



# RO Specialist I Certification

3-day Classroom & Hands-On Training

or

Online Training



## Information Packet

### Seminar Cost

- \$2,499 USD
  - Price includes
    - Classroom & hands-on training
    - IDA Certificate
    - Certification administration (if you're taking this seminar for certification)
    - Equipment usage
    - Analytical equipment, lab ware, chemicals, etc.
    - Small class size
      - Limited to 8 attendees
      - One-on-one attention
    - Unbiased training
      - DHP/IDA don't sell chemicals or equipment
  - Discounts may apply
    - "Early Bird" (10% 30 days prior, 15% 45 days prior) for scheduled regional seminars
    - Other

### Seminar Length

- Three days
- 9 hours per day (8 a.m. to 5:00 p.m.)
  - Four 10-15 minute breaks during the day
  - 30-45 minutes for lunch

### Seminar Description

This seminar provides the fundamental knowledge and proficiencies required to work in any reverse osmosis (RO) water treatment plant. This includes:

- Overviews of which industries RO is used
- What the typical process flows are in different industries
- The subsystems of an RO water treatment plant, like air, water and power
- The equipment used, such as tools, valves, instruments, pumps, etc.
- Overviews of RO, RO units and pretreatment

### Online Training Costs

- \$699 USD
  - Price includes
    - OLC110: Introduction to Water Treatment
    - OLC111: Water Treatment Plant Fundamentals
    - OLC115: Piping and Instrumentation Diagrams
    - OLC117: RO Operation & Maintenance
    - Knowledge Exam
    - Proficiency Exam
    - Narration
    - Many illustrations
      - Video clips
      - Animations
      - Pictures
    - Interactive questions
    - Practice exams
    - Knowledge and Proficiency Exams
  - Discounts may apply
    - Multiple-trainee discount
    - From time to time DHP runs special discounts

### Length:

Thirty-Two (32) hours

### Description:

This training provides the basic knowledge and proficiencies required to work in any reverse osmosis (RO) water treatment plant. This includes:

- Overviews of which industries RO is used
- What the typical process flows are in different industries
- The subsystems of an RO water treatment plant, like air, water and power
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- Overviews of RO, RO units and pretreatment

**Classroom and hands-on topics include:**

- Water Treatment Overview
- Water Treatment by Industry
  - Drinking water
  - Power generation
  - Pharmaceutical/Biotech
  - Semiconductor/Microelectronics
- Water Treatment Plant Fundamentals
  - Plant Services-Air, Water & Power
  - Electricity
  - Tools
  - Piping
  - Hand Valves
  - Control Valves
  - On Stream Instruments
  - In-Plant Analysis
  - Pumps
- Process Flow Diagrams (PFD)
- Piping & Instrumentation Diagrams (P & IDs)
- RO & RO Units
- Water Contaminants
- Semipermeable Membranes RO/NF
- Osmosis & Reverse Osmosis
- Membranes & Membrane Elements
- Pressure Vessels
- Reverse Osmosis Units
- Brackish Water RO Unit Operation
- Seawater RO Unit Operation
- Potential Problems
- Pretreatment
  - Scaling control
  - Fouling control
  - Chemical attack control

## DHP's Training Methodology

DHP uses the consulting services of a Doctor of Education from Columbia University (Dr. Linda Paul) 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. Don't worry...you'll pass. Since 1988, DHP has been training water treatment personnel like you. We take you step-by-step through the **knowledge and proficiencies needed to thoroughly understand and work in an RO water treatment 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 a membrane element works, we:**

1. First, go over the information in a Power Point™ format.
2. Second, go over the information in a video format.
3. Third, have you build a simulated RO membrane element
4. Fourth, have a workshop on the topic, which is really just 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. You will have previously seen and answered similar questions in the workshops.

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

## Who Should Attend

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

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

## Why You Should Attend

### From a Personal Standpoint

- 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
- If desired, you can add **Reverse Osmosis Specialist I** to your title and bio
- Puts you in a better position for job advancement
- You can't get this information anywhere else
- The instructor has decades of practical RO water treatment experience
- The instructor is an RO water treatment consultant
- The instructor is a professional trainer
- The seminar covers the material in a step-by-step manner so that everyone will understand the concepts presented
- The presentation uses a multimedia format, with many videos and animations provided

### From an Employer's Standpoint

- Trained employees save you money by:
  - Having the knowledge needed to identify problems at an early stage
  - Having the ability to troubleshoot even difficult problems many RO systems face
  - Using this knowledge to correct problems
  - Less down time of the RO system
  - 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'll Receive

- A minimum of 24 hours of interesting, easy-to-understand training
- Highly illustrated workbook **(if registered for seminar)**
- Break refreshments and lunch **(if registered for seminar)**
- A Reverse Osmosis Specialist I certificate

## Instructor Biography



Dick Youmans, BBA, CWT, ROS IV  
Director of Sales & Certification  
Instructor/Consultant

**Richard (Dick) Youmans** is an instructor/consultant and the Director of Sales & Certification for David H. Paul, Inc. (DHP). Since 1977, Dick has been involved in just about every aspect of industrial water treatment with most of those years specializing in reverse osmosis chemical applications, training and troubleshooting. Like all DHP instructor-consultants, he has been in hundreds of water treatment plants covering every major industry. Dick earned a BBA degree from the University of Georgia in 1974 and an Associate of Applied Science Degree in Industrial Water Treatment from San Juan College and David H. Paul, Inc. in 2002.



Steve Siverns, ROS IV  
Instructor / Consultant

**Steve Siverns** is an instructor and consultant for David H. Paul Inc. (DHP). Steve has over 35 years' experience focused on designing and troubleshooting water treatment processes. He specializes in high purity industrial water treatment and has experience with desalination, water recovery, and waste treatment. Steve is a Professional Engineer (P.Eng.) registered in the province of Ontario, Canada. He received his B.Eng. (1980) and M. Eng. (1984) in Chemical Engineering both from McMaster University.





## Certificate of Completion

Each attendee will receive a DHP/IDA certificate of completion following the course.

## DHP Training Seminars

DHP has trained over 20,000 water treatment professionals worldwide since 1988. Trainees include industrial, governmental, and drinking water clients. The average rating given by attendees for all DHP seminars, including this one, is over 9 (on a scale of 1-10, with 1 being a terrible rating and 10 being an outstanding rating).

## Testimonials

The following are typical comments from attendees of DHP seminars:

I feel good about what I learned.

**Stacy Waggoner**

Everything was excellent... looking forward to ROS-II.

**Andrey Kharitonenko**

I enjoyed how the day was broken up between lecture and hands on training.

**Sean Brandt**

Wide variety of information was covered.

**Jeffrey Rosepink**

...enjoyed the hands on learning and ability to see the inner workings of equipment I usually don't get to.

**Samantha Taylor**

I loved the hands-on activities. Each session gets me excited for what is next.

**Paul Groesbeck**

This course was excellent. The presentation and hands on learning were very beneficial.

**Courtney Clark**

lot of confidence in understanding the principles and equipment.

**William Goss**

...Instructor's personal experience makes the training easier to follow.

**Gilbert T. Lemos**

Very organized breakdown of 3 problems and mitigating actions for RO.

**Darryl Delgado**