Operator Training Update
2022

Ohio Environmental Protection Agency

“Needs To Know” For Your Operators
OTCO-B529304-OM

Curtis L. Truss Jr. , Executive Director

Operator Training Update
2022

Ohio Environmental Protection Agency

Paper and Pencil Exam

Ohio EPA will be transitioning out of hosting paper and pencil examinations for the near future. The final paper and pencil exams will be held on December 1, 2022 and May 3, 2023. Both exams will be held at the Lausche Building, located at 717 East 17th Avenue, Columbus, Ohio. To submit an exam application, applicants must apply electronically through the eBusiness center (made available through the OHID portal).

Exam Deadlines

A completed exam application for the December 1, 2022 exam must be submitted to Ohio EPA no later than September 2, 2022.

A completed exam application for the May 3, 2023 exam must be submitted to Ohio EPA no later than February 2, 2023. Registration for the May exam will be made available through the eBusiness Center in December of 2022.

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Paper and Pencil Exam

Need-to-know Criteria

The following documents provide need-to know criteria that test-takers will be expected to know for each type of certified operator exam.

- Water
- Water Distribution
- Wastewater
- Wastewater Collection

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Ohio Environmental Protection Agency

Paper and Pencil Exam

Ohio Environmental Protection Agency

Water Supply Examination
Need to Know Criteria

Drinking Water Class A Examination Topics

Drinking Water Class I Examination Topics

Drinking Water Class II Examination Topics

Drinking Water Class III Examination Topics

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

Ohio Environmental Protection Agency

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

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Drinking Water Class II Examination Topics

Ohio Environmental Protection Agency

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

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Drinking Water Class III Examination Topics

Ohio Environmental Protection Agency

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

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Paper and Pencil Exam

Need-to-know Criteria

The following documents provide need-to know criteria that test-takers will be expected to know for each type of certified operator exam.

- Water
- Water Distribution
- Wastewater
- Wastewater Collection

Ohio Environmental Protection Agency

Water Supply Examination
Need to Know Criteria

DRAFT

DACUM Research Chart for Class I Water Distribution System Operator

DACUM Panel

Michael Hester
Water/Wastewater Superintendent
Village of Gratis
Gratis, OH

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OhioEPA

DACUM Research Chart for Class II Water Distribution Operator

DACUM Panel

Patrick Donahue
Utilities Maintenance Superintendent
City of Springfield
Springfield, OH

Aaron Osborn
Water Distribution Supervisor
City of Norwalk/Street, Water,
Sewer, Electric Department
Norwalk, OH

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DACUM Research Chart for Class I Distribution Water Supply Operator

Duties	Tasks				
A Perform Water Quality Control & Testing	A-1 Check chlorine residuals	A-2 Collect routine bacteria samples	A-3 Collect nitrate/nitrite samples	A-4 Collect iron samples	A-5 Collect asbestos samples
	A-13 Collect arsenic samples	A-14 Collect TTHM samples	A-15 Collect HAA_5 samples	A-16 Collect unregulated contaminants samples	A-17 Prepare water samples for outside lab/ internal testing
B Provide Customer Service	B-1 Read water meters	B-2 Respond to customer emergencies (e.g., no water, broken pipe)	B-3 Check water meter accuracy	B-4 Investigate high/unusual water usage	B-5 Turn off/on household water (e.g., vacation, leaks, non-payment)
C Respond to Emergency Water Distribution Issues	C-1 Repair water main breaks	C-2 Complete emergency hydrant repairs (e.g., fire, flush)	C-3 Complete emergency main line valve repair	C-4 Troubleshoot booster station malfunctions	C-5 Complete booster station repairs (e.g., power loss, telemetry)
	C-12 Complete emergency service line repairs	C-13 Thaw frozen mains, service lines, hydrants	C-14 Replace frozen meters	C-15 Issue boil alerts (e.g., flyer, radio, newspaper)	C-16 Collect special bacteria samples
D Perform Administrative Tasks	D-1 Maintain daily records & logs (e.g., distribution, maintenance, chlorine)	D-2 Complete Ohio EPA distribution MOR	D-3 Complete Ohio EPA bacteria MOR	D-4 Complete Ohio EPA TTHM report	
	D-11 Complete sample citing plan	D-12 Maintain backflow reports	D-13 Participate in Ohio EPA	D-14 Update distribution mapping plan	D-15 Update maintenance plans (e.g., valves, hydrants)

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DACUM Research Chart for Class II Water Distribution Operator

Duties	Tasks				
A Maintain Water Mains & Valves	A-1 Repair water main breaks	A-2 Install water mains	A-3 Flush water mains	A-4 Refurbish water mains (e.g., pigging, relining)	A-5 Perform leak detection
	A-13 Install main line valves	A-14 Adjust valve boxes (e.g., main line, service)	A-15 Maintain valve pits & vaults	A-16 Abandon old/unused service lines	A-17 Perform site restoration (e.g., lawn, concrete, asphalt)
B Maintain Water Quality	B-1 Develop sample siting plan	B-2 Perform chlorine residual test	B-3 Collect water samples for total coliform test	B-4 Collect water samples for phosphate test	B-5 Collect water samples for lead & copper test
C Maintain Fire Hydrants	C-1 Exercise hydrants	C-2 Exercise watch valves	C-3 Repair hydrants	C-4 Repair watch valves	C-5 Perform preventive maintenance on hydrants (e.g., paint, grease, remove chains)
D Maintain Water Meters	D-1 Read water meters	D-2 Test water meters	D-3 Repair water meters	D-4 Replace water meters	D-5 Install remote reading devices
E Maintain Pumps & Storage Tanks	E-1 Inspect pumps (e.g., water, chemical feed)	E-2 Perform preventative booster pump maintenance	E-3 Perform preventative chemical feed pump maintenance	E-4 Repair booster pumps	E-5 Repair chemical feed pumps
F Maintain Distribution Records	F-1 Update backflow records	F-2 Maintain water sample reports	F-3 Prepare water main repair report	F-4 Track unaccounted-for water	F-5 Prepare daily, monthly, & quarterly reports (e.g., pumpage, demand, tank levels)
	F-12 Prepare service orders	F-13 Update inventory records	F-14 Maintain customer service records		
G Perform Administrative Tasks	G-1 Prepare EPA reports (e.g., lab, MOR, depressurization)	G-2 Prepare employee work schedules	G-3 Assign employee tasks	G-4 Provide employee training (e.g., SOPs, safety, equipment)	
	G-11 Coordinate EPA surveys	G-12 Prepare public notifications (e.g., boil alerts, service interruptions)		G-13 Administer backflow prevention program	G-14 Prepare operations policies & procedures
H Provide Customer Service	H-1 Provide emergency services (e.g., shut offs, no water)	H-2 Respond to customer concerns (e.g., aesthetics, high usage)	H-3 Distribute public notifications (e.g., boil alert, service interruptions)		H-4 Locate water utilities
I Maintain Professional Development	I-1 Inspect equipment & tools	I-2 Perform preventative maintenance	I-3 Perform minor equipment repairs	I-4 Report unsafe equipment & tools	I-5 Clean equipment & tools

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Wastewater Treatment Examination Need to Know Criteria

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Class I Wastewater Examination Topics

1) Pollutants
   a) CBOD/BOD
   b) Total suspended solids (nonfilterable residue)
   c) Phosphorus
   d) Ammonia
   e) Fecal coliform
   f) pH
   g) Chlorine Residual

