

**Authors:** Dr. Mohammed Mahmoodur Rahman

**Paper's Country of Attribution:** Saudi Arabia

**Presented by:** Dr. Mohammed Mahmoodur Rahman

IDAWC REF: PER11-187

### **ELIMINATION OF BIOLOGICAL FOULING IN SEAWATER REVERSE OSMOSIS DESALINATION PLANTS**

**Authors:** Mr. Masaki Nishida, Mr. Mikio Katsube, Mr. Atsuo Kumano, Dr. Nobuya Fujiwara

**Paper's Country of Attribution:** Japan

**Presented by:** Mr. Masaki Nishida

IDAWC REF: PER11-206

## IDENTIFICATION OF TRANSPARENT EXOPOLYMER PARTICLES (TEP) ON RO MEMBRANES

**Authors:** Engr. Helga Ninoska Calix Ponce, Engr. Loreen Ople Villacorte, Mr. Hans Vrouwenvelder, Dr. Prof. Gary Lee Amy, Prof. Maria D. Kennedy, Dr. Prof. Jan C. Schippers

**Paper's Country of Attribution:** Netherlands

**Presented by:** Prof. Maria D. Kennedy

IDAWC REF: PER11-327

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## R&D/Membrane-Based Desalination: Looking into the Future

*Monday, September 05, 2011*

*2.00 PM-5.30 PM Bellevue 2*

In this session you will hear from a highly qualified group of presenters who will provide you with an overview of the global R&D developments in desalination and water reuse efforts. Topics to be covered include forward osmosis, nanotechnology and innovation solutions in both membrane and thermal processes.

### CO-CHAIRS

*HE Abdullah A. A. Al Shaikh, Saudi Arabia*

*Dr. HE Abdulmajeed Ali Alawadhi, Bahrain*

*Dr. Prof. Gary Lee Amy, Saudi Arabia*

*Mr. Ali Kalantar, USA*

## ORAL PRESENTATIONS:

*2.00 – 2.30*

### OPENING REMARKS AND OVERVIEW OF THE IDA R&D COMMITTEE ACTIVITIES

- **Presented by:** HE Abdullah A. A. Al Shaikh  
Deputy Governor for Planning & Development, Saline Water Conversion Corporation (SWCC)
- **Director, International** Desalination Association (IDA)
- **Chairman, Research** and Development Committee at International Desalination Association (IDA)

*2.30 – 3.00*

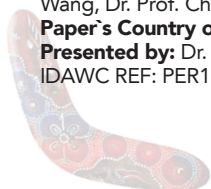
### ADVANCES IN MD AND FO: MEMBRANES, MODULES AND APPLICATIONS

**Authors:** Dr. Prof. Tony G. Fane, Dr. Prof. Rong Wang, Dr. Prof. Chuyang Y. Tang

**Paper's Country of Attribution:** Singapore

**Presented by:** Dr. Prof. Tony G. Fane

IDAWC REF: PER11-183



3.00 – 3.30

**MOLECULAR DESIGN OF ADVANCED FORWARD OSMOSIS MEMBRANES FOR WATER REUSE**

**Authors:** Mr. Jincal Su, Mr. Kai Yu Wang, Mr. Sui Zhang, Mr. Rui Chin Ong, Mr. Tai-Shung Chung

**Paper's Country of Attribution:** Singapore

**Presented by:** Mr. Tai-Shung Chung

IDAWC REF: PER11-031



3.30 – 4.00

**REFRESHMENT BREAK**

4.00 – 4.30

**DEVELOPMENT OF NOVEL MONITORS FOR EARLY DETECTION OF FOULING IN REVERSE-OSMOSIS SYSTEMS**

**Authors:** Mr. Victor S.T. Sim, Ms. Jie Cen, Dr. Tzyy Haur Chong, Dr. Adrian P.S. Yeo, Dr. Prof. William B. Krantz, Dr. Prof. Hans G.L. Coster, Dr. Prof. Tony G. Fane

**Paper's Country of Attribution:** Singapore

**Presented by:** Mr. Victor S.T. Sim

IDAWC REF: PER11-136

4.30 – 5.00

**NEW ADVANCES AND FUTURE NEEDS IN THERMAL-MEMBRANE HYBRIDS FOR WATER DESALINATION**

**Authors:** Mr. Leon Awerbuch

**Paper's Country of Attribution:** USA

**Presented by:** Mr. Leon Awerbuch

IDAWC REF: PER11-378

5.00 – 5.30

**INNOVATIVE CHARACTERIZATION PROTOCOLS FOR SEAWATER NATURAL ORGANIC MATTER (NOM): INSIGHT INTO MEMBRANE FOULING AND CONTROL**

**Authors:** Dr. Prof. Gary Lee Amy, Mr. Sergio Salinas, Prof. Maria D. Kennedy, Prof. Jean-Philippe Croue

**Paper's Country of Attribution:** Saudi Arabia

**Presented by:** Dr. Prof. Gary Lee Amy

IDAWC REF: PER11-265

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## Energy Sources, Use and Efficiency: Part I

Tuesday, September 06, 2011

9.00 AM-12.30 PM Bellevue 2

Energy footprint is one of the major challenges for seawater desalination. The energy recovery from the SWRO brine stream has been one of the most sensational advances achieved in seawater desalination in the last decade. This innovation greatly contributed to improved sustainability of water solutions, decreased energy and carbon footprint and decreased water cost. This segment of desalination technology is in constant development and is a key to high efficiency, reliable performance and successful operation of SWRO processes. This session offers an overview of the state of the art and future directions.

### CO-CHAIRS

*Mr. Adam Ansted, Australia*

*Mr. John Tonner C. Eng., USA*

*Mr. Victor Verbeek MEng. MSc., USA*

### ORAL PRESENTATIONS:

9.00 – 9.30

#### **NEW PRESSURE EXCHANGER DESIGN CONCEPT FOR SUSTAINABLE, LONG TERM COST SAVINGS**

**Authors:** Mr. Stefan Schafer

**Paper's Country of Attribution:** Germany

**Presented by:** Mr. Stefan Schafer

IDAWC REF: PER11-087

9.30 – 10.00

#### **CFD SIMULATION OF A HDH-DESALINATION PLANT FOR TRANSIENT SOLAR IRRADIATION (PART 2)**

**Authors:** Engr. Burkhard Seifert, Mr. Markus Wenzel, Mr. Roman Gobitz-Pfeifer, Dr. Markus Spinnler, Prof. Thomas Sattelmayer

**Paper's Country of Attribution:** Germany

**Presented by:** Engr. Burkhard Seifert

IDAWC REF: PER11-085

10.00 – 10.30

#### **DESIGN ENHANCEMENTS**

**Authors:** Mr. Beat Schneider

**Paper's Country of Attribution:** Switzerland

**Presented by:** Mr. Beat Schneider

IDAWC REF: PER11-372

10.30 – 11.00

#### **REFRESHMENT BREAK**

11.00 – 11.30

### **SOLAR POWERED SEAWATER DESALINATION - A CASE STUDY**

**Authors:** Dr. Fulya Verdier, Mr. Heinz Ludwig,  
Mr. Johannes Daniel Kretschmann

**Paper's Country of Attribution:** Germany

**Presented by:** Dr. Fulya Verdier

IDAWC REF: PER11-165

11.30 – 12.00

### **SOLAR THERMAL ENERGY SEAWATER DESALINATION**

**Authors:** Mr. Toru Kannari, Mr. Yoshiaki Miho,  
Mr. Yuji Saito, Dr. Rencai Chu, Dr. Prof. Yoshiharu  
Horita

**Paper's Country of Attribution:** Japan

**Presented by:** Mr. Toru Kannari

IDAWC REF: PER11-173

12.00 – 12.30

### **MONO/DI-AMMONIUM PHOSPHATE FERTILISERS AS DRAW SOLUTIONS FOR FORWARD OSMOSIS DESALINATION**

**Authors:** Mr. Sherub Phuntsho, Ho Kyong Shon,  
Dr. Prof. Saravanamuthu Vigneswaran, Prof. Hong  
Seungkwan, Dr. Prof. Sangyoun Lee

**Paper's Country of Attribution:** Australia

**Presented by:** Ho Kyong Shon

IDAWC REF: PER11-174

## **POSTER PRESENTATIONS:**

### **SUSTAINABLE DESALINATION IN SALAKH-A CASE STUDY: RENEWABLE ENERGY DRIVEN DESALINATION PLANT (RE-DES) APPLICABILITY**

**Authors:** Engr. Faramarz Momeni,  
Engr. Fariba Momeni

**Paper's Country of Attribution:** Iran

**Presented by:** Engr. Faramarz Momeni

IDAWC REF: PER11-032

### **EVALUATION OF SEPARATE TYPE OF MULTI- STAGE SOLAR DESALINATION STILL (MSSDS)**

**Authors:** Dr. Yasuo Obikane, Dr. Prof. Sigeru Ikeo,  
Dr. Hussam Hisham Al Bilbishi

**Paper's Country of Attribution:** Tunisia

**Presented by:** Dr. Yasuo Obikane

IDAWC REF: PER11-046



## REVERSE OSMOSIS – ENERGY CALCULATION USING THE INTERNATIONAL THERMODYNAMIC EQUATION OF SEAWATER 2010

**Authors:** Mr. Gerhard Schwarz, Mr. Sebastian Ruf, Mr. Stephan Deublein

**Paper's Country of Attribution:** Germany

**Presented by:** Mr. Gerhard Schwarz

IDAWC REF: PER11-089



## SWRO ENERGY RECOVERY UPGRADE PAYS OFF

**Authors:** Mr. Fred Grondhuis, Mr. Juan Marcos

**Paper's Country of Attribution:** USA

**Presented by:** Mr. Fred Grondhuis

IDAWC REF: PER11-373

## ISOBARIC ENERGY RECOVERY DEVICES – PAST, PRESENT AND FUTURE

**Authors:** Dr. Richard L. Stover, Dr. Bill Andrews

**Paper's Country of Attribution:** USA

**Presented by:** Dr. Richard Storer

IDAWC REF: PER11-103

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## Membrane Technology Part II

Tuesday, September 06, 2011

9.00 AM-12.30 PM Bellevue 1

### CO-CHAIRS

*Prof. Jean-Philippe Croue, Saudi Arabia*

*Prof. In S. Kim, South Korea*

*Dr. Costas Pelekani, Australia*

*Dr. Prof. Harvey Winters, USA*

### ORAL PRESENTATIONS:

9.00 – 9.30

#### OSMOTIC PRESSURE CALCULATION USING PITZER EQUATION MODELING

**Authors:** Mr. Thomas D. Wolfe, Dr. William L. Bourcier, Mr. Peter Metcalfe

**Paper's Country of Attribution:** USA

**Presented by:** Mr. Thomas D. Wolfe

IDAWC REF: PER11-210

9.30 – 10.00

#### PROJECTION AND VALIDATION OF THE PERFORMANCE OF SEAWATER REVERSE OSMOSIS SYSTEMS

**Authors:** Dr. Peter Sehn, Mr. Steven D. Coker, Dr. Veronica Garcia-Molina, Mr. Abhishek Shrivastava

**Paper's Country of Attribution:** Germany

**Presented by:** Dr. Peter Sehn

IDAWC REF: PER11-096

10.00 – 10.30

**THE UNEXPECTED PERFORMANCE OF HIGHLY PERMEABLE SWRO MEMBRANES AT HIGH TEMPERATURES**

**Authors:** Mr. Rich Newell Franks II, Mr. Satish Chilekar, Dr. Craig R. Bartels

**Paper's Country of Attribution:** USA

**Presented by:** Dr. Craig R. Bartels  
IDAWC REF: PER11-141

10.30 – 11.00

**REFRESHMENT BREAK**

11.00 – 11.30

**DIAGNOSIS OF WELL WATER RO DESALINATION UNIT WITHOUT AN INLET WATER PH ADJUSTMENT**

**Authors:** Dr. Prof. Hamza Elfil, Engr. Khaled Touati, Engr. Kalthoum Maklhof, Dr. Ahmed Hannachi

**Paper's Country of Attribution:** Tunisia

**Presented by:** Dr. Prof. Hamza Elfil  
IDAWC REF: PER11-108

11.30 – 12.00

**EFFECT OF PERMEATE SUCTION ON THE PERFORMANCE OF SPIRAL WOUND NANOFILTRATION MODULE**

**Authors:** Dr. Awad A. A. Elshamy, Dr. Robert P Carnahan P.E., Ph. D., Dr. Prof. Mahmoud Nachabe

**Paper's Country of Attribution:** USA

**Presented by:** Dr. Awad A. A. Elshamy  
IDAWC REF: PER11-180

12.00 – 12.30

**UTILIZING NANOTECHNOLOGY TO ENHANCE RO MEMBRANE PERFORMANCE FOR SEAWATER DESALINATION**

**Authors:** Mr. Christopher J. Kurth, Dr. Robert Burk, Mr. Jeff Green

**Paper's Country of Attribution:** USA

**Presented by:** Mr. Christopher J. Kurth  
IDAWC REF: PER11-323

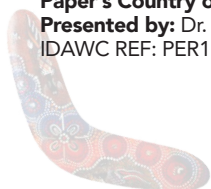
**POSTER PRESENTATIONS:**

**MODELLING THE FLOW TRANSPORT OF FEED-SPECIES (WATER-AND-SALT) THROUGH A SWRO MEMBRANE**

**Authors:** Dr. Ahmed Hashim

**Paper's Country of Attribution:** Bahrain

**Presented by:** Dr. Ahmed Hashim  
IDAWC REF: PER11-011



## **MEMBRANES AND FILTERS: TOOLS FOR INNOVATION AND DIAGNOSIS**

**Authors:** Dr. Amit Gupta, Dr. Carl E. Rossow, David Szymborski, Dr. Anders Hallsby  
**Paper's Country of Attribution:** USA  
**Presented by:** Dr. Anders Hallsby  
IDAWC REF: PER11-099



## **TOTAL PHOSPHORUS: HOW LOW IS LOW AND HOW DO WE GET THERE?**

**Authors:** Ms. Karla J. Kinser PE, Ms. Stephanie J. Sansom PE  
**Paper's Country of Attribution:** USA  
**Presented by:** Ms. Karla J. Kinser PE  
IDAWC REF: PER11-106

