



Reverse Osmosis Specialist Training Level 3

(ROS3)

(Classroom and Hands-on, 3 days)

Seminar Details

Cost: \$5,400 (ex GST)

Length: 3 days

Dates: [Visit website](#) for current offerings as well as proposed events.

Discounts: Group discount of 10% when registering three or more at the same time.

Daily Schedule

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

Advanced Troubleshooting of RO Systems (ATRO)

Sometimes RO systems don't operate as designed. This seminar provides the tools and knowledge needed to monitor and ensure proper operation of RO systems and how to troubleshoot RO systems to identify problems early. While this is an advanced course, enough introductory material will be presented so that when more advanced concepts are covered, attendees will thoroughly understand these concepts.

This training extends the theory to include the practical understanding and proficiencies needed for correct operation, control, monitoring and troubleshooting of RO systems. This is essential knowledge for anyone who works with, designs, services, installs, operates, maintains and/or troubleshoots RO systems.

Topics included:

- RO System Overview (Advanced)
- RO Water Treatment Chemistry Overview
- RO Water Treatment Microbiology Overview
- Sampling Techniques (Advanced)
- RO Performance and Design Software
- RO Pre-treatment
 - Reading a water analysis report
 1. How to determine if the analysis is complete/reliable
 2. How to determine scaling potentials
 3. How to determine fouling potentials
 - Verifying zero total chlorine
 - Minimizing sulphite injection to reduce biofouling
 - Verifying the ORP level at which to operate
 - Using Silt Density Index (SDI) to troubleshoot the pre-treatment

RO Unit Operation

- RO Unit Operational Data
- Using normalisation software programs
- Generating performance graphs/trends
 - Normalised Permeate Flow
 - Pressure drops per stage
 - Normalised Salt Passage
- Interpreting and troubleshooting RO unit performance graphs
- Profiling and probing an RO unit
- Interpreting and troubleshooting profiling and probing data
- How to determine if the flow meters are accurate
- How to determine if the RO unit is operating as designed

RO Unit Design

- Using RO manufacturer's design software programs
- How to use design software programs to troubleshoot RO units for:
 - Scaling potentials
 - Fouling potentials

- Mass balance
- Ion rejections

Who Should Attend

Everyone who works with, or will work with, the reverse osmosis and pre-treatment technologies in operating plants needs to know the tips, techniques and proficiencies taught in this seminar, including:

- Operators, especially lead operators
- Maintenance personnel
- I & C Technicians
- Supervisors/Managers
- Engineers
- Original Equipment Manufacturers
- Service technicians
- More

Why You Should Attend

From a Personal Standpoint

1. After successfully completing this 3-day program **you will be in the top 10% of RO personnel in the world** in your level of understanding and proficiency
2. If desired, you can add **Reverse Osmosis Specialist I** to your title and bio
3. Puts you in a better position for job advancement
4. You can't get this information anywhere else
5. The instructor has decades of practical RO water treatment experience
6. The instructor is an RO water treatment consultant
7. The instructor is a professional trainer
8. The seminar covers the material in a step-by-step manner so that everyone will understand the concepts presented
9. The presentation uses a multimedia format, including many videos and animations

From an Employer's Standpoint

- Trained employees save you money by:
 1. Having the knowledge needed to identify problems at an early stage
 2. Having the ability to troubleshoot even difficult problems many RO systems face
 3. Using this knowledge to correct problems
 4. Less down time of the RO system
 5. Increased system reliability
- Being able to show clients, customers and any applicable governmental agencies that your employees have been independently certified on their knowledge and proficiencies.

What You Will Receive

Training assessed and accredited by David H Paul Inc., a world leader in high-tech water treatment training.

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

Interesting and easy-to-understand theory, blended with practical application gained from years of training and operator experience.

The latest in multimedia training including 3-D animations.

A highly illustrated workbook.

M/Tea, A/Tea and Lunch.

Certificate of completion.

DHP's Training Methodology

DHP uses consulting services from Columbia University in the development of its training seminars.

DHP's training methodology includes:

- Short, interesting, interactive lecture sessions using:
 - Power Point™ slides
 - Video clips
 - Animations
- Group exercises to enhance understanding and retention
- Workshops to further enhance understanding and retention
- Optional daily open-book Knowledge Verification Exam to document what was learned

A Knowledge Verification Exam and hands-on Proficiency Verifications are given each day. Since 1988, DHP has been training water treatment personnel like you. We take you step-by-step through the knowledge and proficiencies needed for advanced troubleshooting of an RO system.

All exams are open book because nobody remembers everything for the rest of their lives...but you'll know in the future where to get the information you need in the book.

We provide a lot of repetition so that you will have no problem getting good scores. For example, to make sure that you know how to use membrane manufacturers' design software to calculate water flux rate and minimum concentrate flow rate, we:

1. First, go over the information in a Power Point™ format.
2. Second, go over the information in a membrane manufacturer's design program.
3. Third, obtain operating data from an actual RO system and compare the actual operational data to the projected values from the design software.
4. Fourth, have a workshop on the topic, which serves as a practice exam for the Knowledge Verification Exam at the end of the day. All workshops are performed in groups to aid in the learning experience. There will be no surprises on the daily Knowledge Verification Exams and they are open book.

Knowledge Verification Exams are optional. If you don't want to be certified, you don't have to take the exams.