

# Reducing the Cost of Reverse Osmosis Water Treatment

## RO Specialist Level 3

(Classroom, 3 days)

### Seminar Details

<b>Cost:</b>	\$3,450 (ex GST)
<b>Length:</b>	3 days
<b>Venue:</b>	GE Water Jandakot, Perth WA
<b>Date:</b>	Wednesday 28 to Friday 30 June
<b>Discounts:</b>	Group discount of 15% when registering three or more at the same time.

### Daily Schedule

Times	
<b>7:45am</b>	Registration, Coffee/Tea
<b>8:00am</b>	<b>MORNING SESSION 1</b>
<b>9:15am</b>	Stretch Break
<b>9:20am</b>	<b>MORNING SESSION 2</b>
<b>10:20am</b>	Morning Tea
<b>10:45am</b>	<b>MORNING SESSION 3</b>
<b>12:00noon</b>	Lunch
<b>12:45pm</b>	<b>AFTERNOON SESSION 1</b>
<b>1:30pm</b>	Stretch Break
<b>1:40pm</b>	<b>AFTERNOON SESSION 2</b>
<b>3:00pm</b>	Afternoon Tea
<b>3:20pm</b>	<b>AFTERNOON SESSION 3</b>
<b>4:50pm</b>	Summary and Evaluation
<b>5:00pm</b>	Day Close

In partnership with:

## Seminar Description

### **David H Paul Inc. Training:**

DHP has trained over 20,000 water treatment professionals worldwide since 1988. Trainees include industry, government and municipal clients.

### **Seminar Description:**

The purpose of this seminar is to provide attendees with the tools and techniques to identify cost-reducing opportunities at their plants. What is taught is grounded upon DHPaul's instructor-consultants' combined experience in hundreds of water treatment plants worldwide.

This seminar teaches DHP's consulting methodology for cost reduction.

It is imperative in today's competitive market to reduce costs wherever possible. The viability of each company, SBU and section and ultimately the job security of individuals, demands operating at the lowest ongoing and consumable cost achievable.

Since 1988, DHP instructor-consultants have saved companies millions of dollars. Here are just three examples:

#### Power Generation

DHP has performed Cost-Reduction Audits in many power generation plants. An example was a plant that had extreme pre-treatment problems and reverse osmosis (RO) unit biofouling. After a cleaning, the RO units would only operate for a few hours before having to be cleaned again. The plant was in the process of purchasing new membrane elements after receiving less than a year of service from existing elements.

The results of a DHP Cost Reduction Audit resulted in many cost savings, including extending the life of the existing elements, with a first-year saving exceeding US\$500,000.

#### Pharmaceutical/Biotech

DHP has performed Cost-Reduction Audits in many pharmaceutical/biotech plants. An example was a plant where RO membrane elements required too frequent cleanings and element life was less than 1.5 years. A DHP Cost Reduction Audit identified several costly feed water, pre-treatment, and RO operational issues. The first-year savings were more than US\$150,000.

#### Low Pressure Boiler Feed Water

DHP has performed audits in many plants using boilers for heating and process. An example was a plant that was greatly overdosing chemicals given the existing feed water and operation. A DHP Cost Reduction Audit resulted in first year savings of more than US\$50,000.

While these examples are from medium to large sized plants, the principles taught in this seminar are transferable from the smallest plant up to the largest SWRO plant.

**Theoretical and Practical topics include:**

1. Understanding the costs associated with RO water treatment
  - Power
  - Raw water
  - Wastewater
  - Chemicals/Consumables
  - Membrane elements
2. Identifying cost reduction opportunities based on the process flow
  - Softening
  - Activated carbon
  - Media filtration
  - Membrane filtration
    - Backwash
    - Chemically-enhanced backwash
    - Chemical cleaning
  - Chemical Injections
    - Chlorine
    - Acid
    - Scale Inhibitor
    - Sulphite
    - NaOH
3. Cartridge filtration
4. High pressure pumps
5. Flow control valves
6. RO unit
  - Design
    - Pre-flush
    - Recovery rate
    - Concentrate
    - Post-flush
  - Operation
  - Chemical cleaning

**Who Should Attend?**

This seminar is specifically targeted for people who are responsible for making changes in a water treatment plant that reduce costs with a payback of less than one year. This is typically:

- Supervisors/Managers
- Plant Engineers
- Service technicians
- Others

**What You Will Receive:**

Accredited training from David H Paul Inc., a world leader in high-tech water treatment training.

Detailed insight into conducting a Cost Reduction Audit.

Training based on the extensive experience of the DHPaul trainers, who have trained around the world at countless facilities.

Twenty-four hours of interesting, easy-to-understand theory, blended with practical application gained from years of training and operator experience.

Multimedia training including 3D animations and customised videos.

Illustrated workbook including all PowerPoint slides.

M/Tea, A/Tea and Lunch.

Certificate of completion.