2) Safety
   a) Chemical
   b) Lockout/Tagout
   c) Confined Space
   d) Electrical
   e) Bloodborne Pathogens
   f) Personal Protective Equipment
   g) Housekeeping
   h) Slips, Trips, and Falls
   i) OSHA Requirements

3) Operation and Maintenance
   a) O & M Manual
   b) Pumps
      i) Types
      ii) Capacity vs Head Relationships
      iii) Control
   c) Preventive Maintenance
   d) Corrective Maintenance
   e) Electrical Usage
   f) Blower Performance
   g) Record Keeping
   h) Management System
   i) Collection System/Infiltration-Inflow

4) Treatment Theory
   a) Comminutors
   b) Screens
   c) Grit Removal/Trash Trap
   d) Extended Aeration Activated Sludge
   e) Aerated Lagoons
   f) Final Clarifiers
   g) Slow Sand Filters
   h) Disinfection (Chlorination, Dechlorination, Ultraviolet Light)
   i) Aerobic Digestion
   j) Sand Drying Beds
   k) Biosolids Disposal

Revision Date 4/9/2007

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Class I Wastewater Collection System Examination Topics

1) **Safety**
   a) OSHA Requirements Chemical Hazards
   b) Confined Space Procedures
   c) Electrical Hazards
   d) Lockout/Tagout Procedures
   e) Bloodborne Pathogen Hazards
   f) Personal Protection Equipment
   g) Atmospheric Hazards
   h) Traffic Control
   i) Excavation Procedures

2) **Operation and Maintenance**
   a) Pump Stations
      i) Types of Pump Stations
      ii) Types of Pumps
      iii) Emergency Power
   b) Preventive Maintenance
      i) Collection System
      ii) Pump Stations
   c) Corrective Maintenance
      i) Collection System
      ii) Pump Stations
   d) Record Keeping
   e) Infiltration-Inflow
      i) Inspection
      ii) Testing
      iii) Prevention
   f) Odor Control
   g) Corrosion Control
   h) Septic Conditions

3) **Regulations/Guidance**
   a) NPDES Permit (general questions)
   b) Certified Operator (OAC 3745-7)
   c) Permit to Install
   d) Ten States Standards
   e) Combined Sewer Overflows
   f) Sanitary Sewer Overflows

4) **Management**
   a) Job Duties
   b) Reporting
   c) Communications
   d) Public Relations
   e) Security

5) **Mathematics**
   a) Operation and Maintenance Costs
   b) Flow Velocity
   c) Flow Volume
   d) Design Flow
   e) Peak Flow
   f) Pumping Rate

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Class II Collection System Examination Topics

1) Safety
- a) OSHA Requirements Chemical Hazards
- b) Confined Space Procedures
- c) Electrical Hazards
- d) Lockout/Tagout Procedures
- e) Bloodborne Pathogen Hazards
- f) Personal Protection Equipment
- g) Atmospheric Hazards
- h) Traffic Control
- i) Excavation Procedures

2) Operation and Maintenance
- a) Pump Stations
  - i) Types of Pump Stations
  - ii) Types of Pumps
  - iii) Emergency Power
  - iv) Pump Control Methods and Procedures
  - v) Force Main Capacity vs. Head Relationships
- b) Preventive Maintenance
  - i) Collection System
  - ii) Pump Stations
- c) Corrective Maintenance
  - i) Collection System
  - ii) Pump Stations
- e) Record Keeping
- f) Infiltration-Inflow
  - i) Inspection
  - ii) Testing
  - iii) Prevention
- g) Odor Control
- h) Corrosion Control
- i) Septic Conditions
- j) Electrical Usage
- k) Management System
- l) Telemetry

3) Regulations/Guidance
- a) NPDES Permit (general questions)
- b) Certified Operator (OAC 3745-7)
- c) Permit to Install
- d) Ten States Standards
- e) Combined Sewer Overflows
- f) Sanitary Sewer Overflows
- g) Sewer Use Ordinances
- h) Industrial Pretreatment/Local Limits

4) Management
- a) Job Duties
- b) Reporting
- c) Communications
- d) Public Relations
- e) Security
- f) Financial Management
- g) Planning

5) Mathematics
- a) Operation and Maintenance Costs
- b) Flow Velocity
- c) Flow Volume
- d) Design Flow
- e) Peak Flow
- f) Pumping Rate
- g) Water HP, Brake HP, Motor HP, and % Efficiency
- h) Pressure and Head
- I) Slope or Grade
- J) Wet Well Fill Rate

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https://online.goamp.com/CandidateHome/CandidateInformation.aspx

In order to prepare for the examinations, Ohio EPA recommends you use the Need to Know criteria for the exam you are taking as an outline of the information you should study from the exam reference list. Information concerning ABC's 'Need-To-Know' Criteria and References can be found under Need-to-Know Criteria.

Third-Party Exam Providers

- Schedule an Examination through WPI
- WPI's Ohio EPA information page — Study material for the WPI exam can be found in the orange box on the left side.
- Apply for certification after passing a third-party examination — Ensure you have met the experience requirements prior to applying. No refunds will be awarded for the $45 application review fee.
- Ohio EPA and WPI exam equivalency chart

Operator Training Update

WATER PROFESSIONALS INTERNATIONAL
The Associated Boards of Certification

Superior Water Starts Here

LOGIN

SERVICES CERTIFICATION MEMBERSHIP ABOUT US

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About Water Professionals International

Introduction

Water Professionals International (WPI) is an established and influential organization within the water and wastewater sector serving its membership since 1972. The WPI association provides a voice for international certification issues and is a tool for building lifelong professional relationships.

Innovation is integral at WPI. To continue improving the organization's effectiveness, executive staff and volunteer leadership decided to implement a strategic planning process for the development of a research-based, strategic plan for WPI to use in the creation of future objectives and implementation tactics to ensure continuous improvement of WPI's existing products and services.

The Association of Boards of Certification

2805 SW Snyder Blvd. Suite 535 * Ankeny, IA 50023
(515) 232-3623 * abc@abccert.org

1) Promote certification as a means of protecting public health, the infrastructure, and the environment.
2) Promote uniformity of standards and best practices in certification.
3) Serve as the technical resource for certification entities.
4) Facilitate the transfer of certification between certifying authorities.
5) Serve the needs of our members.

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WPI/ABC Need To Know Criteria

Please note that the title on WPI's Need to Know Criteria may be a different exam level than the Ohio EPA certification you are seeking. When you are applying through WPI's provider, once you select Ohio EPA certification, you will select the Ohio EPA certificate level you are seeking and the appropriate WPI test is selected.

