



Water Supply Examination Need to Know Criteria

The Ohio water treatment examinations are designed to evaluate the ability of an examinee to operate a water treatment facility in the state of Ohio. In order to successfully complete an examination, an operator must demonstrate a broad knowledge of the areas covered by this document. Due to the fact that a certificate allows an operator to be in responsible charge of any public water system in the state with the same or lower classification, the exams may include technologies that are not used in each treatment plant but are commonly used at treatment plants throughout the state of Ohio. The Operator Certification Advisory Council along with a number of interested party groups developed these criteria to serve as a study guide for each level of certification. The Class II and III need to know criteria are the same. However, the Class III exam will emphasize larger facilities and surface water treatment.

Drinking Water Class A Examination Topics

1) Contaminants

- a. Transient
 - i. Total Coliform
 - ii. Nitrates & Nitrites
(Monitoring Schedule)
- b. Non-Transient Non-Community & Community
 - i. Total Coliform
 - ii. Lead & Copper
 - iii. Chlorine Maximum Residual Disinfection Levels
 - iv. Monitoring Schedule for all other regulated contaminants
- c. Aesthetic Contaminants
 - i. Iron & Manganese
 - ii. Hardness

2) Safety

- a. Chlorine
- b. Lockout/Tagout
- c. Confined Space
- d. Electrical
- e. Personal Protection Equipment
- f. Housekeeping

3) Operations & Maintenance

- a. Manual
- b. Pressures
- c. Contingency Plan
- d. Preventive Maintenance
- e. Repairs
- f. Wells
- g. Distribution Systems
- h. Backflow Present
- i. Record Keeping
- j. Security

4) Treatment

- a. Disinfection
 - i. Breakpoint
 - ii. Dosage

iii. Demand

- b. Ion Exchange Softening
- c. Iron & Manganese Removal
- d. Corrosion Control

5) Public Notice

- a. Violations
- b. Consumer Confidence Reports

6) Regulations

- a. Plan Approval
- b. License to Operate
- c. Certified Operator
- d. Monitoring, Reporting and Waivers
- e. Lab Certification
- f. Penalties
 - i. \$25,000 per violation
 - ii. Loss of Certification
 - iii. Loss of License to operate

- g. Contingency Plan
- h. Backflow Prevention
- i. Well regulations
- j. Minimum Pressures
- k. Regulated Contaminates

7) Source Water Protection

- a. Delineation
- b. Potential Pollution Source Inventory
- c. Management Plan

8) Management

- a. Table of Organization
- b. Job Duties
- c. Time Management
- d. Budget
- e. Capacity Development

9) Sampling Procedures

- a. Total Coliform
- b. Chlorine Residual
- c. Other

Drinking Water Class I Examination Topics

1) Contaminants

- a) Primary
 - i) Total Coliform
 - ii) Nitrates & Nitrites
(Monitoring Schedule)
 - iii) Lead & Copper
 - iv) SOC
 - v) VOC
 - vi) Radiologicals
 - vii) D/DBP
 - viii) Chlorine Maximum Residual
Disinfection Levels
 - ix) Monitoring Schedule for all
other regulated contaminants
- b) Aesthetic Contaminants
 - i) Iron & Manganese
 - ii) Hardness
 - iii) Odor Control

2) Safety

- a) Chemical
- b) Lockout/Tagout
- c) Confined Space
- d) Electrical
- e) Personal Protective Equipment
- f) Housekeeping
- g) OSHA requirements

3) Operation & Maintenance

- a) Manual
- b) Pumps
 - i) Pressure
 - ii) Performance
 - iii) Electrical Measurements and
Units
- c) Contingency Plan
- d) Preventive Maintenance
- e) Wells
 - i) Drawdown
 - ii) Maintenance and Repair
- f) Distribution System
 - i) Storage
 - ii) Flow Measurement
 - iii) Pressure
 - iv) Hydraulics
- g) Backflow Prevention

