

## CEU Evaluation Request

Class: Water Treatment/Water Distribution Certification Review

Date: Ongoing, various dates

Instructor: OAWU Water Circuit Rider Personnel

Outline: Prepare and review for operators taking the State Certification Exam for levels I & II in water treatment and water distribution based on reference from the Ken Kerri Training Manuals.

### **Day 1**

8:00-10:00

(0.2)

Math

- Everyday use of mathematics for water treatment and distribution problems.
- Applied math principles in utility operations, including fractions, percentages; basic algebra and proportions.

10:00-10:15

- Break

10:15-12:00

(0.175)

Math continued

- Applied math with units, conversions and averages; calculation of areas and volumes.
- Applied math with velocity, flow rates, detention times; calculation of weight relationships and calculation of efficiencies.

12:00-1:00

- Lunch

1:00-3:00

(0.2)

Pre-treatment, Filtration, and Sedimentation

- Well construction; water and its impurities; source and characteristics, corrosion control, coagulation and flocculation, chemical feeders, ion exchange, iron and manganese removal, aeration, etc.

3:00-3:15

- Break

3:15-4:30

(0.125)

Pumps, motors, and maintenance

- Electrical controls, chemical feeders, drives, engines, etc.
- Discuss valve types, maintenance, etc.
- Discuss pump applications and troubleshooting.

## **Day 2**

8:00-10:00

(0.2)

### Filtration

- Discussion of various types of filtration, i.e. conventional, direct, gravity, pressurized, and membrane technology.
- Flow rates, head loss, design, backwash, optimization, types of filtration.
- Filtration regulation updates.

10:00-10:15

- Break

10:15-12:00

(0.175)

### Distribution System Operations

- Coverage includes water pipe types, installation practices, excavation, pipe flushing and rehabilitation, storage tanks, water wells, pumps, motors, hydrants, meters, valves, corrosion prevention, leak detection, instrumentation and control, maps, records, and maintenance.

12:00-1:00

- Lunch

1:00-2:00

(0.1)

### Storage

- Tank types and purpose.
- Discussion on tank volume, pressure, etc.

2:00-3:00

(0.1)

### Terminology & Definitions

- Discuss the pertinent terminology and definitions pertaining to water treatment and distribution.
- Discuss formulas and conversion charts.

3:00-3:15

- Break

3:15-4:30

(0.125)

### Practice Testing

- Discussion using practical exam questions.
- Questions and answers relevant to water treatment and distribution.