## **SEAWATER DESALINATION PLANT OF LOS CABOS (MEXICO). A SUCCESS OF OPERATION OF HIGH ACTIVE AREA SWRO MEMBRANES**

**Authors:** Mrs. Maria Neculau, Mr. Santi Talo, Mr. Fredy Velazquez, Mr. Antonio Ordenez, Mr. Florin Laurentiu Vartolomei, Mrs. Laura Pastor, Mr. Miguel Marcos Bajo  
**Paper's Country of Attribution:** Spain  
**Presented by:** Mrs. Maria Neculau  
IDAWC REF: PER11-178

## **MARY STUDY ON MEMBRANE BUBBLING DISTILLATION PROCESS**

**Authors:** Dr. Prof. Lu Xiaolong, Dr. Qijun Gao, Dr. Chunrui Wu, Dr. Yue Jia, Dr. Huayan Chen, Dr. Xuan Wang  
**Paper's Country of Attribution:** China  
**Presented by:** Dr. Prof. Lu Xiaolong  
IDAWC REF: PER11-191

## **PRIMARY STUDY ON MULTI-EFFECT MEMBRANE DISTILLATION PROCESS**

**Authors:** Dr. Prof. Lu Xiaolong, Dr. Chunrui Wu, Dr. Qijun Gao, Dr. Huayan Chen, Dr. Yue Jia, Dr. Xuan Wang  
**Paper's Country of Attribution:** China  
**Presented by:** Dr. Prof. Lu Xiaolong  
IDAWC REF: PER11-192

## **MATCHING HOLLOW FIBRE WITH SPIRAL WOUND MEMBRANES. PROCESS COMPATIBILITY AND OPTIMISATION**

**Authors:** Dr. Corrado Sommariva, Mr. Tony Attenborough, Mr. Gian Filippo Poggi  
**Paper's Country of Attribution:** UAE  
**Presented by:** Dr. Corrado Sommariva  
IDAWC REF: PER11-225

## COMPUTER AIDED SUSTAINABLE PROCESS DESIGN IN SWRO PRE-TREATMENT

**Authors:** Mr. Matan Beery, Prof. Guenter Wozny, Prof. Jens-Uwe Repke

**Paper's Country of Attribution:** Germany

**Presented by:** Mr. Matan Beery

IDAWC REF: PER11-333

## TWO YEAR OPERATIONAL EXPERIENCE OF SWRO MEMBRANE WITH ARABIAN GULF AND GULF OF OMAN WATER

**Authors:** Mr. Sanjeev Sivaraman Unni

**Paper's Country of Attribution:** UAE

**Presented by:** Mr. Sanjeev Sivaraman Unni

IDAWC REF: PER11-131

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## Pre and Post-Treatment Systems Part I

*Tuesday, September 06, 2011*

*9.00 AM-12.30 PM M+1+2+3*

The desalination industry is experiencing rapid growth in the application of ultra filtration membrane pretreatment. Post treatment of desalinated water includes stabilization for corrosion control, disinfection and blending to produce the desired water quality to protect the distribution system and appliances and meet health requirements. This session focuses on the application, experience and advancement of low pressure filtration and conventional technologies and various processes for remineralization and disinfection without water quality degradation through bromate, disinfection byproducts and turbidity.

### CO-CHAIRS

*Mr. Antonio Casanas, Spain*

*Mr. David Furukawa, Australia*

*Mr. Robert Huehmer, USA*

*Mr. Felix Y. Wang PE, China*

### ORAL PRESENTATIONS:

*9.00 – 9.30*

#### PILOT TO FULL SCALE: FOCUS ON SOUTHERN SEAWATER DESALINATION ULTRAFILTRATION SYSTEM

**Authors:** Mr. Sam Towndrow, Ms. Eun Kyung Lee, Mr. Michael Jovanoski

**Paper's Country of Attribution:** Australia

**Presented by:** Mr. Sam Towndrow

IDAWC REF: PER11-171



9.30 – 10.00

**THE ROLE OF COAGULATION IN  
MEMBRANE PRE-TREATMENT FOR  
SEAWATER DESALINATION**

**Authors:** Dr. Graeme K. Pearce

**Paper's Country of Attribution:** United Kingdom

**Presented by:** Dr. Graeme K. Pearce

IDAWC REF: PER11-030



10.00 – 10.30

**ADVANCED UNDERSTANDING OF  
MEMBRANE FILTRATION PERFORMANCE**

**Authors:** Dr. Veronica Garcia-Molina, Dr. Markus Busch, Mr. Matthew J. Hallan, Mr. Udo Kolbe, Mr. Steve Rosenberg

**Paper's Country of Attribution:** USA

**Presented by:** Dr. Veronica Garcia-Molina

IDAWC REF: PER11-138

10.30 – 11.00

**REFRESHMENT BREAK**

11.00 – 11.30

**DESIGN CRITERIA COMPARISON OF THE  
REMINERALIZATION PROCESS FOR SWRO  
DESALINATION PLANT**

**Authors:** Mr. Yong-Shin So, Mr. Taejin Rhee, Mr. Kihoon Han, Mr. Mong-Kyu Chung, Mr. Sung-Woo Kim, Dr. Sin-Su Seol

**Paper's Country of Attribution:** South Korea

**Presented by:** Mr. Yong-Shin So

IDAWC REF: PER11-125

11.30 – 12.00

**EARLY BIOFOULING DETECTION BIO-  
SENSOR**

**Authors:** Engr. Eli Kotzer, Luba Kolik, Prof. Robert Armon

**Paper's Country of Attribution:** Israel

**Presented by:** Engr. Eli Kotzer

IDAWC REF: PER11-020

12.00 – 12.30

**METHOD FOR EFFECTIVENESS  
COMPARISON OF VARIOUS COMMERCIAL  
ANTISCALANTS WITH DIFFERENT  
COMPOSITIONS**

**Authors:** Mr. Ricardo Sand, Mrs. Beatriz Corzo, Mrs. Clara Sanroma, Dr. Jordi Bacardit, Dr. Enrique Ferrero, Mr. Jorge J. Malfeito

**Paper's Country of Attribution:** Spain

**Presented by:** Mr. Jorge J. Malfeito

IDAWC REF: PER11-150

## POSTER PRESENTATIONS:

### PILOT PLANT REMOVAL OF SCALE PRECURSOR IONS TO ENHANCE RO WATER RECOVERY

**Authors:** Dr. Peter Sanciola, Mr. Eddy Ostarcevic,  
Mr. Paul Atherton, Prof. Greg L. Leslie, Dr. Prof.  
Tony G. Fane, Dr. Prof. Yoram Cohen, Mr. Marrack  
Payne, Dr. Prof. Stephen Gray

**Paper's Country of Attribution:** Australia

**Presented by:** Dr. Prof. Stephen Gray

IDAWC REF: PER11-252

### OPTIMIZING THE BACKWASHING CONDITION IN MEMBRANE PRETREATMENT FOR SWRO PLANT

**Authors:** Mr. Takeshi Matsushiro, Mr. Ryoichi  
Arimura, Ms. Miwa Ishiduka, Mr. Futoshi Kurokawa,  
Ms. Shioko Kurihara, Mr. Hideaki Yamagata,  
Ms. Yuka Hiraga, Mr. Yoshihiko Koto

**Paper's Country of Attribution:** Japan

**Presented by:** Mr. Takeshi Matsushiro

IDAWC REF: PER11-071

### PERVIOUS CONCRETE FILTRATION FOR ECONOMIC DESALINATION PRE- TREATMENT AND BRINE REMEDIATION

**Authors:** Mr. Gregory M. Majersky

**Paper's Country of Attribution:** USA

**Presented by:** Mr. Gregory M. Majersky

IDAWC REF: PER11-035

### PRECIPITATION TO ACHIEVE HIGH PRODUCTION AND ZERO DISCHARGE IN DESALINATION PROCESSES

**Authors:** Dr. Abdulghani I. Dalvi

**Paper's Country of Attribution:** Saudi Arabia

**Presented by:** Dr. Abdulghani I. Dalvi

IDAWC REF: PER11-159

### NEW PRETREATMENT AGENT FOR REDUCING RO MEMBRANE FOULING AND EFFECTS OF APPLICATION

**Authors:** Mr. Yasuhiro Ooi, Mr. Katsumi Matsumoto,  
Mr. Keiji Uemura, Mr. Yoshihiko Endou, Mr. Tomoya  
Iuchi, Mr. Shigeru Satou, Mr. Hiroyuki Takenaka

**Paper's Country of Attribution:** Japan

**Presented by:** Mr. Katsumi Matsumoto

IDAWC REF: PER11-127



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## Energy Sources, Use and Efficiency: Part II

Tuesday, September 06, 2011

2.00 PM-5.30 PM Bellevue 2



### CO-CHAIRS

Mr. Adam Ansted, Australia

Mr. John Tonner C. Eng., USA

Mr. Victor Verbeek MEng. MSc., USA

### ORAL PRESENTATIONS:

2.00 – 2.30

#### **DESALINATION OF WATER SUPPLIES: STRATEGIES FOR ENERGY OPTIMIZATION AND RENEWABLE ENERGY USE**

**Authors:** Dr. Joseph Jacangelo, Ms. Joan Oppenheimer, Dr. Arun Subramani, Dr. Mohammad Badruzzaman

**Paper's Country of Attribution:** USA

**Presented by:** Dr. Joseph Jacangelo

IDAWC REF: PER11-059

2.30 – 3.00

#### **DESIGN CONSIDERATIONS FOR HIGH PRESSURE MEMBRANE FEED PUMPS FOR SWRO PLANTS**

**Authors:** Mr. John Lawler, Mr. Jose Morgade

**Paper's Country of Attribution:** USA

**Presented by:** Mr. Jose Morgade

IDAWC REF: PER11-371

3.00 – 3.30

#### **DESALINATION IN REMOTE AREAS: A PREDICTION-BASED APPROACH**

**Authors:** Dr. Prof. Fernando Tadeo, Mr. Luis G. Palacin, Dr. Prof. Cesar de Prada, Ms. Johanna Salazar

**Paper's Country of Attribution:** Spain

**Presented by:** Mr. Luis G. Palacin

IDAWC REF: PER11-004

3.30 – 4.00

#### **REFRESHMENT BREAK**

4.00 – 4.30

#### **SYDNEY START UP AND OPERATIONAL EXPERIENCE**

**Authors:** Mr. Thys McCurdy, Mr. Adrian Lukas Leumann

**Paper's Country of Attribution:** Switzerland

**Presented by:** Mr. Adrian Lukas Leumann

IDAWC REF: PER11-374

4.30 – 5.00

### **RECORD LOW ENERGY CONSUMPTION WITH CLOSED CIRCUIT DESALINATION**

**Authors:** Dr. Richard L. Stover, Mr. Nadav Efraty

**Paper's Country of Attribution:** Israel

**Presented by:** Dr. Richard L. Stover

IDAWC REF: PER11-375

5.00 – 5.30

### **MODEL-BASED OPTIMAL CONTROL FOR SWRO PROCESS BASED ON A PILOT PLANT DATA**

**Authors:** Mr. Katsuya Yokokawa, Mr. Ryo Namba,  
Dr. Osamu Yamanaka, Mr. Hideaki Yamagata

**Paper's Country of Attribution:** Japan

**Presented by:** Mr. Ryo Namba

IDAWC REF: PER11-130

## **POSTER PRESENTATIONS:**

### **ENERGY SAVINGS AT THE GOLD COAST SWRO PLANT**

**Authors:** Mr. Keith D. Andes, Dr. Craig R. Bartels,  
Ms. Nelly Cannesson, Mr. Scott Murphy, Mr. David  
Cohen

**Paper's Country of Attribution:** Australia

**Presented by:** Mr. Keith D. Andes

IDAWC REF: PER11-226

### **IMPROVING ENERGY EFFICIENCY IN THE RENOVATION AND UPGRADING OF SEAWATER DESALINATION TREATMENT PLANTS**

**Authors:** Mr. Bartolom Mar, Mr. Adri Rodr,  
Ms. Susanna Floth, Mr. Angel Mart

**Paper's Country of Attribution:** Spain

**Presented by:** Ms. Susanna Floth

IDAWC REF: PER11-349

### **EFFECTIVITY OF A PHOTOVOLTAIC SOLAR MEMBRANE DISTILLATOR**

**Authors:** Dr. Prof. Kazuo Murase, Mr. Daisuke Goto,  
Mr. Tin Yao, Mr. Toki Aoyagi, Mr. Keishi Okuyama

**Paper's Country of Attribution:** Japan

**Presented by:** Mr. Daisuke Goto

IDAWC REF: PER11-022



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## Membrane Systems: Design Optimization

Tuesday, September 06, 2011

2.00 PM-5.30 PM Riverview 4



### CO-CHAIRS

Mr. Michel Canet, France

Mr. Greg Finlayson, Australia

Mr. Ian Lomax, Germany

Mr. Devesh Sharma, USA

### ORAL PRESENTATIONS:

2.00 – 2.30

#### RO TREATMENT OF SEAWATER/SEWAGE MIXTURE TO GET FRESH-WATER IN URBAN-WATER INFRASTRUCTURE DESIGN

**Authors:** Mr. Hiroshi Iwahori P.E. J.P., Mr. Masaaki Ando, Mr. Kouichi Takanashi, Mr. Yuji Yamashiro

**Paper's Country of Attribution:** Japan

**Presented by:** Mr. Yuji Yamashiro

IDAWC REF: PER11-036

2.30 – 3.00

#### IMPROVEMENT OF FOULING INDICES MEASUREMENTS AND MODELING OF THEIR RELEVANCE

**Authors:** Mr. Eduard Gasia Bruch, Dr. Markus Busch, Engr. Sergio G. Salinas Rodriguez, Prof. Maria D. Kennedy

**Paper's Country of Attribution:** Spain

**Presented by:** Mr. Eduard Gasia Bruch

IDAWC REF: PER11-105

3.00 – 3.30

#### FIELD EXPERIENCE WITH CHLORINE DIOXIDE AS BIOCIDES IN RO PLANTS

**Authors:** Dr. Peter K. Eriksson, Mr. George L. Dimotsis

**Paper's Country of Attribution:** USA

**Presented by:** Dr. Peter K. Eriksson

IDAWC REF: PER11-112

3.30 – 4.00

#### REFRESHMENT BREAK

4.00 – 4.30

#### A NOVEL INTEGRATED SYSTEM FOR MONITORING PERMEATE QUALITY IN MEMBRANE DESALINATION PLANTS

**Authors:** Dr. Prof. Anastasios J. Karabelas, Dr. Chrysafenia Koutsou, Dr. John Gragopoulos, Dr. Nicos P. Isaias, Mr. Ahmad S. Al Rammah