- Class 1 Water Distribution
- Class 2 Water Distribution
- Class A Water Supply (see Drinking Water Class A)
- Class 1 Water Supply
- Class 2 Water Supply
- Class 3 Water Supply
- Class 1 Wastewater Collection
- Class 2 Wastewater Collection
- Class A Wastewater Treatment
- Class 1 Wastewater Treatment
- Class 2 Wastewater Treatment
- Class 3 Wastewater Treatment

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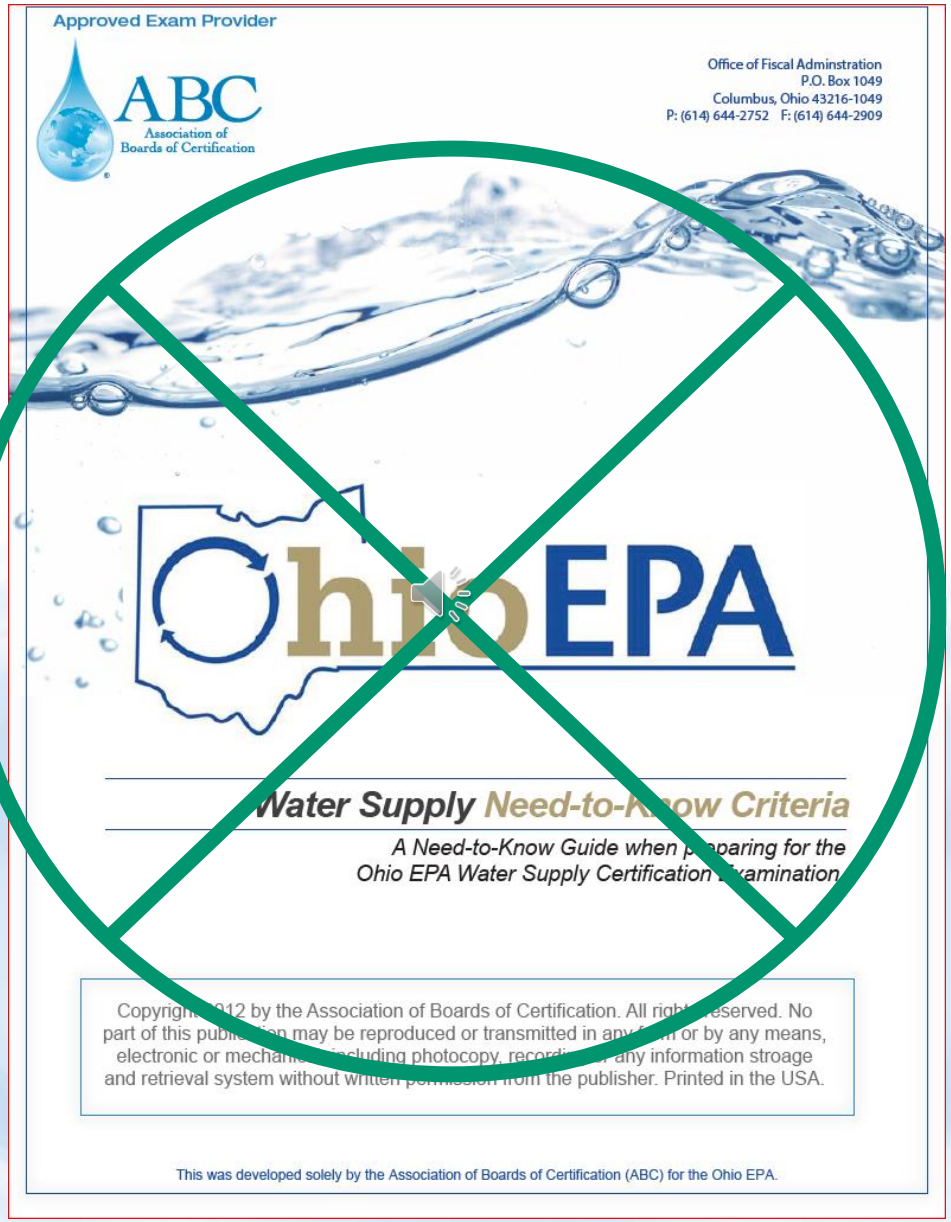

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*When signing up for exams through ABC, a candidate is asked to select a program (Water/Wastewater) and then a program (Ohio EPA). Once the candidate has chosen Ohio EPA, the examination choices are automatically aligned with the above reference chart so the candidate should select the Ohio EPA examination they wish to take. (e.g. Ohio EPA Water Supply Class 1 examination).

psi Testing Excellence

CANDIDATES PORTALS E-STORE

Candidate Support Center

Hours

Monday - Thursday 7:00 AM to 9:00 PM Central Time
Friday 7:00 AM to 7:00 PM Central Time
Saturday 8:30 AM to 5:00 PM Central Time

Contact

To contact Candidate Support, please follow steps 1, 2, and 3 to view contact details related to your specific examination.

Welcome to PSI Candidate Services

Everything You Need is Three Steps Away

Let us help you locate detailed information about your examination program! To find a candidate handbook, testing locations, fees and scheduling information, make a selection in each category below.

1 Water/Wastewater

2 Ohio EPA

3 Select an examination

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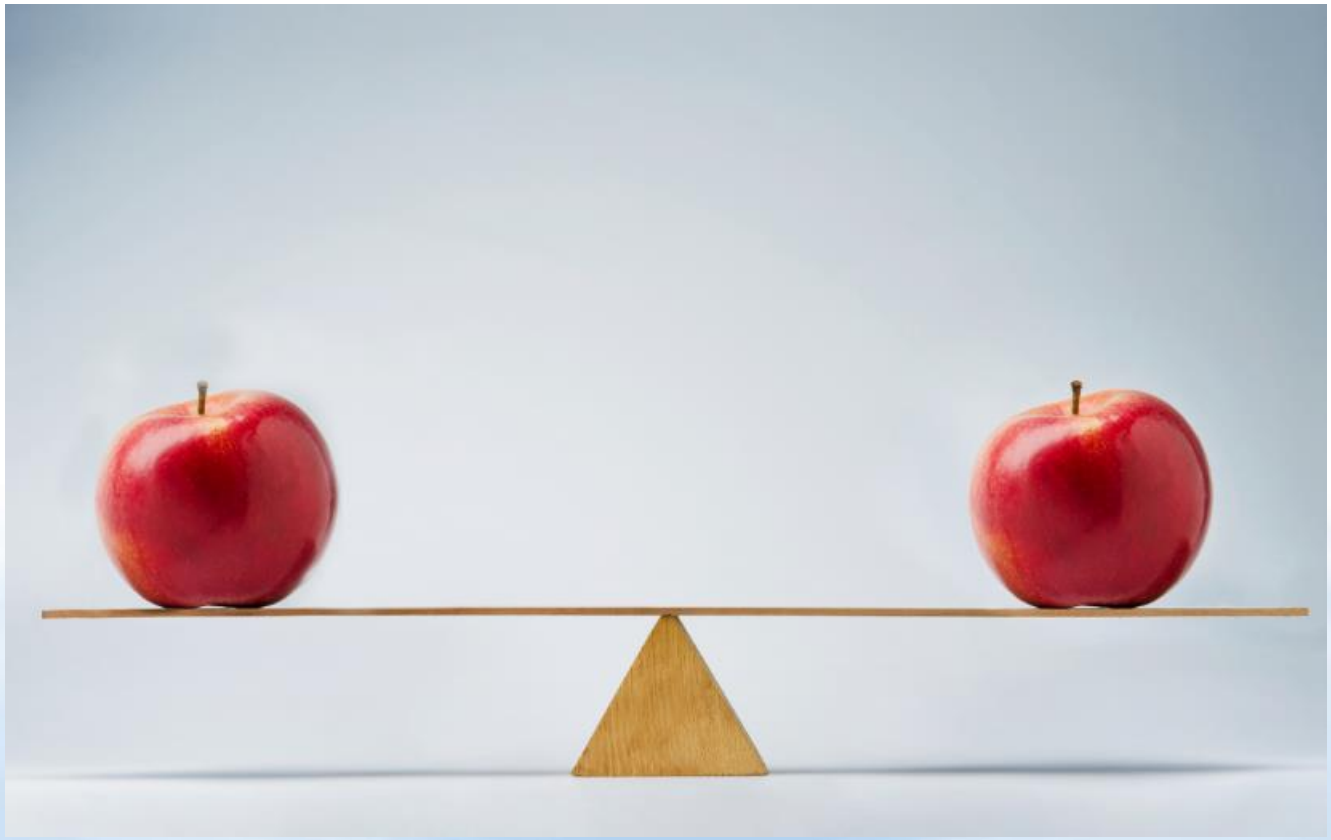

