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) Radiologials
      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
   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

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

### 10) Basic Math
- a) Calculation of Volumes
- b) Units of Measurement
- c) Conversions
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) Precipititative 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

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) Radiologicaals
    g) D/DBP
    h) TOC

11) Basic Math
    a) Calculation of Volumes
    b) Units of Measurement
    c) Conversions