**Paper's Country of Attribution:** Greece

**Presented by:** Dr. Prof. Anastasios J. Karabelas

IDAWC REF: PER11-218

4.30 – 5.00

**SWRO DESIGN; EVOLUTION OF ENERGY AND CHEMICAL CONSUMPTION AND FUTURE TRENDS.**

**Authors:** Mr. Rafael Buendia Candel, Mr. D. Aitor, Mr. Carlos Garcia Soto, Mr. Domingo Zarzo  
**Paper's Country of Attribution:** Spain  
**Presented by:** Mr. Rafael Buendia Candel  
IDAWC REF: PER11-234

5.00 – 5.30

**COAL SEAM GAS WATER TREATMENT SOLUTION USING A RELOCATABLE RO PLANT**

**Authors:** Mr. Hiep Le, Mr. Paul Hochman, Mr. Yashar Samadi, Mr. Matt Politzi  
**Paper's Country of Attribution:** Australia  
**Presented by:** Mr. Matt Politzi  
IDAWC REF: PER11-274

**POSTER PRESENTATIONS:**

**OPTIMIZATION OF SPLIT PARTIAL SECOND PASS RO SYSTEM WITH SMART CONTROL METHODS**

**Authors:** Dr. Sunghyuk Park, Dr. Yong-Gyun Park, Mr. In Ho Yeo, Dr. Hyo Sang Kim, Dr. Young Kee Oh, Dr. Kwangho Choi, Mr. June-Seok Choi, Dr. Sangho Lee  
**Paper's Country of Attribution:** South Korea  
**Presented by:** Dr. Yong-Gyun Park  
IDAWC REF: PER11-299

**DESIGN CONSIDERATIONS FOR LARGE SCALE LOW PRESSURE MEMBRANE PRE-TREATMENT TO SWRO**

**Authors:** Krishnan Sadasivam  
**Paper's Country of Attribution:** Australia  
**Presented by:** Krishnan Sadasivam  
IDAWC REF: PER11-017

**DESIGN FOR OPERABILITY – SOUTHERN SEAWATER DESALINATION PLANT, AUSTRALIA**

**Authors:** Thomas Ransome  
**Paper's Country of Attribution:** Australia  
**Presented by:** Thomas Ransome  
IDAWC REF: PER11-054

**PHOSPHORUS-FREE CALCIUM CARBONATE AND CALCIUM PHOSPHATE SCALE INHIBITORS FOR RO MEMBRANE SYSTEMS**

**Authors:** Dr. Ikuko Nishida, Mr. Kenji Kawata, Mr. Tetsuya Aoki, Mr. Katsumi Matsumoto, Mr. Kuniyuki Takahashi  
**Paper's Country of Attribution:** Japan  
**Presented by:** Dr. Ikuko Nishida  
IDAWC REF: PER11-123

## COMPARISON OF THE PERFORMANCE OF NF MEMBRANES FOR SULPHATE REJECTION

**Authors:** Engr. Tariq Nada, Dr. Trevor Hodgkiess

**Paper's Country of Attribution:** United Kingdom

**Presented by:** Engr. Tariq Nada

IDAWC REF: PER11-003

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### Membrane Technology Part III

Tuesday, September 06, 2011

2.00 PM-5.30 PM Bellevue 1

#### CO-CHAIRS

*Prof. Jean-Philippe Croue, Saudi Arabia*

*Prof. In S. Kim, South Korea*

*Dr. Costas Pelekani, Australia*

*Dr. Prof. Harvey Winters, USA*

#### ORAL PRESENTATIONS:

2.00 – 2.30

##### BIOFOULING PROCESS PROFILE OF A COMMERCIAL 24 MGD SWRO PLANT, SAUDI ARABIA FACILITY

**Authors:** Mr. Troy Green

**Paper's Country of Attribution:** Saudi Arabia

**Presented by:** Mr. Troy Green

IDAWC REF: PER11-340

2.30 – 3.00

##### NEW BRACKISH WATER RO ELEMENT LOWERS FOULING RATES FOR DIFFICULT FEED WATERS

**Authors:** Mr. Keith D. Andes, Dr. Craig R. Bartels, Mr. Wayne Bates

**Paper's Country of Attribution:** USA

**Presented by:** Mr. Keith D. Andes

IDAWC REF: PER11-338

3.00 – 3.30

##### RESULTS FROM 99 SEAWATER RO MEMBRANE AUTOPSIES

**Authors:** Mr. Stephen P. Chesters, Mrs. Nuria Pena, Ms. Silvia Lopez Gallego, Mr. Maqsood Fazal, Mr. Matthew W. Armstrong, Mr. Fernando del Vigo

**Paper's Country of Attribution:** United Kingdom

**Presented by:** Mr. Stephen P. Chesters

IDAWC REF: PER11-297

3.30 – 4.00

##### REFRESHMENT BREAK

4.00 – 4.30

**SEAWATER DESALINATION PLANT  
OPTIMIZATION BASED ON MEMBRANE  
REPLACEMENT AND CLEANING**

**Authors:** Mrs. Jantje Johnson, Mr. Greig Mercer

**Paper's Country of Attribution:** USA

**Presented by:** Mrs. Jantje Johnson

IDAWC REF: PER11-048

4.30 – 5.00

**THE ELECTROKINETICS OF BACTERIAL  
COLLOIDS: A DIELECTROPHORECTIC  
BIOREMEDIATION TECHNOLOGY PROPOSAL**

**Authors:** Mr. Errol M. Glenn, Dr. Sunny Jiang

**Paper's Country of Attribution:** USA

**Presented by:** Mr. Errol M. Glenn

IDAWC REF: PER11-315

5.00 – 5.30

**ANALYTICAL METHODS FOR THE  
CHARACTERIZATION OF REVERSE OSMOSIS  
MEMBRANES FOULING**

**Authors:** Dr. Enrique Ferrero, Dr. Susana Navea,  
Dr. Carme Repoll, Dr. Jordi Bacardit, Mr. Jorge J.  
Malfeito

**Paper's Country of Attribution:** Spain

**Presented by:** Mr. Jorge J. Malfeito

IDAWC REF: PER11-240

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**Pre and Post-Treatment Systems Part II**

*Tuesday, September 06, 2011*

*2.00 PM-5.30 PM M+1+2+3*

**CO-CHAIRS**

*Mr. Antonio Casanas, Spain*

*Mr. David Furukawa, Australia*

*Mr. Robert Huehmer, USA*

*Mr. Felix Y. Wang PE, China*

**ORAL PRESENTATIONS:**

2.00 – 2.30

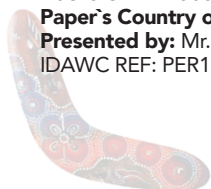
**MICROFILTRATION/ULTRAFILTRATION  
PRETREATMENT TRENDS IN SEAWATER  
DESALINATION**

**Authors:** Mr. Robert Huehmer, Mr. John Poon

**Paper's Country of Attribution:** USA

**Presented by:** Mr. Robert Huehmer

IDAWC REF: PER11-304



2.30 – 3.00

### **FULL COAGULATION AND DISSOLVED AIR FLOATION: A SWRO KEY PRE-TREATMENT STEP FOR HEAVY FOULING SEAWATER**

**Authors:** Ms. Sarah Le Gallou, Ms. Sophie Bertrand, Dr. Kadhem Madan

**Paper's Country of Attribution:** France

**Presented by:** Ms. Sarah Le Gallou

IDAWC REF: PER11-177

3.00 – 3.30

### **DISSOLVED AIR FLOATION (DAF): THE SOLUTION TO GUARANTEE MAXIMUM AVAILABILITY IN CHALLENGING SEAWATER CONDITIONS**

**Authors:** Ms. Chiara Fabbri, Mr. Roberto Mangano, Dr. Corrado Sommariva, Rosario Blasetti

**Paper's Country of Attribution:** UAE

**Presented by:** Ms. Chiara Fabbri

IDAWC REF: PER11-219

3.30 – 4.00

### **REFRESHMENT BREAK**

4.00 – 4.30

### **SOUTHERN SEAWATER MICROFILTRATION PILOT PLANT TRIAL – THE IMPACTS OF SHOCK CHLORINATION**

**Authors:** Mr. Marc Ferguson, Mr. Sam Towndrow, Mr. Gavin Broom, Mr. Michael Jovanoski, Mr. Sjoerd Sibma, Mr. Ben Boardman

**Paper's Country of Attribution:** Australia

**Presented by:** Mr. Marc Ferguson

IDAWC REF: PER11-276

4.30 – 5.00

### **ASSESSMENT OF MFI AS SEAWATER PRETREATMENT DESIGN TOOL AT CARBONERAS DEMONSTRATION PLANT**

**Authors:** Mr. Miguel Garcia Hernandez, Mr. Joan Sanz, Mr. Carme Carulla, Mr. Enrique Nebot, Mr. Juan Manuel Ortega, Mr. Antonio Casanas, Mr. Luis M. Lubian

**Paper's Country of Attribution:** Spain

**Presented by:** Mr. Miguel Garcia Hernandez

IDAWC REF: PER11-260

5.00 – 5.30

### **OPTIMIZING COAGULATION IN SEAWATER UF/RO SYSTEMS TO REDUCE FOULING BY TRANSPARENT EXOPOLYMER PARTICLES**

**Authors:** Mr. S. Assiyeh Alizadeh Tabatabai, Mr. Madiany Hernandez Caballero, Prof. Maria D. Kennedy, Dr. Prof. Gary Lee Amy, Prof. Jan C. Schippers

**Paper's Country of Attribution:** Netherlands

**Presented by:** Mr. S. Assiyeh Alizadeh Tabatabai

IDAWC REF: PER11-347

## POSTER PRESENTATIONS:

### SUSTAINABLE USE OF RECLAIMED WATER FOR POWER PLANT COOLING

**Authors:** Mr. Larry VandeVenter, Ms. Catherine Magliocco, Mr. Robert K. Race, Mr. William Clunie P.E., Mr. Matthew Noelker, Mr. Steven Pickle, Dr. Will Lovins

**Paper's Country of Attribution:** USA

**Presented by:** Mr. Larry VandeVenter  
IDAWC REF: PER11-310

### REVIEW OF THE PRE-TREATMENT SELECTION/DESIGN FOR AUSTRALIA'S BIG SIX DESALINATION PROJECT

**Authors:** Mr. Huw Alexander Lazaredes, Mr. Gavin Broom

**Paper's Country of Attribution:** Australia

**Presented by:** Mr. Huw Alexander Lazaredes  
IDAWC REF: PER11-244

### PERFORMANCE OF DUAL MEDIA FILTER AT SAND STORM AREA IN SAUDI ARABIA

**Authors:** Dr. Nabil N.A. Nada, Engr. Abdul Aziz M. Al-Mahdi, Mr. Fayyaz Muddassir Mubeen, Mr. Kazuhisa Takeuchi, Dr. Hideo Iwahashi, Mr. Kiichi Tokunaga

**Paper's Country of Attribution:** Japan

**Presented by:** Dr. Hideo Iwahashi  
IDAWC REF: PER11-188

### EXTRACTION OF CARBON DIOXIDE FROM SEAWATER OR SWRO-CONCENTRATE FOR REMINERALIZATION IN DESALINATION SYSTEMS

**Authors:** Dr. Chunwoo Lee, Mr. Pranay Mane, Mr. Mizu Dela Cruz, Dr. Young Chul Choi

**Paper's Country of Attribution:** USA

**Presented by:** Mr. Pranay Mane  
IDAWC REF: PER11-249

### TECHNO-ECONOMICAL EVALUATION FOR BETTER CHOICE OF SEAWATER/BRACKISH WATER DESALINATION TECHNOLOGIES

**Authors:** Dr. Noredine Ghaffour, Dr. Prof. Kim Choon Ng, Dr. Prof. Gary Lee Amy

**Paper's Country of Attribution:** Saudi Arabia

**Presented by:** Dr. Noredine Ghaffour  
IDAWC REF: PER11-197



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## Materials

Wednesday, September 07, 2011

9.00 AM-12.30 PM Bellevue 2

Failure of components in desalination plants results in forced shutdown and loss in production. The failure of material is caused by forms of local attack, stresses, dissimilar material combination or environmental attack. A proper material processing and selection are the key to minimize the chances of corrosion of material and provide longevity to the plant. Superb corrosion resistance, durability and good mechanical properties must be balanced with cost effectiveness to achieve the best material selection possible.



### CO-CHAIRS

*Engr. Abdulaziz M. Al Dukir, Saudi Arabia*

*Dr. Glenn Byrne, United Kingdom*

*Mr. Khalil M. M. Farran, Saudi Arabia*

*Mr. Sjoerd Sibma, Australia*

### ORAL PRESENTATIONS:

9.00 – 9.30

#### **CORROSION BEHAVIOR OF SOME SUPERAUSTENITIC, SUPERDUPLEX AND SUPERFERRITIC MATERIALS IN SEAWATER ENVIRONMENT**

**Authors:** Dr. Prof. Anees Uddin Malik, Engr. Saleh Ahmed Al Fozan, Engr. Mohammad Al-Hajiri

**Paper's Country of Attribution:** Saudi Arabia

**Presented by:** Dr. Prof. Anees Uddin Malik  
IDAWC REF: PER11-341

9.30 – 10.00

#### **STAINLESS STEELS FOR DESALINATION CONDENSER TUBES**

**Authors:** Mr. Edgar Halling, Mr. Hachemi Loucif

**Paper's Country of Attribution:** Sweden

**Presented by:** Mr. Edgar Halling  
IDAWC REF: PER11-263

10.00 – 10.30

#### **PERTH SEAWATER DESALINATION PLANT – MATERIAL SELECTION**

**Authors:** Mr. Tako Heiner, Mr. David Parravicini

**Paper's Country of Attribution:** Australia

**Presented by:** Mr. Tako Heiner  
IDAWC REF: PER11-292

10.30 – 11.00

#### **REFRESHMENT BREAK**

11.00 – 11.30

## **CRITICAL COMPONENTS OF SWRO DESALINATION PLANTS**

**Authors:** Mr. Andreas Broeckmann, Mr. Stephen J. Roddy, Mr. Peter Eccleston

**Paper's Country of Attribution:** Australia

**Presented by:** Mr. Andreas Broeckmann

IDAWC REF: PER11-043

11.30 – 12.00

## **CAUSE-AND-EFFECT CHAIN OF VALVE TECHNOLOGY APPLIED IN DESALINATION PLANTS**

**Authors:** Mr. Claudio Darpin, Mr. Roger Giovanni Davia

**Paper's Country of Attribution:** Switzerland

**Presented by:** Mr. Claudio Darpin

IDAWC REF: PER11-258

12.00 – 12.30

## **FABRICATION OF SUPERDUPLEX STAINLESS STEEL FOR OPTIMUM SEAWATER CORROSION RESISTANCE**

**Authors:** Dr. Glenn Byrne, Mr. Geoffery Warburton, Mr. Jason D. Wilson, Dr. Roger Francis

**Paper's Country of Attribution:** United Kingdom

**Presented by:** Mr. Geoffery Warburton

IDAWC REF: PER11-376

## **POSTER PRESENTATIONS:**

### **COMPOSITES IN SEAWATER REVERSE OSMOSIS DESALINATION PLANTS**

**Authors:** Sooi Li Lee, Mr. Stephen J. Roddy, Lucy Cranitch

**Paper's Country of Attribution:** Australia

**Presented by:** Sooi Li Lee

IDAWC REF: PER11-021

### **PRINCIPLES BEHIND MATERIALS SELECTION AND DURABILITY MANAGEMENT FOR DESALINATION PROJECTS**

**Authors:** Dr. Frederic Blin, Ms. Sarah Furman, Mr. Miles Dacre

**Paper's Country of Attribution:** Australia

**Presented by:** Mr. Miles Dacre

IDAWC REF: PER11-111


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## **Membrane Systems: Design Specific Project**

*Wednesday, September 07, 2011*

*9.00 AM-12.30 PM Bellevue 1*

The important link between design and operational experience with membrane plants and systems around



the world is a key element in successful and sustainable delivery of fresh water. It includes utilizing innovative membrane solutions as well as novel system design. Operational feedback from solution of operating problems is also very important for design refinement and also for planning the next stages of technology development. This session provides an important overview of successful design and operation of large plants. PART 1 will focus on DESIGN.