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Ohio EPA/ABC Professional Operator Exam Equivalency Chart*

Ohio EPA Certificate			ABC Examination	
Distribution				
Water Distribution	1	=	Water Distribution	1
Water Distribution	2	=	Water Distribution	3
Water Supply				
Water Supply	A	=	Very Small Water System	VSWS
Water Supply	1	=	Water Supply	1
Water Supply	2	=	Water Supply	3
Water Supply	3	=	Water Supply	4

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WPI/ABC Need To Know Criteria

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- Class 1 Water Distribution
- Class 2 Water Distribution
- Class A Water Supply (see Drinking Water Class A)
- Class 1 Water Supply
- Class 2 Water Supply
- Class 3 Water Supply

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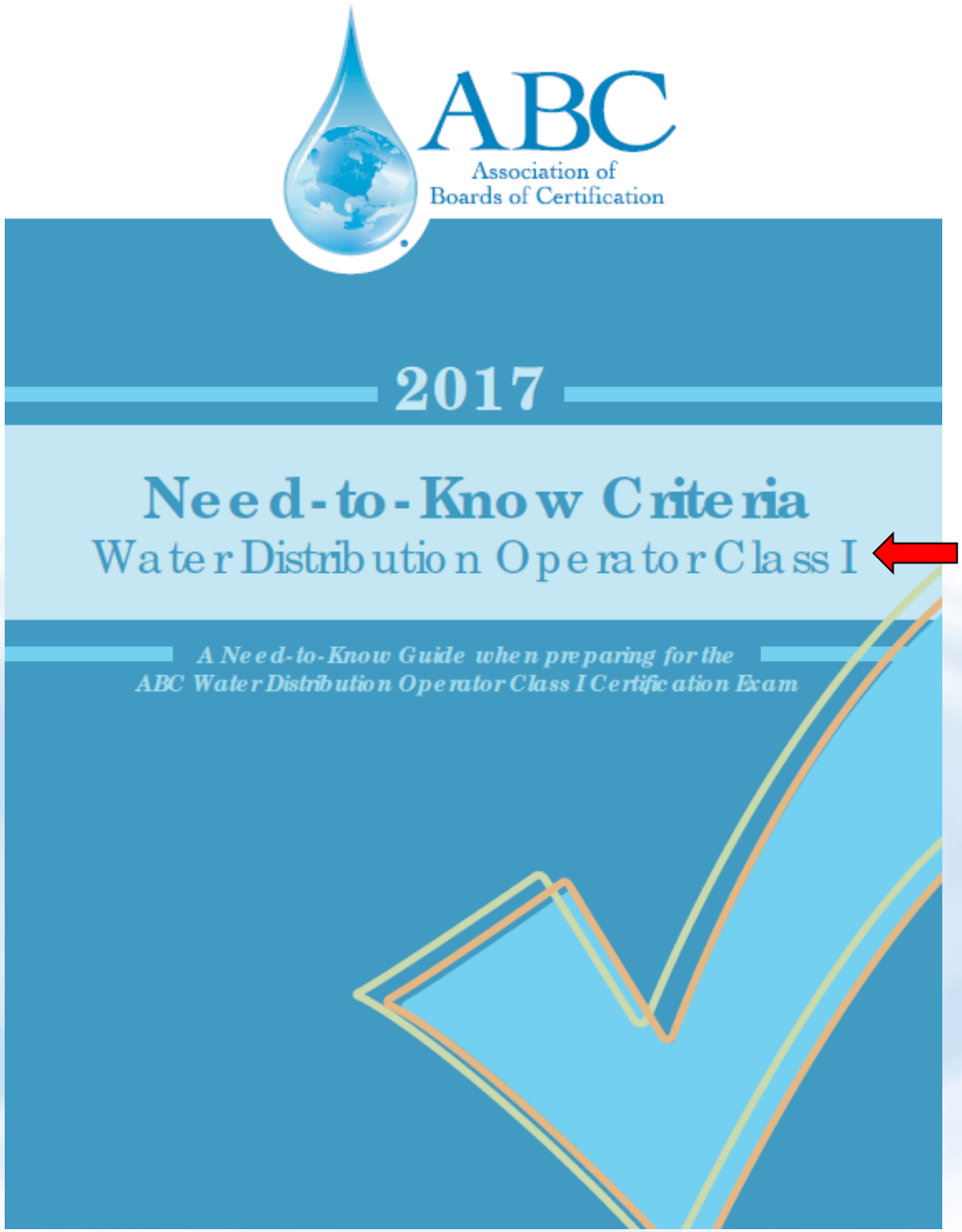

Operator Training Update

Water Distribution Operator Class I *Need-to-Know Criteria*

Exam Content

The Water Distribution Operator Class I exam will test you on essential job tasks. These job tasks have been categorized into the Content Areas detailed in the following pages. The table below summarizes the areas that are included on the exam, the number of test questions in each of these areas, and the complexity of the test questions in each area.

Just as water distribution operator job duties vary in their complexity, so will the questions you are asked on the exam. Some will be more simple and routine, whereas others will be more complex, or cognitively demanding. The following three levels are used to describe the complexity of the questions you will encounter on this exam:

Recall – tasks at this level typically require the simple recall or recognition of specific facts, concepts, processes, or procedures, with little to no problem-solving involved. You may be asked to identify, illustrate, recall, and/or recognize specific information.

Application – tasks at this level will involve some basic problem solving, calculations, or the interpretation and application of data. You may be asked to calculate, categorize, classify, compare, differentiate, explain, specify, translate, and/or apply knowledge.

Analysis – tasks at this level may involve higher level problem solving, evaluation, or the fitting together of a variety of elements into a meaningful whole; they will usually require many steps in the thought process. You may be asked to analyze, evaluate, formulate, generalize, judge, predict, and/or use inductive or deductive reasoning to arrive at a solution.

Exam Content Outline

Number of Questions	Content Area	Job Task Complexity Levels
25	Distribution System Components	10 15 0
24	Equipment Installation, Operation, & Maintenance	10 14 0
27	Disinfection Monitoring, Evaluation, Adjustment, & Laboratory Analysis/ Interpretation	19 8 0
24	Security, Safety, Administrative Procedures, & Public Interactions	10 14 0
100*	Total	49 51 0

This exam includes 8 calculation questions

*Your exam may contain up to 10 extra unscored pre-test questions (see *Before You Dive In* for more details).