- h) Record Keeping
- i) Security

4) Treatment

- a) Chemical Addition
- b) Disinfection
 - i) Breakpoint
 - ii) Dosage
 - iii) Demand
- c) Ion-Exchange Softening
- d) Aeration
 - i) Iron & Manganese Removal
 - ii) Hydrogen Sulfide Removal
- e) Filtration (Only as it relates to
Fe/Mn removal)
- f) Corrosion Control
- g) Sequestering

5) Public Notice

- a) Violations
 - i) Tier 1 violations
 - ii) Tier 2 violations
 - iii) Tier 3 violations
- b) Consumer Confidence Reports

6) Regulations

- a) Plan approval
- b) License to operate
- c) Certified Operator
- d) Monitoring, Reporting and
Waivers
- e) Lab Certification
- f) Penalties
 - i) \$25,000 per violation
 - ii) Loss of certification
 - iii) Loss of license to operate
- g) Contingency Plan
- h) Backflow Prevention
- i) Well regulations
- j) Minimum Pressures
- k) Regulated contaminants

7) Source water protection

- a) Delineation
- b) Potential pollution source
inventory
- c) Management plan

Drinking Water Class I Examination Topics (continued)

8) Management

- a) Table of Organization
- b) Job Duties
- c) Time Management
- d) Budget
- e) Capacity Development

10) Basic Math

- a) Calculation of Volumes
- b) Units of Measurement
- c) Conversions

9) Sampling procedures

- a) Total Coliform
- b) Chlorine Residual
- c) SOC
- d) VOC
- e) IOC
- f) Radiologicals
- g) D/DBP

Drinking Water Class II Examination Topics

1) Contaminants

- a) Primary
 - i) Total Coliform
 - ii) Nitrates & Nitrites (Monitoring Schedule)
 - iii) Lead & Copper
 - iv) SOC
 - v) VOC
 - vi) Radiologicals
 - vii) D/DBP
 - viii) Chlorine Maximum Residual Disinfection Levels
 - ix) Monitoring Schedule for all other regulated contaminants
- b) Aesthetic Contaminants
 - i) Iron & Manganese
 - ii) Hardness
 - iii) Odor control

2) Safety

- a) Chemical
- b) Lockout/Tagout
- c) Confined Space
- d) Electrical
- e) Personal Protective Equipment
- f) Housekeeping
- g) OSHA requirements

3) Operation & Maintenance

- a) Manual
- b) Pumps
 - i) Pressure
 - ii) Performance
 - iii) Electrical Measurements and Units
- c) Contingency Plan
- d) Preventive Maintenance
- e) Wells
 - i) Drawdown
 - ii) Maintenance and Repair

- f) Distribution System
 - i) Storage
 - ii) Flow Measurement
 - iii) Pressure
 - iv) Hydraulics
- g) Backflow Prevention
- h) Record Keeping
- i) Security

4) Treatment

- a) Chemical Addition
- b) Disinfection
 - i) Breakpoint
 - ii) Dosage
 - iii) Demand
 - iv) Chlorine dioxide
 - v) Gaseous chlorine
- c) Ion-Exchange Softening
- d) Aeration
 - i) Iron & Manganese Removal
 - ii) Hydrogen Sulfide Removal
- e) Filtration/Backwash
- f) Corrosion Control
- g) Sequestering
- h) Stabilization
- i) Fluoridation
- j) Precipitative softening
- k) Lime addition
- l) Recarbonation
- m) Rapid mix
- n) Coagulation
- o) Flocculation
- p) Sedimentation

5) Public Notice

- a) Violations
 - i) Tier 1 violations
 - ii) Tier 2 violations
 - iii) Tier 3 violations
- b) Consumer Confidence Reports

Drinking Water Class II Examination Topics (continued)