## **CO-CHAIRS**

*Mr. Michel Canet, France*

*Mr. Greg Finlayson, Australia*

*Mr. Ian Lomax, Germany*

*Mr. Devesh Sharma, USA*

## **ORAL PRESENTATIONS:**

*9.00 – 9.30*

### **VICTORIAN DESALINATION PROJECT: QUANTITIES AND SCALE OF LARGE DESALINATION PROJECTS**

**Authors:** Mr. Bernard Loez, Mr. Pierre Mazounie,  
Ms. Veronique Bonnelye

**Paper's Country of Attribution:** Australia

**Presented by:** Mr. Bernard Loez

IDAWC REF: PER11-051

*9.30 – 10.00*

### **EVOLUTION OF PRODUCTION AND ENERGY SAVINGS IN SWRO PLANT OF LAS PALMAS III**

**Authors:** Mr. Raul Lemes de Leon, Mr. Jose L. Perez  
Talavera, Mrs. Laura Lorenzo, Mr. Domingo Zarzo,  
Mr. Raul Falcon, Mr. Rafael Arocha, Mr. Jacinto  
Curbelo, Mr. Victor Platas

**Paper's Country of Attribution:** Spain

**Presented by:** Mr. Raul Lemes de Leon

IDAWC REF: PER11-230

*10.00 – 10.30*

### **DESIGN OF 10 MIGD SWRO DESALINATION PLANT IN BUSAN APPLIED WITH 16 INCH MEMBRANE**

**Authors:** Mr. Sung Woo, Mr. Seok Ho Choi, Dr.  
Byung-sung Park, Dr. Jungjune Lee, Ms. Jinhee Min,  
Dr. Woonyoung Lee, Mr. Keumseo Park, Mr. Young  
Jin Baek

**Paper's Country of Attribution:** South Korea

**Presented by:** Mr. Sung Woo

IDAWC REF: PER11-245

*10.30 – 11.00*

### **REFRESHMENT BREAK**

11.00 – 11.30

**AL-ZAWRAH NEW 10 MIGD SWRO  
DESALINATION PLANT**

**Authors:** Mr. Borja Martinez Urbina, Mr. Javier Arrieta Morales, Mr. Raffi Shaffi

**Paper's Country of Attribution:** Spain

**Presented by:** Mr. Borja Martinez Urbina  
IDAWC REF: PER11-267

11.30 – 12.00

**LOW PRESSURE RO ENERGY RECOVERY AT  
OCWD'S GWRS PROJECT**

**Authors:** Mr. David Argo, Dr. Srinivas (Vasu) Veerapaneni, Mr. Mehul Patel, Mr. William Dunivin

**Paper's Country of Attribution:** USA

**Presented by:** Dr. Srinivas (Vasu) Veerapaneni  
IDAWC REF: PER11-314

12.00 – 12.30

**THE EVALUATION OF 16-INCH RO  
MEMBRANE'S APPLICATION IN SEAWATER  
DESALINATION PLANT**

**Authors:** Mr. Soon Mo Seong, Mr. Keeyong Park, Mr. Jong Hyun Hong, Mr. TaeJoon Lee, Mr. Sung IL So, Mr. WooSeop Lim

**Paper's Country of Attribution:** South Korea

**Presented by:** Mr. Keeyong Park  
IDAWC REF: PER11-113

**POSTER PRESENTATIONS:**

**ADELAIDE DESALINATION PLANT PROCESS  
DESIGN: ENERGY USE OPTIMISATION**

**Authors:** Mr. Guillermo Hijos Gago, Mr. Javier Artal, Mr. Inigo Ajuriagoegascoa, Mr. Jose Andres Bidaurrazaga

**Paper's Country of Attribution:** Australia

**Presented by:** Mr. Guillermo Hijos Gago  
IDAWC REF: PER11-007

**DESALINATION: SUSTAINABLE SOLUTIONS  
FOR A CROWDED COASTAL/MARINE  
WORLD**

**Authors:** Mr. Paul Fredrick Holthus

**Paper's Country of Attribution:** USA

**Presented by:** Mr. Paul Fredrick Holthus  
IDAWC REF: PER11-170

**COMMISSIONING AND START UP OF SAUDI  
ARABIA'S LARGEST SWRO PLANT**

**Authors:** Engr. Fayyaz Muddassir Mubeen, Engr. Abdul Aziz M. Al-Mahdi

**Paper's Country of Attribution:** Saudi Arabia

**Presented by:** Engr. Fayyaz Muddassir Mubeen  
IDAWC REF: PER11-147

## DESALINATION AND WATER REUSE IN PAKISTAN – AN UPDATE

**Authors:** Engr. Fayyaz Muddassir Mubeen  
**Paper's Country of Attribution:** Pakistan  
**Presented by:** Engr. Fayyaz Muddassir Mubeen  
IDAWC REF: PER11-148

## MUTXAMEL SWRO DESALINATION PLANT GUARANTEES DRINKING WATER FOR 200 000 PEOPLE

**Authors:** Mr. Inaki Del Campo, Mr. Miguel Angel Sanz, Mr. Gontzal Lorenzo, Mr. Francisco Beltran, Mrs. Mariola Dura, Mr. Zigor Zubezu  
**Paper's Country of Attribution:** Spain  
**Presented by:** Mr. Inaki Del Campo  
IDAWC REF: PER11-319

## PALM JUMEIRAH: THREE YEARS POST STARTUP. CHALLENGES AND SOLUTIONS

**Authors:** Dr. Mahmoud Hani Al Hindi, Mr. Emad Masri, Mr. Louay Mansour, Dr. Osama Attawneh  
**Paper's Country of Attribution:** UAE  
**Presented by:** Dr. Mahmoud Hani Al Hindi  
IDAWC REF: PER11-293

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## Pre and Post-Treatment Systems Part III

Wednesday, September 07, 2011

9.00 AM-12.30 PM M+1+2+3

### CO-CHAIRS

Mr. Antonio Casanas, Spain  
Mr. David Furukawa, Australia  
Mr. Robert Huehmer, USA  
Prof. In S. Kim, South Korea  
Mr. Felix Y. Wang PE, China

### ORAL PRESENTATIONS:

9.00 – 9.30

#### WASTE WATER REUSE AND SEAWATER DESALINATION IN CHINA: TWO CASE STUDIES

**Authors:** Mr. Frans Knops, Engr. Jorge Salas Orta, Mr. David Wang  
**Paper's Country of Attribution:** Netherlands  
**Presented by:** Mr. Frans Knops  
IDAWC REF: PER11-039

9.30 – 10.00

**ALKALIZATION OF NF MEMBRANE SEAWATER PRETREATMENT PROVIDING EFFICIENT TECHNIQUE FOR BORON REMOVAL**

**Authors:** Dr. Abu Elfetouh Zaky Abdullatif  
**Paper's Country of Attribution:** Saudi Arabia  
**Presented by:** Dr. Abu Elfetouh Zaky Abdullatif  
IDAWC REF: PER11-185

10.00 – 10.30

**A TECHNICAL GUIDE FOR THE REMINERALIZATION OF DESALINATED WATERS**

**Authors:** Dr. Manuel J. Hernandez, Mr. Miguel Garcia Hernandez  
**Paper's Country of Attribution:** Spain  
**Presented by:** Mr. Miguel Garcia Hernandez  
IDAWC REF: PER11-015

10.30 – 11.00

**REFRESHMENT BREAK**

11.00 – 11.30

**PRETREATMENT OF SEAWATER FOR ORGANIC REMOVAL USING POWDER ACTIVATED CARBON**

**Authors:** Mr. Sanghyun Jeong, Dr. Tien Vinh Nguyen, Dr. Prof. Saravanamuthu Vigneswaran  
**Paper's Country of Attribution:** Australia  
**Presented by:** Mr. Sanghyun Jeong  
IDAWC REF: PER11-330

11.30 – 12.00

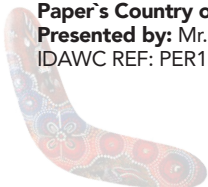
**RECLAMATION OF USED WATER USING LOW ENERGY HYBRID COAGULATION-ULTRAFILTRATION PROCESS**

**Authors:** Dr. Jianjun Qin, Mr. Maung Htun Oo, Mr. Kiran A Kekre, Mr. Rob Kolkman  
**Paper's Country of Attribution:** Singapore  
**Presented by:** Dr. Jianjun Qin  
IDAWC REF: PER11-029

12.00 – 12.30

**USING REMOTE SENSING TO ASSESS RISK TO REVERSE OSMOSIS INFRASTRUCTURE FROM ALGAE**

**Authors:** Mr. Jonathan Philip Bishop, Dr. Patrick Joseph Phelan  
**Paper's Country of Attribution:** UAE  
**Presented by:** Mr. Jonathan Philip Bishop  
IDAWC REF: PER11-266



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## Recycling and Reuse Part I

Wednesday, September 07, 2011

9.00 AM-12.30 PM Riverview 5

As the quest for additional water resources intensifies to meet ever increasing demand, reuse of wastewater both for municipal and industrial purposes, is being implemented at an unprecedented scale worldwide. Nevertheless, there are several issues such as public perception, technology and treatment requirements, permitting, disposal of waste streams, etc. that need to be addressed for successful implementation of reclamation facilities. This session will focus on all these issues at various stages of implementation. The session will cover a variety of commercially operational projects from around the world and explore the breadth of issues encountered when considering water reuse. It will cover the technical issues relating to cutting edge research and development ranging from academic study of membrane performance to operational implementation.



### CO-CHAIRS

*Prof. Greg L. Leslie, Australia*

*Mr. Jim Lozier, Australia*

### ORAL PRESENTATIONS:

9.00 – 9.30

#### **TREATMENT & REUSE OF PETROLEUM REFINERY & MUNICIPAL WASTEWATERS – MEMBRANE PILOT RESULTS**

**Authors:** Mr. Chiew Hiet Wong, Mr. Shane R. Law,  
Mr. Darshit Dalal, Ms. Karla J. Kinser PE, Prof. Greg  
L. Leslie, Mr. Peter Aberle

**Paper's Country of Attribution:** Australia

**Presented by:** Mr. Chiew Hiet Wong

IDAWC REF: PER11-090

9.30 – 10.00

#### **SELECTING THE OPTIMAL SOURCE WATER FOR INDIRECT POTABLE REUSE IN LOS ANGELES, CALIFORNIA**

**Authors:** Mr. Greg Wetterau, Mr. Paul Liu, Mr. Tom  
Richardson, Ms. Heather Boyle VanMeter

**Paper's Country of Attribution:** USA

**Presented by:** Mr. Greg Wetterau

IDAWC REF: PER11-102

10.00 – 10.30

**INFLUENCE OF EPS AND MLSS  
CONCENTRATION ON PHYSICAL  
PARAMETERS IN TWO MBRS**

**Authors:** Dr. Prof. Daniel Prats Rico, Engr. Liuba Domanguez Chabalina, Dr. Manuel Rodriguez, Mr. Domingo Zarzo

**Paper's Country of Attribution:** Spain

**Presented by:** Mr. Domingo Zarzo  
IDAWC REF: PER11-229

10.30 – 11.00

**REFRESHMENT BREAK**

11.00 – 11.30

**OPTIMIZING MEMBRANE BIOREACTOR  
/REVERSE OSMOSIS (MBR/RO)  
PERFORMANCE FOR TREATMENT OF  
MUNICIPAL WASTEWATER**

**Authors:** Mr. Steven Peck, Ms. Naomi Jones, Dr. Aleks Pisarenko, Dr. Shane Snyder, Dr. Benjamin Stanford, Mr. Benjamin Freeman, Mr. Rich Newell Franks II, Dr. Craig R. Bartels

**Paper's Country of Attribution:** USA

**Presented by:** Dr. Craig R. Bartels  
IDAWC REF: PER11-047

11.30 – 12.00

**IMPACT OF BIOLOGICAL TREATMENT ON  
MEMBRANE PERFORMANCE IN TERTIARY  
TREATMENT FOR WATER RECYCLING**

**Authors:** Chrystelle Ayache, Prof. Jean-Philippe Croue, Dr. Wolfgang Gernjak, Dr. Marc Pidou, Mr. Yvan Poussade, Ms. Annie Tazi-Pain

**Paper's Country of Attribution:** Australia

**Presented by:** Chrystelle Ayache  
IDAWC REF: PER11-241

12.00 – 12.30

**CHARACTERIZATION OF ORGANIC MATTER  
FOR THE OPTIMIZATION OF REUSE  
TREATMENT**

**Authors:** Mr. Marc Philibert, Mr. Bruno Domenjoud, Mr. Santiago Esplugas, Mr. Mel Suffet, Mr. Karl Glucina, Ms. Sylvie Baig

**Paper's Country of Attribution:** France

**Presented by:** Mr. Marc Philibert  
IDAWC REF: PER11-093



## POSTER PRESENTATIONS:



### **ANTISCALANT FOR REDUCED ACID USAGE IN CONTROLLING CALCIUM PHOSPHATE SCALE IN MEMBRANES**

**Authors:** Dr. William Homer Morris III, Dr. Harshada Lohokare, Dr. Ana Urmenyi, Mr. Andrew Head, Dr. Anders Hallsby, Ms. Ravindra Yeleswarapu

**Paper's Country of Attribution:** USA

**Presented by:** Mr. Andrew Head

IDAWC REF: PER11-100

### **USE OF MOVING BED BIOFILM REACTOR (MBBR) PROCESS FOR TREATMENT OF POLLUTED YAMUNA RIVER WATER**

**Authors:** Dr. Ghulam M. Mustafa, Engr. Sushil Kumar, Dr. Uday G. Kelkar, Engr. A. K. Rakesh

**Paper's Country of Attribution:** India

**Presented by:** Dr. Uday G. Kelkar

IDAWC REF: PER11-160

### **CALCIUM PHOSPHATE SCALE CONTROL IN WASTEWATER RE-USE RO SYSTEM**

**Authors:** Mr. Choo Chuan Han, Mr. Taran Singh Mann, Mr. William Phay, Mr. Eric Koay

**Paper's Country of Attribution:** Singapore

**Presented by:** Mr. Choo Chuan Han

IDAWC REF: PER11-269

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## **Environment and Public Health Part I**

*Wednesday, September 07, 2011*

*2.00 PM-6.00 PM Bellevue 2*

As desalination is increasingly applied worldwide to produce fresh water so has the need to ensure protection of the environment and public health. This has led to challenges in applying guidelines developed for other technologies and sources to seawater desalination plants e.g. the application of the US Surface Water Treatment Rule to seawater intake wells or mixing zone dilution requirements for the discharge of concentrated seawater (brine). Today, the desalination industry is focused on incorporating sustainability aspects and mitigation measures into the design and operation of plants in an effort to reduce a plant.