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WPI/ABC Need To Know Criteria

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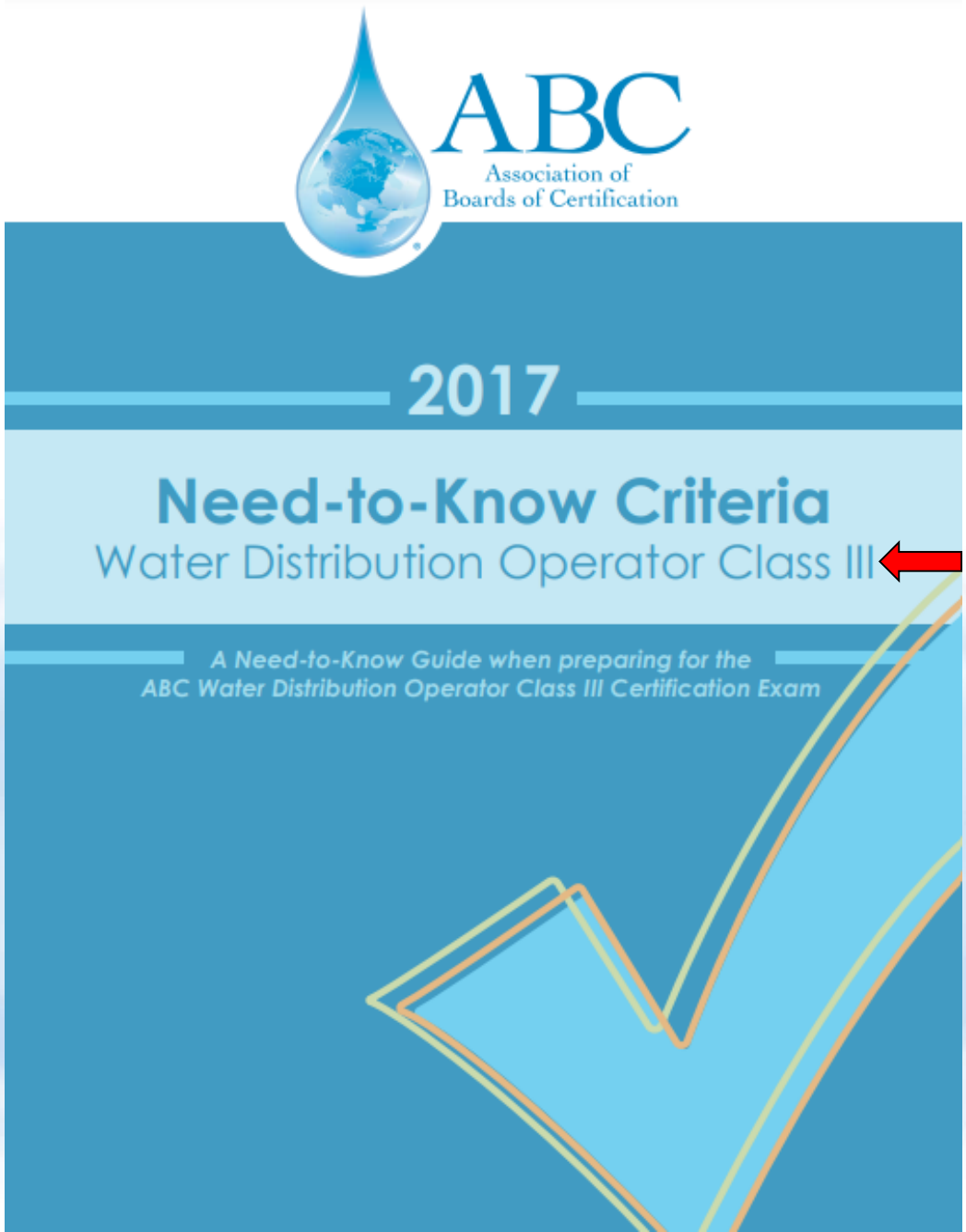
- Class 1 Water Supply
- Class 2 Water Supply
- Class 3 Water Supply

Operator Training Update



Recall – tasks at this level typically require the simple recall or recognition of specific facts, concepts, processes, or procedures, with little to no problem-solving involved. You may be asked to identify, illustrate, recall, and/or recognize specific information.

Application – tasks at this level will involve some basic problem solving, calculations, or the interpretation and application of data. You may be asked to calculate, categorize, classify, compare, differentiate, explain, specify, translate, and/or apply knowledge.

Analysis – tasks at this level may involve higher level problem solving, evaluation, or the fitting together of a variety of elements into a meaningful whole; they will usually require many steps in the thought process. You may be asked to analyze, evaluate, formulate, generalize, judge, predict, and/or use inductive or deductive reasoning to arrive at a solution.

Number of Questions	Content Area	Job Task Complexity Levels
30	Treatment Process	5 18 7
13	Laboratory Analysis	3 7 3
23	Equipment Operation & Maintenance	5 13 5
10	Source Water Characteristics	2 6 2
24	Security, Safety, Compliance, & Administrative Procedures	7 12 5
100*	Total	22 56 22

This exam includes 12 calculation questions

*Your exam may contain up to 10 extra unscored pre-test questions (see *Before You Dive In* for more details).

Operator Training Update

ABC Association of Boards of Certification

WPI/ABC Need To Know Criteria

Please note that the title on WPI's Need to Know Criteria may be a different exam level than the Ohio EPA certification you are seeking. When you are applying through WPI's provider, once you select Ohio EPA certification, you will select the Ohio EPA certificate level you are seeking and the appropriate WPI test is selected.

- Class 1 Water Distribution
- Class 2 Water Distribution
- Class A Water Supply (see Drinking Water Class A)
- Class 1 Water Supply
- Class 2 Water Supply
- Class 3 Water Supply

Operator Training Update

Operator Training Update

Water Treatment Operator Class I *Need-to-Know Criteria*

Exam Content

The Water Treatment Operator Class I exam will test you on essential job tasks. These job tasks have been categorized into the Content Areas detailed in the following pages. The table below summarizes the areas that are included on the exam, the number of test questions in each of these areas, and the complexity of the test questions in each area.

Just as water treatment operator job duties vary in their complexity, so will the questions you are asked on the exam. Some will be more simple and routine, whereas others will be more complex, or cognitively demanding. The following three levels are used to describe the complexity of the questions you will encounter on this exam:

Recall – tasks at this level typically require the simple recall or recognition of specific facts, concepts, processes, or procedures, with little to no problem-solving involved. You may be asked to identify, illustrate, recall, and/or recognize specific information.

Application – tasks at this level will involve some basic problem solving, calculations, or the interpretation and application of data. You may be asked to calculate, categorize, classify, compare, differentiate, explain, specify, translate, and/or apply knowledge.

Analysis – tasks at this level may involve higher level problem solving, evaluation, or the fitting together of a variety of elements into a meaningful whole; they will usually require many steps in the thought process. You may be asked to analyze, evaluate, formulate, generalize, judge, predict, and/or use inductive or deductive reasoning to arrive at a solution.

Exam Content Outline

Number of Questions	Content Area	Job Task Complexity Levels
30	Treatment Process	12 18 0
13	Laboratory Analysis	5 8 0
27	Equipment Operation & Maintenance	11 16 0
10	Source Water Characteristics	4 6 0
20	Security, Safety, Compliance, & Administrative Procedures	9 11 0
100*	Total	41 59 0

This exam includes 8 calculation questions

*Your exam may contain up to 10 extra unscored pre-test questions (see *Before You Dive In* for more details).