6) Regulations

- a) Plan approval
- b) License to operate
- c) Certified Operator
- d) Monitoring, Reporting and Waivers
- e) Laboratory Certification
- f) Penalties
 - i) \$25,000 per violation
 - ii) Loss of certification
 - iii) Loss of license to operate
- g) Contingency Plan
- h) Backflow Prevention
- i) Well regulations
- j) Minimum Pressures
- k) Regulated contaminants

7) Source water protection

- a) Delineation
- b) Potential pollution source inventory
- c) Management plan

8) Laboratory

9) Management

- a) Table of Organization
- b) Job Duties
- c) Time Management
- d) Budget
- e) Capacity Development

10) Sampling procedures

- a) Total Coliform
- b) Chlorine Residual
- c) SOC
- d) VOC
- e) IOC
- f) Radiologicals
- g) D/DBP
- h) TOC

11) Basic Math

- a) Calculation of Volumes
- b) Units of Measurement
- c) Conversions

Drinking Water Class III Examination Topics

1) Contaminants

- a) Primary
 - i) Total Coliform
 - ii) Nitrates & Nitrites (Monitoring Schedule)
 - iii) Lead & Copper
 - iv) SOC
 - v) VOC
 - vi) Radiologicals
 - vii) D/DBP
 - viii) Chlorine Maximum Residual Disinfection Levels
 - ix) Monitoring Schedule for all other regulated contaminants
- b) Aesthetic Contaminants
 - i) Iron & Manganese
 - ii) Hardness
 - iii) Odor control

2) Safety

- a) Chemical
- b) Lockout/Tagout
- c) Confined Space
- d) Electrical
- e) Personal Protective Equipment
- f) Housekeeping
- g) OSHA requirements
- h) Process Safety Management/Risk Management Plans

3) Operation & Maintenance

- a) Manual
- b) Pumps
 - i) Pressure
 - ii) Performance
 - iii) Electrical Measurements and Units
- c) Contingency Plan
- d) Preventive Maintenance
- e) Wells
 - i) Drawdown
 - ii) Maintenance and Repair

- f) Distribution System
 - i) Storage
 - ii) Flow Measurement
 - iii) Pressure
 - iv) Hydraulics
- g) Backflow Prevention
- h) Record Keeping
- i) Security

4) Treatment

- a) Chemical Addition
- b) Disinfection
 - i) Breakpoint
 - ii) Dosage
 - iii) Demand
 - iv) Chlorine dioxide
 - v) Gaseous chlorine
- c) Ion-Exchange Softening
- d) Aeration
 - i) Iron & Manganese Removal
 - ii) Hydrogen Sulfide Removal
- e) Filtration/Backwash
- f) Corrosion Control
- g) Sequestering
- h) Stabilization
- i) Fluoridation
- j) Precipitative softening
- k) Lime addition
- l) Recarbonation
- m) Rapid mix
- n) Coagulation
- o) Flocculation
- p) Sedimentation

5) Public Notice

- a) Violations
 - i) Tier 1 violations
 - ii) Tier 2 violations
 - iii) Tier 3 violations
- b) Consumer Confidence Reports

Drinking Water Class III Examination Topics (continued)

6) Regulations

- a) Plan approval
- b) License to operate
- c) Certified Operator
- d) Monitoring, Reporting and Waivers
- e) Lab Certification
- f) Penalties
 - i) \$25,000 per violation
 - ii) Loss of certification
 - iii) Loss of license to operate
- g) Contingency Plan
- h) Backflow Prevention
- i) Well regulations
- j) Minimum Pressures
- k) Regulated contaminants

7) Source water protection

- a) Delineation
- b) Potential pollution source inventory
- c) Management plan

8) Laboratory

9) Management

- a) Table of Organization
- b) Job Duties
- c) Time Management
- d) Budget
- e) Capacity Development

10) Sampling and Sample Handling Procedures

- a) Total Coliform
- b) Chlorine Residual
- c) SOC
- d) VOC
- e) IOC
- f) Radiologicals
- g) D/DBP
- h) TOC

11) Basic Math

- a) Calculation of Volumes
- b) Units of Measurement
- c) Conversions