### **CO-CHAIRS**

*Mr. Ibrahim A. R. Al Tisan, Saudi Arabia*

*Dr. Siobhan Boerlage, Australia*

*Mr. Keith Cadee, Australia*

## ORAL PRESENTATIONS:

2.00 – 2.30

### ENVIRONMENTAL IMPACT OF DESALINATION EFFLUENTS: ECOTOXICITY TESTING AND SAFE DILUTION FACTORS EVALUATION

**Authors:** Dr. Stello Casas, Mr. Jerome Leparc

**Paper's Country of Attribution:** France

**Presented by:** Dr. Stello Casas

IDAWC REF: PER11-060

2.30 – 3.00

### IMPACTS OF DESALINATION ON THE MARINE ENVIRONMENT – SOME SIGNIFICANT BENEFITS

**Authors:** Mr. Harry F. Gordon, Mr. Paul G. Viskovich,  
Mr. Simon D. Costanzo, Mr. Angus L. Thompson,  
Ms. Elizabeth J. West, Dr. Siobhan Boerlage

**Paper's Country of Attribution:** Australia

**Presented by:** Mr. Harry F. Gordon

IDAWC REF: PER11-223

3.00 – 3.30

### MARINE FAUNA BLAST EXCLUSION MANAGEMENT AT THE SOUTHERN SEAWATER DESALINATION PLANT, WESTERN AUSTRALIA

**Authors:** Mr. Paul Denyer, Mr. Gordon Groth,  
Mr. Rodrigo Fernandez-Mellado, Mr. Marshall Hall

**Paper's Country of Attribution:** Australia

**Presented by:** Mr. Paul Denyer

IDAWC REF: PER11-280

3.30 – 4.00

### REFRESHMENT BREAK

4.00 – 4.30

### OVERCOMING PERMITTING HURDLES TO IMPLEMENT SEAWATER DESALINATION IN CALIFORNIA

**Authors:** Mr. Greg Wetterau, Mr. Erik D.  
Desormeaux

**Paper's Country of Attribution:** USA

**Presented by:** Mr. Greg Wetterau

IDAWC REF: PER11-101

4.30 – 5.00

### CARBON FOOTPRINT OF SWRO DESALINATION A COMPUTATIONAL TOOL

**Authors:** Mr. Frans Knops, Mr. Matan Beery,  
Prof. Jens-Uwe Repke

**Paper's Country of Attribution:** Netherlands

**Presented by:** Mr. Frans Knops

IDAWC REF: PER11-040

5.00 – 5.30

## **EVALUATING THE ENVIRONMENTAL IMPACTS OF SEAWATER DESALINATION VESSELS**

**Authors:** Mr. Robert Huehmer, Ms. Lisa Henthorne PE, Mr. Steve Gong

**Paper's Country of Attribution:** USA

**Presented by:** Mr. Robert Huehmer  
IDAWC REF: PER11-285



5.30 – 6.00

## **REUSE OF REVERSE OSMOSIS DESALINATION MEMBRANES**

**Authors:** Mr. William Lawler, Mr. Thomas Wijaya, Dr. Alice Antony, Prof. Greg L. Leslie, Dr. Pierre Le-Clech

**Paper's Country of Attribution:** Australia

**Presented by:** Mr. William Lawler  
IDAWC REF: PER11-052

## **POSTER PRESENTATIONS:**

### **BRINE DISCHARGE MODELLING AND ENVIRONMENTAL IMPACT ASSESSMENT. ANALYSIS OF COMMERCIAL TOOLS**

**Authors:** Mrs. Pilar Palomar Herrero, Dr. Prof. Javier L. Lara, Dr. Prof. I. Losada, Mrs. Maria Maza

**Paper's Country of Attribution:** Spain

**Presented by:** Mrs. Pilar Palomar Herrero  
IDAWC REF: PER11-128

### **THE IMPORTANCE OF OSMOTIC POTENTIAL IN THE BRINE DISCHARGE**

**Authors:** Dr. Manuel Latorre

**Paper's Country of Attribution:** Spain

**Presented by:** Dr. Manuel Latorre  
IDAWC REF: PER11-217

### **REVEGETATION MANAGEMENT AT THE SSDP SITE**

**Authors:** Mr. Rodrigo Fernandez-Mellado, Ms. Katherine Hill, Mr. Gordon Groth, Mr. Angus Williamson

**Paper's Country of Attribution:** Australia

**Presented by:** Mr. Rodrigo Fernandez-Mellado  
IDAWC REF: PER11-283

### **ACID SULFATE SOIL AND DEWATERING AT THE SSDP**

**Authors:** Mr. Chris White, Mr. Rodrigo Fernandez-Mellado

**Paper's Country of Attribution:** Australia

**Presented by:** Mr. Rodrigo Fernandez-Mellado  
IDAWC REF: PER11-289

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## Future Separation Technologies

Wednesday, September 07, 2011

2.00 PM-6.00 PM M+1+2+3

The demand for new sources of water supply and the need to treat salty wastewater have spurred research and development and maintained a fresh stream of engineering talent and resources to the field. This in turn has expanded the range of desalination applications and produced exciting technical progress. For example, membrane distillation, forward osmosis and capacitive deionization techniques have recently advanced from theoretical concepts to bench-top, pilot-scale and even full-scale realities. Several of these technologies break down the traditional segregation of membrane and thermal desalination disciplines. The Future Separation Technologies session will serve as a global showcase for some of the most hopeful and game-changing new desalination techniques known today.

### CO-CHAIRS

*Dr. Masaru Kurihara, Japan*

*Mr. Peter G. Nicoll, United Kingdom*

*Dr. Richard L. Stover, USA*

### ORAL PRESENTATIONS:

2.00 – 2.30

#### EMERGING DESALINATION TECHNOLOGIES – AN OVERVIEW

**Authors:** Dr. Srinivas (Vasu) Veerapaneni, Rick Bond,  
Mr. Sunny Wang

**Paper's Country of Attribution:** USA

**Presented by:** Dr. Srinivas (Vasu) Veerapaneni  
IDAWC REF: PER11-320

2.30 – 3.00

#### ASSESSMENT OF DRAW-SOLUTION PERFORMANCE IN COMBINATION WITH ASYMMETRIC MEMBRANES FOR FORWARD OSMOSIS

**Authors:** Ms. Gabriela A. F. Gadelha, Dr. Nicholas  
P. Hankins

**Paper's Country of Attribution:** United Kingdom

**Presented by:** Ms. Gabriela A. F. Gadelha  
IDAWC REF: PER11-024

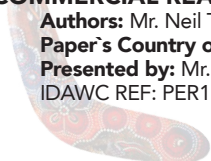
3.00 – 3.30

#### FORWARD OSMOSIS DESALINATION: A COMMERCIAL REALITY

**Authors:** Mr. Neil Thompson, Mr. Peter G. Nicoll

**Paper's Country of Attribution:** United Kingdom

**Presented by:** Mr. Neil Thompson  
IDAWC REF: PER11-198



3.30 – 4.00

### REFRESHMENT BREAK



4.00 – 4.30

### WASTEWATER RECLAMATION WITH FORWARD OSMOSIS AND RED SEA SEAWATER

**Authors:** Mr. Victor Yangali, Mr. Zhenyu Li, Mr. Rodrigo Valladares, Dr. Prof. Gary Lee Amy  
**Paper's Country of Attribution:** Saudi Arabia  
**Presented by:** Dr. Prof. Gary Lee Amy  
IDAWC REF: PER11-253

4.30 – 5.00

### RECOVERY OF OSMOTIC POWER IN SWRO PLANTS

**Authors:** Dr. Boris S. Liberman, Mr. Gal Greenberg  
**Paper's Country of Attribution:** Israel  
**Presented by:** Dr. Boris S. Liberman  
IDAWC REF: PER11-067

5.00 – 5.30

### CAPACITIVE DEIONISATION AS A USEFUL TOOL FOR INLAND BRACKISH WATER DESALINATION

**Authors:** Prof. Linda Zou, Mr. Haibo Li, Mr. Mohamed Ahmed Mossad  
**Paper's Country of Attribution:** Australia  
**Presented by:** Prof. Linda Zou  
IDAWC REF: PER11-012

5.30 – 6.00

### DESALINATION / CONCENTRATION OF INDUSTRIAL BRINES WITH MEMBRANE DISTILLATION

**Authors:** Engr. Muhammad Suhail Osman, Prof. Japie J. Schoeman, Dr. Lynette Baratta  
**Paper's Country of Attribution:** South Africa  
**Presented by:** Engr. Muhammad Suhail Osman  
IDAWC REF: PER11-028

## POSTER PRESENTATIONS:

### REVERSE OSMOSIS, FORWARD OSMOSIS, PRESSURE RETARDED

**Authors:** Dr. Val S. Frenkel P.E., D.WRE.  
**Paper's Country of Attribution:** USA  
**Presented by:** Dr. Val S. Frenkel P.E., D.WRE.  
IDAWC REF: PER11-009

## **MANIPULATED OSMOSIS APPLIED TO EVAPORATIVE COOLING MAKE-UP WATER – REVOLUTIONARY TECHNOLOGY**

**Authors:** Mr. Peter G. Nicoll, Mr. Neil Thompson,  
Mr. Michael Bedford

**Paper's Country of Attribution:** United Kingdom

**Presented by:** Mr. Peter G. Nicoll

IDAWC REF: PER11-199

## **MEMSTILL MEMBRANE DISTILLATION - FROM R&D PROTOTYPE TOWARDS COMMERCIAL PRODUCT**

**Authors:** Dr. Chris Dotremont

**Paper's Country of Attribution:** Belgium

**Presented by:** Dr. Chris Dotremont

IDAWC REF: PER11-005

## **UTILIZING AVAILABLE COLDNESS FROM LIQUEFIED NATURAL GAS (LNG) REGASIFICATION PROCESS FOR SEAWATER DESALINATION**

**Authors:** Mr. Tomer Efrat

**Paper's Country of Attribution:** Israel

**Presented by:** Mr. Tomer Efrat

IDAWC REF: PER11-068

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## **Membrane Systems: Performance and Operation - Part I Innovation Experiences**

*Wednesday, September 07, 2011*

*2.00 PM-5.30 PM Bellevue 1*

The important link between design and operational experience with membrane plants and systems around the world is a key element in successful and sustainable delivery of fresh water. It includes utilizing innovative membrane solutions as well as novel system design. Operational feedback from solution of operating problems is also very important for design refinement and also for planning the next stages of technology development. This session provides an important overview of successful design and operation of large plants. PART 1 will focus on PERFORMANCE AND OPERATION.