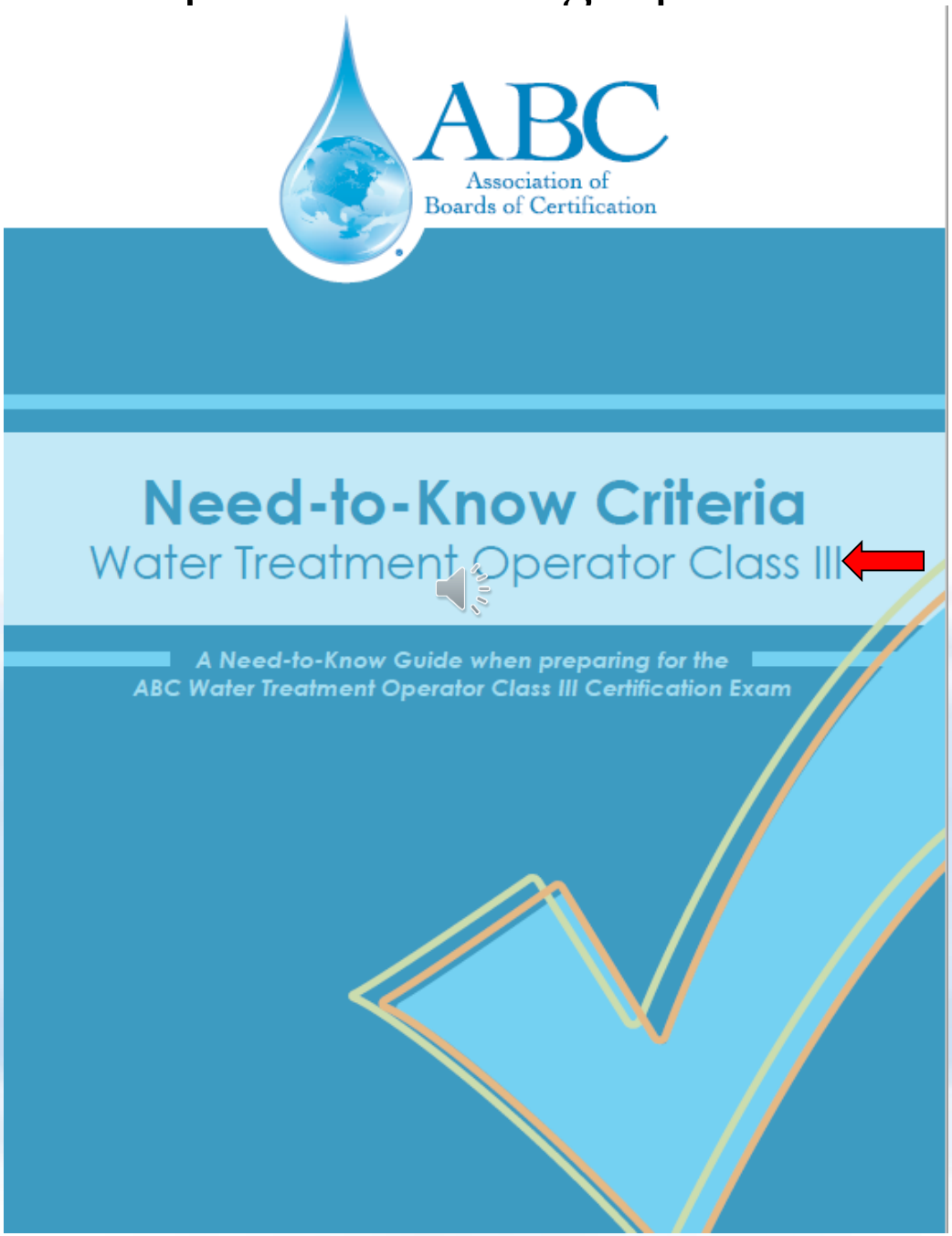
Operator Training Update

WPI/ABC Need To Know Criteria

Please note that the title on WPI's Need to Know Criteria may be a different exam level than the Ohio EPA certification you are seeking. When you are applying through WPI's provider, once you select Ohio EPA certification, you will select the Ohio EPA certificate level you are seeking and the appropriate WPI test is selected.

- Class 1 Water Distribution
- Class 2 Water Distribution
- Class A Water Supply (see Drinking Water Class A)
- Class 1 Water Supply
- Class 2 Water Supply
- Class 3 Water Supply

Operator Training Update



Operator Training Update

Water Treatment Operator Class III *Need-to-Know Criteria*

Exam Content

The Water Treatment Operator Class III exam will test you on essential job tasks. These job tasks have been categorized into the Content Areas detailed in the following pages. The table below summarizes the areas that are included on the exam, the number of test questions in each of these areas, and the complexity of the test questions in each area.

Just as water treatment operator job duties vary in their complexity, so will the questions you are asked on the exam. Some will be more simple and routine, whereas others will be more complex, or cognitively demanding. The following three levels are used to describe the complexity of the questions you will encounter on this exam:

Recall – tasks at this level typically require the simple recall or recognition of specific facts, concepts, processes, or procedures, with little to no problem-solving involved. You may be asked to identify, illustrate, recall, and/or recognize specific information.

Application – tasks at this level will involve some basic problem solving, calculations, or the interpretation and application of data. You may be asked to calculate, categorize, classify, compare, differentiate, explain, specify, translate, and/or apply knowledge.

Analysis – tasks at this level may involve higher level problem solving, evaluation, or the fitting together of a variety of elements into a meaningful whole; they will usually require many steps in the thought process. You may be asked to analyze, evaluate, formulate, generalize, judge, predict, and/or use inductive or deductive reasoning to arrive at a solution.

Exam Content Outline

Number of Questions	Content Area	Job Task Complexity Levels
30	Treatment Process	5 18 7
13	Laboratory Analysis	3 7 3
23	Equipment Operation & Maintenance	5 13 5
10	Source Water Characteristics	2 6 2
24	Security, Safety, Compliance, & Administrative Procedures	7 12 5
100*	Total	22 56 22

This exam includes 12 calculation questions

*Your exam may contain up to 10 extra unscored pre-test questions (see *Before You Dive In* for more details).

