

# Reverse Osmosis Operation

## Hands-On



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### WHERE & WHEN

For a list of where and when this seminar is being presented, click [here](#).  
This seminar can also be presented at your facility.

### DAILY SCHEDULE

8:00 a.m. - 11:30 a.m.

Lunch Break

12:30 p.m. - 5:00 p.m.

### WHO SHOULD ATTEND

This seminar provides valuable knowledge to operators, maintenance personnel, technicians, management and engineering personnel who want to understand reverse osmosis unit operations. If you learn by doing, this is the class for you. Aside from a small amount of classroom time in the morning and in the afternoon, this class is nearly 100% hands-on working with live reverse osmosis units.

### WHY YOU SHOULD ATTEND

Improper operations can lead to increased maintenance, problematic performance and possible downtime. Correct operation contributes to reduced maintenance, less frequent membrane replacement and an increase in overall plant efficiency. It is vital to understand the impacts of valve adjustment and feed water changes, even if you're operating an automated system. The information, tips and techniques you'll learn in this seminar are practical and immediately usable to improve the performance of your system(s).

### WHAT YOU'LL RECEIVE

8 hours of interesting, easy-to-understand hands-on RO/NF training  
A comprehensive workbook packed with procedures, datasheets and techniques  
**Personal attention!** DHP hands-on seminars are limited to a maximum of 6 attendees  
Break refreshments and lunch

## INSTRUCTORS



Jason Turner  
Plant City, FL



Ed Turner  
San Antonio, TX



Robert Decker  
Farmington, NM



Bill Dees  
Farmington, NM



Alan Lane  
Yuma, AZ

Every instructor for the hands-on seminars is/was an instructor at one of DHP's on-campus Associate Degree in Advanced Water Treatment programs. The hands-on seminars are held at DHP's Farmington, NM facility or at one of three college-program location using the same equipment, labs, instruments and training aids as our college students. Each DHP college instructor is a graduate of the four-semester Advanced Water Treatment Program. You won't find anyone more dedicated to students and more excited about water treatment than DHP instructors. DHP instructors have trained over 13,000 water treatment professionals worldwide since 1988.

## OVERVIEW OF HANDS-ON TRAINING

- Determining feed water fouling potential and effectiveness of pretreatment
- Feed water chlorine analysis and reducing agent dosage
- Proper RO unit start-up and shut-down procedures
- RO unit data collection
- Effects of recovery on operation
- Effects of temperature on operation
- Effects of TDS on operation



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## WHAT YOU'LL LEARN

- Silt Density Index analysis
- Chlorine analysis and feed water oxidation reduction potential analysis
- Hand-held conductivity meter calibration
- Proper RO unit start-up procedures
- Fundamental data readings needed for operations and troubleshooting
- Proper RO unit shut-down procedures
- Why and how unit performance will change with recovery
- Why and how unit performance will change with temperature
- Why and how RO unit performance changes with changing feed water

# DETAILED AGENDA

## Morning:

- 7:45 Refreshments (Provided)  
8:00 Introductions  
RO Unit Operations Pre-test  
SDI Demonstration  
SDI Workshop on live equipment  
9:15 Break (Refreshments Provided)  
9:30 Preparing the units for operation
- Four- and eight-inch RO unit walk down
  - Removal of chlorine from the feed water
  - Hand-held conductivity meter calibration
  - Pretreatment Skid Start-up
- 10:30 Break (Refreshments Provided)  
10:45 RO Unit Start-up Procedures
- Unit readings and data collections
- RO Unit Shut-Down Procedures  
12:00 Lunch (Provided)



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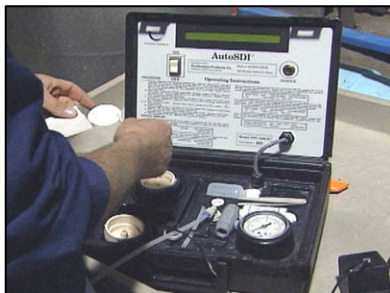
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## Afternoon:

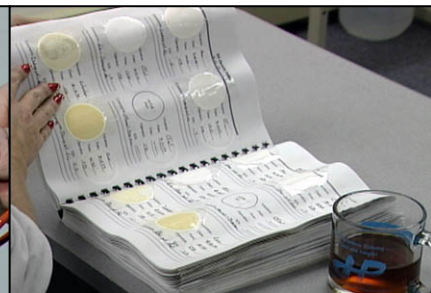
- 1:00 Effects of recovery on operation and performance  
2:00 Break (Refreshments Provided)  
2:15 Effects of temperature on operation and performance  
3:15 Break (Refreshments Provided)  
3:30 Effects of TDS changes on operation and performance  
4:15 Discussion, questions and answers
- RO Operations Post Test
- 5:00 End



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## CERTIFICATE OF COMPLETION

Each attendee will receive a DHP *Certificate of Completion* following the seminar.

### WHAT OTHERS SAY ABOUT DHP HANDS-ON SEMINARS

DHP has trained over 13,000 water treatment professionals worldwide since 1988. Trainees include industrial, governmental and drinking water clients. The average rating given by attendees for DHP seminars is over 9 (on a scale of 1-10, with 1 being a terrible rating and 10 being an outstanding rating). The following are typical comments from attendees:

“I enjoyed the class very much and would highly recommend it to anyone in the industry.”

Janet Drozda, Operator, Intel

“Outstanding course. Best training program that I have attended in the water treatment industry!”

George James, Reaction Engineering, Inc.

“Instructor was very knowledgeable and thorough. Course will have large impact on our cleaning procedure.”

John Paul Robb, Plant Engineer, Trigen Colorado Energy

“Excellent Course! The hands on portion served very well in firming up the concepts and increasing retention. Level of instruction was good balance of theory and practical...well presented.”

Finley Jones, Sr. Account Manager, Nalco

“Probably the best hands-on course I've had in my 10 years as a technician.”

Andy Gutierrez, Technician, Amgen

“Hands-on experience was a valuable experience.”

Melody Martin, Plant Chemist, Oklahoma Gas & Electric

“I thought I knew a good amount about RO systems. After taking this course I realized how little I actually did know.”

Chris Corsetti, Facilities Engineering Supervisor, Genzyme Corp.

“Excellent instructors. I should have taken this course ten years ago. I could have saved the company thousands of dollars and weeks of time.”

Charles Hagen, Lab supervisor. Ameradahess

“DHP training took me from having no idea what RO is to being a confident and knowledgeable RO decision maker.”

Kenneth Gaskill, Maintenance Supervisor, Warner Lambert Co.

“Great course, great teachers, great equipment. I liked the use of multimedia...videos, illustrations, computers, etc.”

Evan Francis, Operator, Monterey Bay Aquarium