### **CO-CHAIRS**

*Dr. Markus Busch, Spain*

*Dr. Prof. Stephen Gray, Australia*

*Mrs. Jantje Johnson, USA*

*Mr. Miguel Angel Sanz, Spain*

*Mr. Santi Talo, Spain*



## ORAL PRESENTATIONS:



2.00 – 2.30

### **LARGE SWRO PROJECT FOR DRINKING WATER IN SHUQAIQ**

**Authors:** Dr. Nabil N.A. Nada, Mr. Yoshiaki Ito, Dr. Yasushi Maeda, Mr. Kiichi Tokunaga, Dr. Hideo Iwahashi

**Paper's Country of Attribution:** Japan

**Presented by:** Dr. Nabil N.A. Nada

IDAWC REF: PER11-189

2.30 – 3.00

### **PERFORMANCE REVIEW OF REVERSE OSMOSIS SEAWATER DESALINATION USING MEMBRANE FILTRATION PRETREATMENT**

**Authors:** Dr. Markus Busch, Mr. Felix Y. Wang PE, Dr. Veronica Garcia-Molina, Mr. Eduard Gasia Bruch

**Paper's Country of Attribution:** Spain

**Presented by:** Mr. Eduard Gasia Bruch

IDAWC REF: PER11-026

3.00 – 3.30

### **VALIDATION TESTING OF A FULL-SCALE RO SYSTEM FOR PATHOGEN REMOVAL**

**Authors:** Mr. Jim Lozier, Dr. Greta Zornes, Ms. Emily Jansen

**Paper's Country of Attribution:** USA

**Presented by:** Mr. Jim Lozier

IDAWC REF: PER11-318

3.30 – 4.00

### **REFRESHMENT BREAK**

4.00 – 4.30

### **RO DESALINATION OF CHLORAMINATED SEA AND BRACKISH WATER: MEMBRANE PERFORMANCES**

**Authors:** Thomas Maugin, Prof. Jean-Philippe Croue, Dr. Benito J. Marinas

**Paper's Country of Attribution:** Saudi Arabia

**Presented by:** Thomas Maugin

IDAWC REF: PER11-208

4.30 – 5.00

### **LOW ENERGY DESALINATION: SIEMENS' SOLUTION TO A GLOBAL CHALLENGE**

**Authors:** Mr. Michael Shaw, Mr. Timothy LeTourneau, Dr. Li-Shiang Liang, Mr. Kee Hoe Ng

**Paper's Country of Attribution:** USA

**Presented by:** Mr. Michael Shaw

IDAWC REF: PER11-312

5.00 – 5.30

## **LOW COST REVERSE OSMOSIS THERMO-IONIC HYBRID FOR BRINE MANAGEMENT**

**Authors:** Mr. Benjamin Sparrow, Mr. Malcolm Man, Mr. Joshua Zoshi

**Paper's Country of Attribution:** Canada

**Presented by:** Mr. Benjamin Sparrow

IDAWC REF: PER11-120

## **POSTER PRESENTATIONS:**

### **STUDIES ON PILOT SCALE WITH UF-RO SYSTEMS WITH HIGH RECOVERIES FOR L'AMPOLLA DWTP**

**Authors:** Dr. Abel Riaza-Frutos, Engr. Francisco J. Bernaola Echevarria, Engr. Jorge Salas Orta, Mr. Josep Xavier Pujol, Mr. Josep Ruana

**Paper's Country of Attribution:** Spain

**Presented by:** Dr. Abel Riaza-Frutos

IDAWC REF: PER11-238

### **DETECTION AND FATE OF ORGANIC MATTER ACROSS CONVENTIONAL AND EMERGENT TREATMENT LINES**

**Authors:** Dr. Alexis de Kerchove, Dr. Andrea Guastalli, Mr. Miguel Angel Sanz, Ms. Sophie Bertrand

**Paper's Country of Attribution:** France

**Presented by:** Dr. Alexis de Kerchove

IDAWC REF: PER11-220

### **HIGH PERFORMANCE RO ELEMENTS AND INTEGRATED MEMBRANE SYSTEM FOR DESALINATION & WATER REUSES**

**Authors:** Mr. Masahiro Henmi, Dr. Masahiro Kimura, Mr. Masahide Taniguchi, Dr. Takao Sasaki, Dr. Tadahiro Uemura

**Paper's Country of Attribution:** Japan

**Presented by:** Dr. Takao Sasaki

IDAWC REF: PER11-114

### **NEW COMBINED CHLORINE DISINFECTION AND BIO-FOULING CONTROL – PART II: THE RESULTS OF ACTUAL APPLICATIONS**

**Authors:** Mr. Katsumi Matsumoto, Mr. Tetsuya Aoki, Mr. Katsurou Yoda, Mr. Keiji Uemura, Ms. Taeko Nakamura, Mr. Kenji Kawata, Mr. Hiroyuki Takenaka, Mr. Tomoya Iuchi

**Paper's Country of Attribution:** Japan

**Presented by:** Mr. Katsumi Matsumoto

IDAWC REF: PER11-126



## MEMBRANE DISTILLATION TEST FOR CONCENTRATION OF RO BRINE AT WESSCO, JEDDAH

**Authors:** Engr. K. Syed Amir Basha, Mr. Henrik Dolfe, Ms. Miriam Aslin, Ms. Lamyaa El-Gabry  
**Paper's Country of Attribution:** Saudi Arabia  
**Presented by:** Engr. K. Syed Amir Basha  
IDAWC REF: PER11-351

## NEW AUTOMATION AND MONITORING TECHNOLOGY TO IMPROVE OPERATION OF MEMBRANE INSTALLATIONS

**Authors:** Dr. Anders Hallsby, Mr. Bart Pernai, Mr. Dejan Blagojevich, Mr. Brant Wilson, Dr. William Homer Morris III, Ms. Ravindra Yeleswarapu, Mark James  
**Paper's Country of Attribution:** USA  
**Presented by:** Dr. Anders Hallsby  
IDAWC REF: PER11-042

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## Recycling and Reuse Part II

*Wednesday, September 07, 2011*

*2.00 PM-6.00 PM Riverview 5*

"The aim of this session is to develop an awareness of the need to address the public perception and policy issues surrounding re-use projects as they become increasingly necessary as such issues often create barriers to successful projects coming to fruition and have a limiting effect on the growth potential of the global reuse markets. A short presentation of various regulations relating to reuse options will be given followed by opening to the floor for discussion, supported by the session co-chairmen and industry experts. Amongst others, topics covered will include the need for education, the role of regulation and public relations."

### CO-CHAIRS

*Dr. Mahmoud Hani Al Hindi, Lebanon*  
*Mr. Roderick Mackenzie, UAE*

### ORAL PRESENTATIONS:

*2.00 – 2.30*

#### RECYCLING AND REUSE: A POLICY DISCUSSION

*2.30 – 3.00*

#### TMBR - NEW CONCEPT FOR LARGE SCALE PLANT UPGRADE FOR WATER REUSE

**Authors:** Mr. Christoph Kullmann, Mr. Darren Lawrence, Mr. E. Costa, Ms. Antonia von Gottberg  
**Paper's Country of Attribution:** Brazil  
**Presented by:** Mr. Christoph Kullmann  
IDAWC REF: PER11-305

3.00 – 3.30

**DEVELOPMENT OF LOW-ENERGY  
MBR MODULES: INFLUENCE OF OIL-  
CONTAINING RAW WATER IN MBR  
OPERATION**

**Authors:** Mr. Atsushi Kitanaka, Ms. Seiko Kantani,  
Mr. Masahide Taniguchi, Mr. Makoto Ichinose,  
Dr. Tadahiro Uemura, Mr. Peter Kueppers

**Paper's Country of Attribution:** Japan

**Presented by:** Mr. Atsushi Kitanaka

IDAWC REF: PER11-224

3.30 – 4.00

**REFRESHMENT BREAK**

4.00 – 4.30

**ECONOMICAL BENEFITS OF EXTRA  
FOULING RESISTANT LOW ENERGY  
REVERSE OSMOSIS MEMBRANES IN  
MUNICIPAL WASTEWATER REUSE  
APPLICATIONS**

**Authors:** Ms. Katariina Vesantyaer Majamaa,  
Fabien Creus, Dr. Jon E. Johnson, Dr. Abhishek Roy

**Paper's Country of Attribution:** Spain

**Presented by:** Ms. Katariina Vesantyaer Majamaa

IDAWC REF: PER11-118

4.30 – 5.00

**DEVELOPMENT OF HIGH PERFORMANCE  
CTA HOLLOW-FIBER RO MODULE FOR  
WASTEWATER RECLAMATION**

**Authors:** Engr. Yuji Itoh, Mr. Toshiyuki Yagi,  
Mr. Shinobu Tokimi, Mr. Atsuo Kumano

**Paper's Country of Attribution:** Japan

**Presented by:** Engr. Yuji Itoh

IDAWC REF: PER11-203

5.00 – 5.30

**A NEW PHOSPHOROUS-FREE ANTISCALANT  
FOR RO DESALINATION**

**Authors:** Dr. Deepak Musale, Dr. Anders Hallsby,  
Dr. Benjamine Yao, Dr. Ana Urményi, Dr. Harshada  
Lohokare, Mr. Maqsood Fazel, Ms. Ravindra  
Yeleswarapu, Mr. Andrew Head

**Paper's Country of Attribution:** USA

**Presented by:** Dr. Anders Hallsby

IDAWC REF: PER11-041

5.30 – 6.00

**DESIGN METHOD WITH A CONVECTIVE  
ACTIVATED SLUDGE MODEL IN WASTE  
TREATMENT**

**Authors:** Dr. Yasuo Obikane

**Paper's Country of Attribution:** Jordan

**Presented by:** Dr. Yasuo Obikane

IDAWC REF: PER11-045

## POSTER PRESENTATIONS:



### MEMBRANE TECHNOLOGIES TO TREAT WWTP EFFLUENT: PILOT PLANT ESSAYS IN WWTP

**Authors:** Mr. Juan Jose Garcia Garcia, Mr. Juan Luis Martinez Muro, Engr. Leonardo Tua

**Paper's Country of Attribution:** Spain

**Presented by:** Mr. Juan Jose Garcia Garcia  
IDAWC REF: PER11-037

### ENERGY ACTIONS DEVELOPED IN WATER REUSE FIELD

**Authors:** Mr. Bartolom Mar, Mr. Adri Rodr, Ms. Susanna Floth, Mr. Angel Mart

**Paper's Country of Attribution:** Spain

**Presented by:** Ms. Susanna Floth  
IDAWC REF: PER11-348

### OPERATION CHALLENGES OF AN MBR PLANT FOR WATER REUSE

**Authors:** Ms. Olivia Frances Alvarez, Mr. Inaki Del Campo, Mr. Francisco Beltran, Mr. Rodrigo Moreira Rato

**Paper's Country of Attribution:** Spain

**Presented by:** Mr. Inaki Del Campo  
IDAWC REF: PER11-221

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## Thermal Systems

*Wednesday, September 07, 2011*

*2.00 PM-5.30 PM Riverview 4*

The selection of the thermal distillation processes multi stage flash (MSF) and multiple effect distillation (MED) are still dominating in the large desalination plants. From extensive operational experience valuable lessons can be learned. However, there are ongoing efforts to convert new research results into improved design features, further optimization in heat transfer rates and evaporator unit scale increase. This session includes presentations which contribute to the next steps in future MSF and MED plant design.

### CO-CHAIRS

*Dr. Ahmed S. Al Arifi, Saudi Arabia*

*Engr. Zamzam Saleh Alrakaf, Kuwait*

*Mr. Joost W. Vermey MSc., UAE*

## ORAL PRESENTATIONS:

2.00 – 2.30

### TECHNO-ECONOMIC ANALYSIS FOR HIGH CAPACITY ONCE THROUGH MSF-OT DESALINATION PLANTS

**Authors:** Dr. Abdel Nasser A. Mabrouk, Mr. Imteyaz Ahmed, Mr. Amr El Refaay, Dr. Ahmed Nafey, Mr. Jong Kyou Park

**Paper's Country of Attribution:** UAE

**Presented by:** Dr. Abdel Nasser A. Mabrouk  
IDAWC REF: PER11-204

2.30 – 3.00

### COST EFFECTIVE SOLAR POWER GENERATION AND MED DESALINATION: A CASE STUDY

**Authors:** Mr. Charles M. Desportes

**Paper's Country of Attribution:** USA

**Presented by:** Mr. Charles M. Desportes  
IDAWC REF: PER11-309

3.00 – 3.30

### DEVELOPMENT OF 7 MIGD MED-TVC DISTILLER WITHIN THE CONTEXT OF TRI-HYBRID NF/RO/MED CONFIGURATION

**Authors:** Dr. Osman Ahmed Hamad

**Paper's Country of Attribution:** Saudi Arabia

**Presented by:** Dr. Osman Ahmed Hamad  
IDAWC REF: PER11-184

3.30 – 4.00

### REFRESHMENT BREAK

4.00 – 4.30

### SLIDING PRESSURE TURBINE INTEGRATED WITH SEAWATER DESALINATION FACILITY (MULTI-EFFECT DISTILLATION - MED)

**Authors:** Mr. Hagay Shemer, Mr. Michael Tramer

**Paper's Country of Attribution:** Israel

**Presented by:** Mr. Michael Tramer  
IDAWC REF: PER11-232

4.30 – 5.00

### A NEW BIODEGRADABLE ANTISCALANT FOR THERMAL DESALINATION PLANTS

**Authors:** Dr. Suresh Patel

**Paper's Country of Attribution:** United Kingdom

**Presented by:** Dr. Suresh Patel  
IDAWC REF: PER11-006



5.00 – 5.30

## **ON SCALE FORMATION OF MAGNESIUM SALTS IN THERMAL SEAWATER DESALINA**

**Authors:** Dr. Heike Glade, Ms. Kerstin Kroemer, Prof. Stefan Will, Dr. Juergen Detering, Dr. Manfred Essig, Dr. Andreas Kempfer, Mr. Stephan Nied, Dr. Gregor Schuermann

**Paper's Country of Attribution:** Germany

**Presented by:** Dr. Heike Glade

IDAWC REF: PER11-145

## **POSTER PRESENTATIONS:**

### **DYNAMIC PERFORMANCE OF MULTIPLE EFFECT DISTILLATION PLANT**

**Authors:** Dr. Ashraf Sadik Hassan, Dr. Hassan E. S. Fath

**Paper's Country of Attribution:** UAE

**Presented by:** Dr. Ashraf Sadik Hassan

IDAWC REF: PER11-088

### **THE EFFECTIVENESS OF ANTISCALANTS WHEN USED ON MULTI STAGE FLASH DISTILLERS IN KUWAIT**

**Authors:** Engr. Noura Salman Al-Deffeeri, Dr. Saud Ghani, Dr. Malcolm Denman, Dr. Mohmed AL-Hajeri

**Paper's Country of Attribution:** Kuwait

**Presented by:** Engr. Noura Salman Al-Deffeeri

IDAWC REF: PER11-018

### **AN ALTERNATIVE TECHNOLOGY FOR COAL SEAM GAS PRODUCED WATER TREATMENT**

**Authors:** Mr. Charles M. Desportes, Mr. Michael Marlett P.E., Mr. Daniel Bjorklund

**Paper's Country of Attribution:** USA

**Presented by:** Mr. Daniel Bjorklund

IDAWC REF: PER11-357

### **PRODUCED WATER RECYCLE REUSE AT THE OMAN MUKHAIZNA OIL FIELD**

**Authors:** Mr. Daniel Bjorklund, Mr. Charles M. Desportes

**Paper's Country of Attribution:** USA

**Presented by:** Mr. Daniel Bjorklund

IDAWC REF: PER11-358

### **ENHANCING MED AND MSF ADDITIVE PERFORMANCE BY SCALE PROFILING**

**Authors:** Mr. Bryce A Uytiepo PE

**Paper's Country of Attribution:** USA

**Presented by:** Mr. Bryce A Uytiepo PE

IDAWC REF: PER11-151

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## General/Unclassified Part I

Thursday, September 08, 2011

9.00 AM-12.30 PM Bellevue 2

The environment is a complex, holistic system where humans seek to integrate science, ideology, political and natural forces to service their needs. Desalination and water reuse technologies are expression of these processes. Papers in this General Session embrace the basic science, the historical, and the novel aspects of water desalting. They also illustrate the range and innovative applications of the technologies.