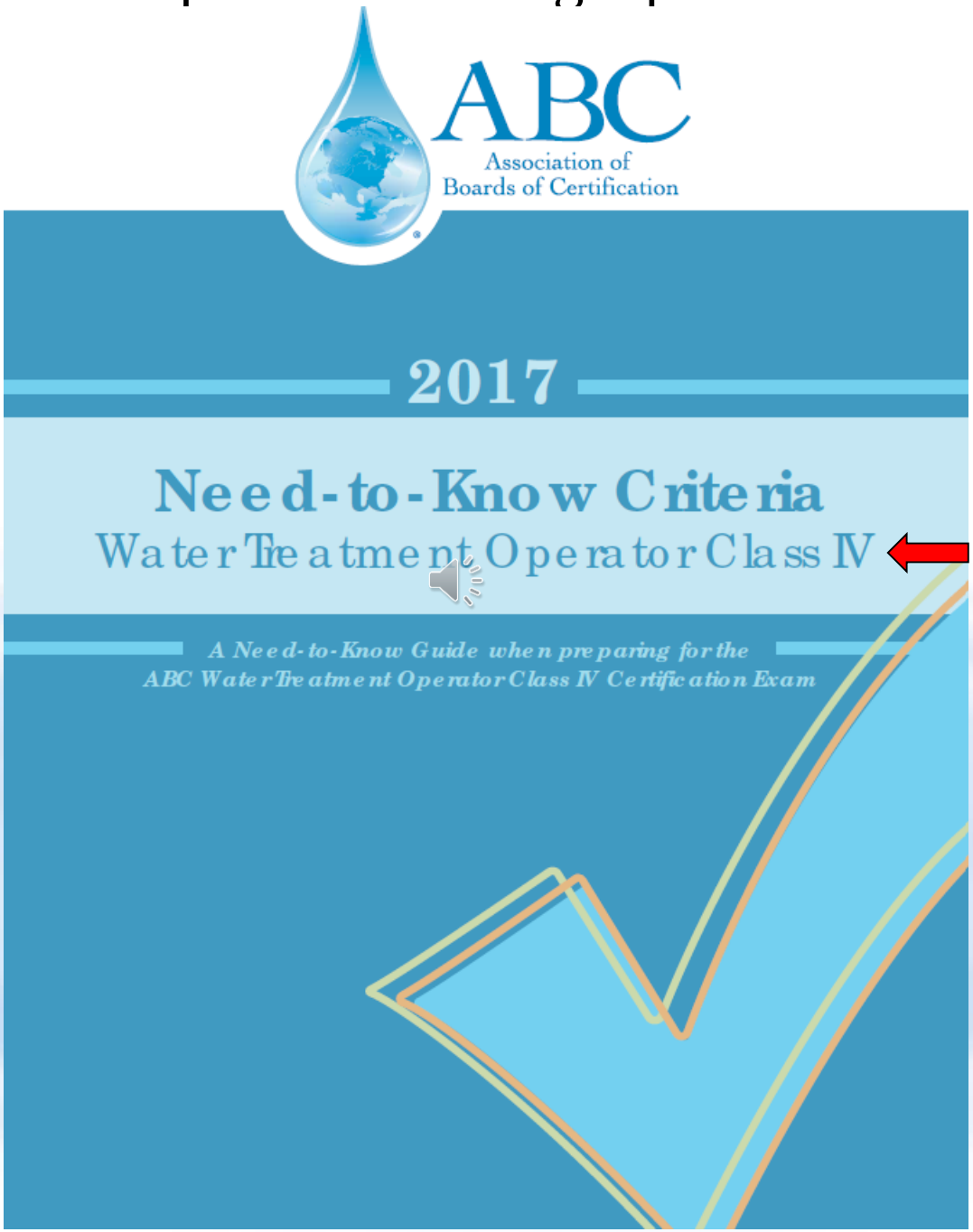
Operator Training Update

WPI/ABC Need To Know Criteria

Please note that the title on WPI's Need to Know Criteria may be a different exam level than the Ohio EPA certification you are seeking. When you are applying through WPI's provider, once you select Ohio EPA certification, you will select the Ohio EPA certificate level you are seeking and the appropriate WPI test is selected.

- Class 1 Water Distribution
- Class 2 Water Distribution
- Class A Water Supply (see Drinking Water Class A)
- Class 1 Water Supply
- Class 2 Water Supply
- Class 3 Water Supply

Operator Training Update



Operator Training Update

Water Treatment Operator Class IV *Need-to-Know Criteria*

Exam Content

The Water Treatment Operator Class IV exam will test you on essential job tasks. These job tasks have been categorized into the Content Areas detailed in the following pages. The table below summarizes the areas that are included on the exam, the number of test questions in each of these areas, and the complexity of the test questions in each area.

Just as water treatment operator job duties vary in their complexity, so will the questions you are asked on the exam. Some will be more simple and routine, whereas others will be more complex, or cognitively demanding. The following three levels are used to describe the complexity of the questions you will encounter on this exam:

Recall – tasks at this level typically require the simple recall or recognition of specific facts, concepts, processes, or procedures, with little to no problem-solving involved. You may be asked to identify, illustrate, recall, and/or recognize specific information.

Application – tasks at this level will involve some basic problem solving, calculations, or the interpretation and application of data. You may be asked to calculate, categorize, classify, compare, differentiate, explain, specify, translate, and/or apply knowledge.

Analysis – tasks at this level may involve higher level problem solving, evaluation, or the fitting together of a variety of elements into a meaningful whole; they will usually require many steps in the thought process. You may be asked to analyze, evaluate, formulate, generalize, judge, predict, and/or use inductive or deductive reasoning to arrive at a solution.

Exam Content Outline

Number of Questions	Content Area	Job Task Complexity Levels
33	Treatment Process	5 19 9
13	Laboratory Analysis	3 7 3
21	Equipment Operation & Maintenance	4 11 6
9	Source Water Characteristics	2 5 2
24	Security, Safety, Compliance, & Administrative Procedures	6 9 9
100*	Total	20 51 29

This exam includes 15 calculation questions

*Your exam may contain up to 10 extra unscored pre-test questions (see *Before You Dive In* for more details).

Operator Training Update

Formula/Conversion Table

Water Treatment, Distribution, & Water Laboratory Exams

Alkalinity, mg/L as $CaCO_3$ = $\dfrac{(\text{Titrant Volume, mL})(\text{Acid Normality})(50{,}000)}{\text{Sample Volume, mL}}$

Amps = $\dfrac{\text{Volts}}{\text{Ohms}}$

Area of Circle* = $(0.785)(\text{Diameter}^2)$

Area of Circle = $(3.14)(\text{Radius}^2)$

Area of Cone (lateral area) = $(3.14)(\text{Radius})\sqrt{\text{Radius}^2 + \text{Height}^2}$

Area of Cone (total surface area) = $(3.14)(\text{Radius})(\text{Radius} + \sqrt{\text{Radius}^2 + \text{Height}^2})$

Area of Cylinder (total exterior surface area) = [End #1 SA] + [End #2 SA] + [(3.14)(Diameter)(Height or Depth)]

Where SA = surface area

Area of Rectangle* = (Length)(Width)

Ohio EPA Formula/Conversion Table for Water Supply and Distribution Exams

Alkalinity, as mg $CaCO_3/L$ = $\dfrac{(\text{Titrant Volume, mL})(\text{Acid Normality})(50{,}000)}{\text{Sample Volume, mL}}$

Amps = $\dfrac{\text{Volts}}{\text{Ohms}}$

*Area of Circle = $(.785)(\text{Diameter}^2)$

= $(\pi)(\text{Radius}^2)$

Area of Cone (lateral area) = $(\pi)(\text{Radius})\sqrt{\text{Radius}^2 + \text{Height}^2}$

Area of Cone (total surface area) = $(\pi)(\text{Radius})(\text{Radius} + \sqrt{\text{Radius}^2 + \text{Height}^2})$

Area of Cylinder (total exterior surface area) = [Surface Area of End #1] + [Surface Area of End #2] + [(π) (Diameter) (Height or Depth)]

*Area of Rectangle = (Length) (Width)

Formula/Conversion Table

Water Treatment, Distribution, & Water Laboratory Exams

Alkalinity, mg/L as $CaCO_3$ = $\dfrac{(\text{Titrant Volume, mL})(\text{Acid Normality})(50{,}000)}{\text{Sample Volume, mL}}$

Amps = $\dfrac{\text{Volts}}{\text{Ohms}}$

Area of Circle* = $(0.785)(\text{Diameter}^2)$

Area of Circle = $(3.14)(\text{Radius}^2)$

Area of Cone (lateral area) = $(3.14)(\text{Radius})\sqrt{\text{Radius}^2 + \text{Height}^2}$

Area of Cone (total surface area) = $(3.14)(\text{Radius})(\text{Radius} + \sqrt{\text{Radius}^2 + \text{Height}^2})$

Area of Cylinder (total exterior surface area) = [End #1 SA] + [End #2 SA] + [(3.14)(Diameter)(Height or Depth)]

Where SA = surface area

Area of Rectangle* = (Length)(Width)

ABC Association of Boards of Certification

Ohio EPA Formula/Conversion Table for Water Supply and Distribution Exam

OhioEPA

Alkalinity, as mg/L $CaCO_3$ = $\dfrac{(\text{Titrant Volume, mL})(\text{Acid Normality})(50{,}000)}{\text{Sample Volume, mL}}$