### CO-CHAIRS

*Dr. Prof. Tony G. Fane, Singapore*

*Dr. Emilio Gabbrielli, Brazil*

*Dr. Diane Margaret Wiesner, Australia*

### ORAL PRESENTATIONS:

9.00 – 9.30

#### DESALINATION ACTIVITIES IN ENGLAND DURING THE LATE 17TH CENTURY

**Authors:** Dr. James D. Birkett

**Paper's Country of Attribution:** USA

**Presented by:** Dr. James D. Birkett

IDAWC REF: PER11-023

9.30 – 10.00

#### TURNING WATER INTO OIL: DESALINATION - A PROCESS TO ENHANCE WORLD OIL RESOURCES

**Authors:** Mr. Dale Williams

**Paper's Country of Attribution:** United Kingdom

**Presented by:** Mr. Dale Williams

IDAWC REF: PER11-134

10.00 – 10.30

#### MITIGATING WATER STRESS THROUGH ENHANCED UTILISATION OF ALTERNATIVE WATER RESOURCES IN EUROPE

**Authors:** Mr. Thomas Wintgens, Mr. Joachim Gebel, Ms. Rita Hochstrat, Mr. Sueleyman Yuce, Mr. Christian Kazner, Dr. Veronica Garcia-Molina, Prof. Thomas Melin

**Paper's Country of Attribution:** Switzerland

**Presented by:** Dr. Veronica Garcia-Molina

IDAWC REF: PER11-142

10.30 – 11.00

#### REFRESHMENT BREAK

11.00 – 11.30

**SEAHERO PROGRAM: CHALLENGE TO THE FUTURE DESALINATION**

**Authors:** Dr. Am Jang, Mr. Sung-Jo Kim, Dr. Byung Soo Oh, Prof. In S. Kim

**Paper's Country of Attribution:** South Korea

**Presented by:** Prof. In S. Kim

IDAWC REF: PER11-259

11.30 – 12.00

**FORMATION OF NDMA BY CHLORAMINATION OF NITROGENOUS CONTAMINANTS: POTENTIAL ROLE OF BROMIDE AND DISSOLVED OXYGEN**

**Authors:** Mr. Julien Le Roux, Prof. Herve Gallard, Prof. Jean-Philippe Croue

**Paper's Country of Attribution:** France

**Presented by:** Prof. Jean-Philippe Croue

IDAWC REF: PER11-227

12.00 – 12.30

**STUDY ON SEAWATER NANOFILTRATION SOFTENING TECHNOLOGY FOR OFFSHORE OILFIELD WATER FLOODING**

**Authors:** Dr. Prof. Baowei Su, Dr. Fuhai Liu, Engr. Xueli Gao, Engr. Fei Yi, Prof. GAO Congjie

**Paper's Country of Attribution:** China

**Presented by:** Dr. Prof. Baowei Su

IDAWC REF: PER11-321

**POSTER PRESENTATIONS:**

**ARCHITECTURAL CONCERNS AND ACHIEVEMENTS IN THE SPANISH SWRO PLANTS**

**Authors:** Mrs. Gabriela Manueco Pfeiffer

**Paper's Country of Attribution:** Spain

**Presented by:** Mrs. Gabriela Manueco Pfeiffer

IDAWC REF: PER11-157

**OPTIMIZATION OF INTAKE STATIONS AS A SYSTEM FUNCTION**

**Authors:** Mr. B. J. Behrends, Mr. Ralph Charles van Niekerk, Mr. Peer Springer, Mr. Gerd Michael Witte, Dr. Falk Schaefer

**Paper's Country of Attribution:** Germany

**Presented by:** Mr. B. J. Behrends

IDAWC REF: PER11-086

**HYBRID DESALINATION SYSTEM FOR COAL SEAM GAS WATER**

**Authors:** Dr. Shigeo Hatamiya, Mr. Brett Dolan, Mr. Kouji Harada, Mr. Mutsumi Horitsugi, Mr. Kouji Kageyama

**Paper's Country of Attribution:** Japan

**Presented by:** Dr. Shigeo Hatamiya

IDAWC REF: PER11-222

## **SOLIDIFICATION OF A BINARY MIXTURE: COOLING FROM BELOW**

**Authors:** Ms. Aroussia Jaouahdou

**Paper's Country of Attribution:** Tunisia

**Presented by:** Ms. Aroussia Jaouahdou

IDAWC REF: PER11-176



## **THE COMMUNICATION AS CATALYST FOR DESALINATED WATER CONSUMPTION**

**Authors:** Mr. Angel Garcia

**Paper's Country of Attribution:** Spain

**Presented by:** Mr. Angel Garcia

IDAWC REF: PER11-353

## **ELECTROSPUN NANOFIBROUS POLYMER AS RESPONSIVE FLUORESCENCE BASED DETECTOR FOR METAL IN WATER**

**Authors:** Dr. Sheriff Adewuyi, Ms. Dezzline  
Adhiambo, Mr. Ruph Zugle

**Paper's Country of Attribution:** South Africa

**Presented by:** Dr. Sheriff Adewuyi

IDAWC REF: PER11-342

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## **Membrane Systems: Performance and Operation - Part II Large Plant Experiences**

*Thursday, September 08, 2011*

*9.00 AM-12.30 PM M+1+2+3*

### **CO-CHAIRS**

*Dr. Markus Busch, Spain*

*Dr. Prof. Stephen Gray, Australia*

*Mrs. Jantje Johnson, USA*

*Mr. Miguel Angel Sanz, Spain*

*Mr. Santi Talo, Spain*

### **ORAL PRESENTATIONS:**

*9.00 – 9.30*

#### **LESSONS FROM THE ADELAIDE DESALINATION PILOT PLANT: BIOFOULING AND REMINERALIZATION EXPERIENCE**

**Authors:** Dr. Mike Dixon, Mr. Sean Lasslett,  
Dr. Costas Pelekani

**Paper's Country of Attribution:** Australia

**Presented by:** Dr. Mike Dixon

IDAWC REF: PER11-055

9.30 – 10.00

**TWO YEARS IN BARCELONA WITH TAP WATER FROM SWRO LLOBREGAT PLANT**

**Authors:** Mr. Miguel Angel Sanz, Mr. Carlos Miguel Centeno, Ms. Maria Munoz

**Paper's Country of Attribution:** Spain

**Presented by:** Ms. Maria Munoz

IDAWC REF: PER11-073

10.00 – 10.30

**2 YEARS OPERATIONAL HISTORY OF SHUAIBAH 3 EXPANSION RO SEAWATER DESALINATION PLANT AT RED SEA COAST**

**Authors:** Dr. Syoichiro Goto, Mr. Yoshinari Fusaoka, Mr. Takuro Shishiyama, Mr. Takao Uete, Mr. Marzouq Al Osaimi, Dr. Tadahiro Uemura, Mr. Satoshi Shimoyama

**Paper's Country of Attribution:** Saudi Arabia

**Presented by:** Dr. Syoichiro Goto

IDAWC REF: PER11-104

10.30 – 11.00

**REFRESHMENT BREAK**

11.00 – 11.30

**PERTH SEAWATER DESALINATION PLANT, FIVE YEARS, 200GL, AUSTRALIA'S OPERATIONS AND MAINTENANCE BENCHMARK**

**Authors:** Mr. Sjoerd Sibma, Mr. Greig Mercer

**Paper's Country of Attribution:** Australia

**Presented by:** Mr. Greig Mercer

IDAWC REF: PER11-286

11.30 – 12.00

**LARGE DIAMETER SEAWATER REVERSE OSMOSIS ELEMENTS – A YEAR'S OPERATION IN CHILE**

**Authors:** Ms. Henia Yacubowicz, Ms. Antonia von Gottberg, Mr. Sergio Ribeiro, Mr. Anthony Day

**Paper's Country of Attribution:** Chile

**Presented by:** Mr. Anthony Day

IDAWC REF: PER11-303

12.00 – 12.30

**A FIVE YEAR LIFECYCLE ANALYSIS OF THE PERTH SEAWATER DESALINATION PLANT**

**Authors:** Mr. Rodney Clemente, Mr. Jeremy Martin, Mr. Greig Mercer

**Paper's Country of Attribution:** USA

**Presented by:** Mr. Rodney Clemente

IDAWC REF: PER11-248



## POSTER PRESENTATIONS:



### **PERFORMANCE HISTORY OF UF MEMBRANE PRE-TREATMENT OF FLOATING BARGES' RED SEA RO DESALINATION**

**Authors:** Dr. Nabil N.A. Nada, Mr. Abdullah A. Bajunaid, Engr. Mohamad Amin Saad, Mr. Abdulkarim K. Smaili, Mr. Miroslav Blazevski P. Eng., Mr. Jason Cadera, Mr. Derek Senior, Dr. Georg Hagemeyer Ing

**Paper's Country of Attribution:** Canada

**Presented by:** Engr. Mohamad Amin Saad  
IDAWC REF: PER11-291

### **REDUCING OPERATIONAL COSTS IN HIGH SILICA, 18,000M3/DAY BWRO IN ARICA, CHILE**

**Authors:** Ms. Silvia Lopez Gallego, Mr. Fernando del Vigo, Mr. Juan Shang Munoz, Mr. Valdivia David, Mr. Antonio Ordonez, Mr. Matthew W. Armstrong, Mr. Stephen P. Chesters

**Paper's Country of Attribution:** Spain

**Presented by:** Ms. Silvia Lopez Gallego  
IDAWC REF: PER11-279

### **SYDNEY DESALINATION PLANT: OPERATING EXPERIENCE OF AUSTRALIA'S LARGEST SWRO PLANT**

**Authors:** Mr. Alban Delpey, Mr. Keith Craig, Mr. Ian Gabriel, Mr. Stephen J. Roddy

**Paper's Country of Attribution:** Australia

**Presented by:** Mr. Alban Delpey  
IDAWC REF: PER11-053

### **TORREVIEJA'S PLANT: THE LARGEST SPANISH SWRO IS CLOSE TO COMPLETION**

**Authors:** Mrs. Gabriela Manueco Pfeiffer, Mr. Alejandro Zarzuela, Mr. Guillermo Ruiz, Mr. Antonio Ortega

**Paper's Country of Attribution:** Spain

**Presented by:** Mrs. Gabriela Manueco Pfeiffer  
IDAWC REF: PER11-156

### **FIVE YEAR OPERATION 32.000 M3/DAY EDR, REMINERALIZATION AND BOTTLING WATER – AGUAS DE VALENCIA**

**Authors:** Mr. Javier Sanchis Carbonell, Mr. Vicent Sarrio Chafer, Mr. Juan Carlos de Armas Torrent

**Paper's Country of Attribution:** Spain

**Presented by:** Mr. Javier Sanchis Carbonell  
IDAWC REF: PER11-194

## COMPARISON OF SURFACE WATER PRETREATMENT ALTERNATIVES FOR RO

**Authors:** Mr. Larry VandeVenter, Mr. William Clunie  
P.E., Mr. Matthew Noelker, Jennie Celik, Rachael  
Rhodes

**Paper's Country of Attribution:** USA

**Presented by:** Mr. Larry VandeVenter  
IDAWC REF: PER11-311

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### Thermal Technology

*Thursday, September 08, 2011*

*9.00 AM-12.30 PM Riverview 4*

Some of the topics to be discussed in this session include: successful scale and corrosion control techniques, increase of distiller production capacity, means to facilitate high temperature operation of thermal processes to improve efficiency and reduce water production cost, evolutionary developments of the power/water cogeneration cycles, reducing the fuel energy consumption of power/water cogeneration cycles. Topics will also include introducing innovative modifications to conventional power cycles, low temperature thermal processes to efficiently use spent energy and low grade energy, and ways to increase heat transfer coefficients to reduce heat transfer areas.

### CO-CHAIRS

*Dr. Prof. Ibrahim S. Al Mutaz, Saudi Arabia*

*Dr. Emilio Ghiazza, Italy*

*Dr. Osman Ahmed Hamad, Saudi Arabia*

*Dr. Corrado Sommariva, UAE*

### ORAL PRESENTATIONS:

*9.00 – 9.30*

#### ANALYSIS OF SCALE IN HIGH-TEMPERATURE MED DISTILLERS

**Authors:** Dr. Karim Ben Mohamed Bourouni,  
Dr. Lhm Seung Won, Engr. Fatemeh Rezazadeh,  
Dr. Ahmed Nafey, Engr. Long You Park

**Paper's Country of Attribution:** UAE

**Presented by:** Dr. Karim Ben Mohamed Bourouni  
IDAWC REF: PER11-033

*9.30 – 10.00*

#### SUSTAINABLE WATER PRODUCTION BY MEMBRANE DISTILLATION USING LOW GRADE WASTE HEAT

**Authors:** Dr. Samer S. Adham, Dr. Altaf Hussain, Mr.  
Joel Matar Minier, Mr. Raul Rebelo Dores,  
Dr. Chidambaram Maltesh

**Paper's Country of Attribution:** Qatar

**Presented by:** Dr. Samer S. Adham  
IDAWC REF: PER11-094

10.00 – 10.30

**EFFECT OF NON CONDENSABLE GASES  
ON THE VAPOR SIDE CORROSION IN  
MULTISTAGE FLASH DESALINATION PLANTS**

**Authors:** Dr. Ahmed S. Al Arifi, Dr. Prof. Ibrahim S. Al Mutaz, Dr. Maher A. Alodan, Prof. Faraj Abdallem  
**Paper's Country of Attribution:** Saudi Arabia  
**Presented by:** Dr. Ahmed S. Al Arifi  
IDAWC REF: PER11-190

10.30 – 11.00

**REFRESHMENT BREAK**

11.00 – 11.30

**FACTORS AFFECTING THE LIFETIME OF MSF  
EVAPORATORS**

**Authors:** Dr. Nabil N.A. Nada, Dr. Trevor Hodgkies  
**Paper's Country of Attribution:** Saudi Arabia  
**Presented by:** Dr. Nabil N.A. Nada  
IDAWC REF: PER11-209

11.30 – 12.00

**NUMERICAL SIMULATION OF NON-  
CONDENSABLE GAS BEHAVIOR IN MSF  
EVAPORATOR**

**Authors:** Mr. Tsubasa Ohshima, Mr. Hirotochi Yanagi, Mr. Hiroyuki Ohtsuka, Mr. Tetsuya Matsuura, Dr. Prof. Koji Morinishi  
**Paper's Country of Attribution:** Japan  
**Presented by:** Mr. Tsubasa Ohshima  
IDAWC REF: PER11-119

12.00 – 12.30

**STATUS OF HUMIDIFICATION  
DEHUMIDIFICATION DESALINATION  
TECHNOLOGY**

**Authors:** Mr. Prakash Govindan, Mr. Ronan McGovern, Mr. Gregory Thiel, Mr. Jacob Miller, Prof. John Lienhard, Dr. Mostafa H. Elsharqawy, Prof. Syed M. Zubair, Prof. Mohammed A. Antar  
**Paper's Country of Attribution:** USA  
**Presented by:** Mr. Prakash Govindan  
IDAWC REF: PER11-366

**POSTER PRESENTATIONS:**

**NUMERICAL STUDY OF NEW HIGH  
PERFORMANCE MSF CONFIGURATIONS:  
MSF WITH BRINE EXTRACTION**

**Authors:** Mr. Mohamed Al Hamahmy, Dr. Hassan E. S. Fath  
**Paper's Country of Attribution:** UAE  
**Presented by:** Mr. Mohamed Al Hamahmy  
IDAWC REF: PER11-107

## **TRANSIENT SIMULATION OF SOLAR DRIVEN MULTIPLE EFFECT DISTILLATION PLANT (SOLAR - MED)**

**Authors:** Dr. Hassan E. S. Fath, Dr. Ashraf Sadik Hassan

**Paper's Country of Attribution:** UAE

**Presented by:** Dr. Hassan E. S. Fath

IDAWC REF: PER11-162

## **ASSESSMENT OF WATER QUALITY FROM DIFFERENT SOURCES IN A NOVEL SOLAR STILL**

**Authors:** Ms. Lilian Malaeb, Dr. Prof. George Ayoub, Dr. Mahmoud Hani Al Hindi, Dr. Antoine Ghauch

**Paper's Country of Attribution:** Lebanon

**Presented by:** Dr. Mahmoud Hani Al Hindi

IDAWC REF: PER11-058

## **DEMONSTRATING SOLAR-DRIVEN MEMBRANE DISTILLATION USING MEMSYS VACUUM-MULTI-EFFECT-MEMBRANE-DISTILLATION**

**Authors:** Mr. Goetz Lange, Mr. Godart van Gendt, Mr. Florian Bollen A.F.A.B., Mr. Wolfgang Heinzl, Dr. Kui Zhao, Dr. Prof. Tony G. Fane

**Paper's Country of Attribution:** Germany

**Presented by:** Mr. Goetz Lange

IDAWC REF: PER11-214

## **TRANSIENT ANALYSIS AND OPTIMIZATION OF A PCM-SUPPORTED HUMIDIFICATION-DEHUMIDIFICATION SOLAR DESALINATION SYSTEM**

**Authors:** Engr. Abdel Hakim Mohamed Hassabou M.Sc., Dr. Markus Spinnler, Dr. Prof. Abdalla Said Hanafi, Prof. Wolfgang Polifke Ph. D.

**Paper's Country of Attribution:** Germany

**Presented by:** Engr. Abdel Hakim Mohamed Hassabou M.Sc.

IDAWC REF: PER11-098

## **DYNAMIC SIMULATION FOR MED-TVC WITH STEAM TRANSFORMER**

**Authors:** Engr. Hyun-Sung Choi, Dr. Sang Moon Kim, Engr. Byounggu Pak, Engr. Gun Myung Lee, Engr. Jae Dong Hwang

**Paper's Country of Attribution:** South Korea

**Presented by:** Engr. Hyun-Sung Choi

IDAWC REF: PER11-212



## **LOW TEMPERATURE THERMAL DISTILLATION WITH ZLD AND SELECTIVE SOLIDS HARVESTING**

**Authors:** Engr. Michael J. O'Connell, Mr. Nicholas Wakim

**Paper's Country of Attribution:** Australia

**Presented by:** Mr. Nicholas Wakim

IDAWC REF: PER11-228



## **AMMONIA IN MED DESALINATION**

**Authors:** Dr. Paul Schausberger, Mr. Johannes Nowak, Mr. Otto Medek

**Paper's Country of Attribution:** Austria

**Presented by:** Mr. Otto Medek

IDAWC REF: PER11-057

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## **Water Resources Management**

*Thursday, September 08, 2011*

*9.00 AM-12.30 PM Bellevue 1*

Escalating water demand due to increased population growth and the adverse effects of climate change continues to outstrip the supply of fresh water. In order to meet the demand for fresh water, desalination has emerged as an important unconventional source of water. As desalination continues to develop there is an increasing requirement for an Integrated Water Resource management that would improve the planning and delivery of desalination and water re-use, and harmonize the desalination supply with the water supply from conventional sources. This session is dedicated to the discussion on how water resources can be managed at different levels at an integrated manner.

### **CO-CHAIRS**

*Mr. Rodney Clemente, USA*

*Mr. Carlos Cosin Fernandez, Spain*

*Mr. Harry Seah, Singapore*

### **ORAL PRESENTATIONS:**

*9.00 – 9.30*

#### **TOWARD A SECURE WATER STABILITY, WITH THE KINGDOM OF BAHRAIN IN PERSPECTIVE**

**Authors:** Dr. Ahmed Hashim, Engr. Muneer Hajjaj

**Paper's Country of Attribution:** Bahrain

**Presented by:** Dr. Ahmed Hashim

IDAWC REF: PER11-144

9.30 – 10.00

**MUTUALLY ASSURED SURVIVAL: USING BINATIONAL DESALINATION PROJECTS TO DEVELOP REGIONAL SUPPLIES**

**Authors:** Mr. Bruce C. Moore P.E., Ms. Patricia Mulroy

**Paper's Country of Attribution:** USA

**Presented by:** Mr. Bruce C. Moore P.E.  
IDAWC REF: PER11-002

10.00 – 10.30

**A LANDMARK BINATIONAL SWRO PLANT ADDRESS SUSTAINABLE WATER SUPPLY ISSUES**

**Authors:** Mr. Brent Alspach, Mr. Rick Kennedy, Mr. Dave Fogerson

**Paper's Country of Attribution:** USA

**Presented by:** Mr. Brent Alspach  
IDAWC REF: PER11-146

10.30 – 11.00

**REFRESHMENT BREAK**

11.00 – 11.30

**INTEGRATION OF MARGINAL WATER IN THE MAIN WATER SUPPLY SYSTEM OF ISRAEL**

**Authors:** Mr. Joseph Haim Harrosh

**Paper's Country of Attribution:** Israel

**Presented by:** Mr. Joseph Haim Harrosh  
IDAWC REF: PER11-377

11.30 – 12.00

**SUSTAINABLE WATER RESOURCE DEVELOPMENT AND DESALINATION-INTEGRATED WATER MANAGEMENT CHALLENGES IN SOUTH AFRICA**

**Authors:** Ms. Joanne Millar, Dr. Stuart Downward

**Paper's Country of Attribution:** United Kingdom

**Presented by:** Ms. Joanne Millar  
IDAWC REF: PER11-062

12.00 – 12.30

**INTEGRATION OF ACUAMED'S DESALINATION PLANTS TO BE MANAGED AS A WHOLE SYSTEM**

**Authors:** Mr. Fermin Lopez Unzu, Mr. Mario Araus Gozalo

**Paper's Country of Attribution:** Spain

**Presented by:** Mr. Fermin Lopez Unzu  
IDAWC REF: PER11-063



## POSTER PRESENTATIONS:



### **PERMANENT SOLUTIONS TO THE WATER SHORTAGE PROBLEMS FACED IN THE ARABIAN GULF AREA**

**Authors:** Mr. Ehab S. Taha

**Paper's Country of Attribution:** Saudi Arabia

**Presented by:** Mr. Ehab S. Taha

IDAWC REF: PER11-337

### **CAMPO DE DALÍAS AQUIFER RECOVERY BY THE USE OF DESALINATED WATER AND WATER REUSE**

**Authors:** Mr. Mario Araus Gozalo, Mr. Fermin Lopez Unzu

**Paper's Country of Attribution:** Spain

**Presented by:** Mr. Fermin Lopez Unzu

IDAWC REF: PER11-135

### **FEASIBILITY OF SEAWATER TREATMENT FOR THE CITY OF PORT ST. LUCIE, FL: CHALLENGES AND SOLUTIONS FOR IMPLEMENTATION**

**Authors:** Ms. Jill Manning Hudkins, Dr. Mark Wilf

**Paper's Country of Attribution:** USA

**Presented by:** Ms. Jill Manning Hudkins

IDAWC REF: PER11-308

### **USE OF DESALINATED WATER IN AGRICULTURE. EXPERIENCES IN ALMERIA (SPAIN)**

**Authors:** Mr. Jaime De Miguel Gomez, Mr. Jose Gabriel Lopez

**Paper's Country of Attribution:** Spain

**Presented by:** Mr. Jaime De Miguel Gomez

IDAWC REF: PER11-129

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## **Environment and Public Health Part II**

*Thursday, September 08, 2011*

*2.00 PM-3.30 PM Riverview 4*

### **CO-CHAIRS**

*Mr. Ibrahim A. R. Al Tisan, Saudi Arabia*

*Dr. Siobhan Boerlage, Australia*

*Mr. Keith Cadee, Australia*

## ORAL PRESENTATIONS:

9.00 – 9.30

### **SSWA: INTEGRATING SUSTAINABILITY IN PROJECT DESIGN AND DELIVERY**

**Authors:** Mr. Andre Garnaut, Mr. Rodrigo Fernandez-Mellado, Mr. Nick Houldsworth, Ms. Dehlia Goundrey

**Paper's Country of Attribution:** Australia

**Presented by:** Mr. Andre Garnaut

IDAWC REF: PER11-295

9.30 - 10.00

### **COMBINING ENVIRONMENTAL COMPLIANCE AND OPERATIONAL EFFICIENCY: A NEW IMPACT ASSESSMENT METHODOLOGY**

**Authors:** Dr. Yann Friocourt, Ms. Jamie Lescinski

**Paper's Country of Attribution:** Netherlands

**Presented by:** Dr. Yann Friocourt

IDAWC REF: PER11-044

10.00 – 10.30

### **ASSESSING DIFFUSER PERFORMANCE AND DISCHARGE FOOTPRINT FOR THE GOLD COAST DESALINATION PLANT**

**Authors:** Dr. Siobhan Boerlage, Mr. Harry F. Gordon

**Paper's Country of Attribution:** Australia

**Presented by:** Dr. Siobhan Boerlage

IDAWC REF: PER11-202

## POSTER PRESENTATIONS:

### **WATER QUALITY IMPACTS OF DESALINATED WATER ON PERTH'S INTEGRATED WATER SUPPLY SYSTEM**

**Authors:** Ms. Amanda Hazell, Mr. Darren Chapman, Mr. Greig Mercer, Mr. Sjoerd Sibma, Ms. Heather Stansfield, Dr. Andrew Bath, Dr. Rino Trolio

**Paper's Country of Attribution:** Australia

**Presented by:** Ms. Amanda Hazell

IDAWC REF: PER11-278

### **THE CHALLENGE OF MANAGING REVERSE OSMOSIS BRINE DISPOSAL: EXPERIENCE IN QLD**

**Authors:** Mr. Carlos Vargas, Mr. Harry Holland, Mr. Paul Viskovitch, Mr. Troy Walker

**Paper's Country of Attribution:** Australia

**Presented by:** Mr. Carlos Vargas

IDAWC REF: PER11-075



## **MICROALGAE PRODUCTION FOR NUTRIENT REMOVAL IN DESALINATION BRINES**

**Authors:** Prof. Pilar Hernandez, Mr. Jose Antonio Garcia, Dr. Prof. Daniel Prats Rico, Dr. Elena Campos Pozuelo, Mr. Domingo Zarzo

**Paper's Country of Attribution:** Spain

**Presented by:** Mr. Domingo Zarzo

IDAWC REF: PER11-264

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### **General/Unclassified Part II**

*Thursday, September 08, 2011*

*2.00 PM-3.00 PM Bellevue 2*

#### **CO-CHAIRS**

*Dr. Prof. Tony G. Fane, Singapore*

*Dr. Emilio Gabbrielli, Brazil*

*Dr. Diane Margaret Wiesner, Australia*

#### **ORAL PRESENTATIONS:**

*2.00 – 2.30*

#### **DESALINATION IN THE OIL INDUSTRY - PERFECTING ENHANCED OIL RECOVERY USING OPTIMIZED WATER QUALITY**

**Authors:** Ms. Lisa Henthorne PE, Ms. Meghan Hartman, Ms. Andrea Hayden

**Paper's Country of Attribution:** USA

**Presented by:** Ms. Lisa Henthorne PE

IDAWC REF: PER11-368

*2.30 – 3.00*

#### **THE ROLE OF CHEMICALS IN THIS THIRSTY PLANET**

**Authors:** Mr. Edward G. Darton

**Paper's Country of Attribution:** United Kingdom

**Presented by:** Mr. Edward G. Darton

IDAWC REF: PER11-262

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### **Membrane Systems: Performance and Operation - General**

*Thursday, September 08, 2011*

*2.00 PM-3.30 PM M+1+2+3*

#### **CO-CHAIRS**

*Dr. Markus Busch, Spain*

*Dr. Prof. Stephen Gray, Australia*

*Mrs. Jantje Johnson, USA*

*Mr. Miguel Angel Sanz, Spain*

*Mr. Santi Talo, Spain*

## ORAL PRESENTATIONS:

2.00 – 2.30

### ÁGUILAS SEAWATER DESALINATION PLANT COMMISSIONING: PROCEDURE AND PROBLEM SOLVING

**Authors:** Mrs. Gabriela Manueco Pfeiffer, Mr. Angel Garcia, Mr. Rafael Buendia Candell, Mr. Jesus Galdos Aller

**Paper's Country of Attribution:** Spain

**Presented by:** Mrs. Gabriela Manueco Pfeiffer  
IDAWC REF: PER11-158

2.30 – 3.00

### INNOVATIVE TOOLS FOR MANAGING MULTIPLE REMOTE PLANTS

**Authors:** Mr. Hiep Le, Mr. Marc Fabig, Mr. Tim Pritchard

**Paper's Country of Attribution:** Australia

**Presented by:** Mr. Hiep Le  
IDAWC REF: PER11-275

3.00 – 3.30

### A CASE STUDY: ENERGY USE AND PROCESS DESIGN CONSIDERATIONS FOR FOUR DESALINATION PROJECTS IN CALIFORNIA

**Authors:** Mr. Juan Miguel M. Pinto, Mr. Erik D. Desormeaux

**Paper's Country of Attribution:** USA

**Presented by:** Mr. Erik D. Desormeaux  
IDAWC REF: PER11-322