Amps = $\dfrac{\text{Volts}}{\text{Ohms}}$

*Area of Circle = $(.785)(\text{Diameter}^2)$

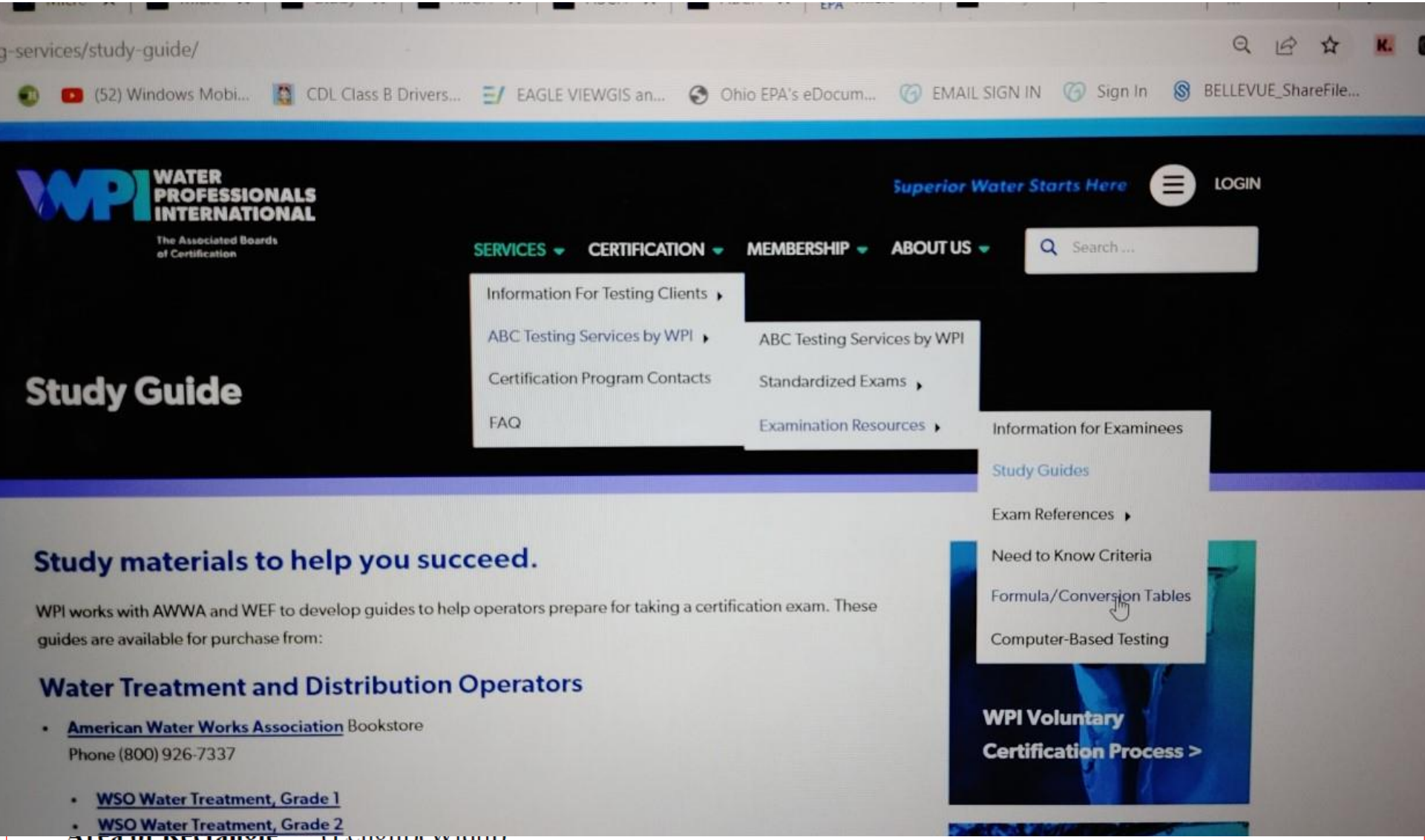
= $(\pi)(\text{Radius}^2)$

Area of Cone (lateral area) = $(\pi)(\text{Radius})\sqrt{\text{Radius}^2 + \text{Height}^2}$

Area of Cone (total surface area) = $(\pi)(\text{Radius})(\text{Radius} + \sqrt{\text{Radius}^2 + \text{Height}^2})$

Area of Cylinder (total exterior surface area) = [Surface Area of End #1] + [Surface Area of End #2] + [(π) (Diameter) (Height or Depth)]

*Area of Rectangle = (Length) (Width)



Area of Rectangle = (Length)(Width)

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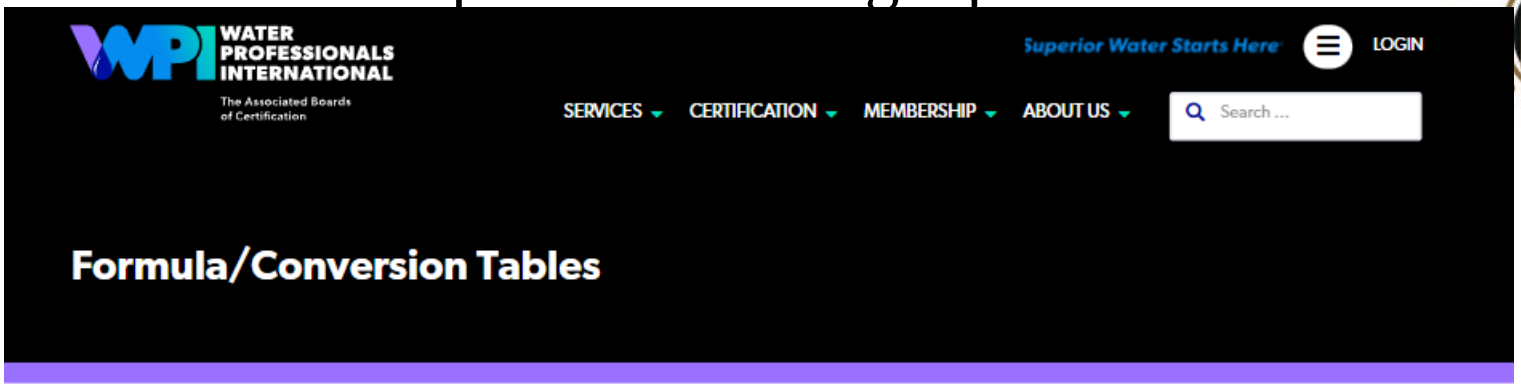


Study materials to help you succeed

ABC standardized exams include an ABC Formula/Conversion Table to assist examinees. These tables contain mathematical formulas and define common abbreviations that may be present on an ABC certification exam.

Please contact the certifying authority for your state, province, or geopolitical region to determine which exam preparation materials are appropriate for your jurisdiction and exam date.

The following ABC Formula/Conversion Tables are available in PDF format by selecting the links below. *Formula/Conversion Tables* may be reproduced with written permission from testing@gowpi.org

Water Treatment, Distribution, Water Laboratory Analyst:

- 2017 Edition Serving the United States & Canada
- 2013 Edition Serving the United States
- 2009 Edition Serving Canada

Wastewater Treatment, Collection, Industrial Waste, Wastewater Laboratory Analyst:

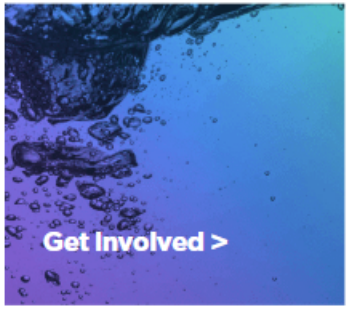
- 2017 Edition Serving the United States & Canada
- 2013 Edition Serving the United States
- 2009 Edition Serving Canada

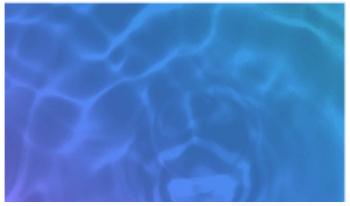
Plant Maintenance

- United States

Biosolids Land Application

- United States

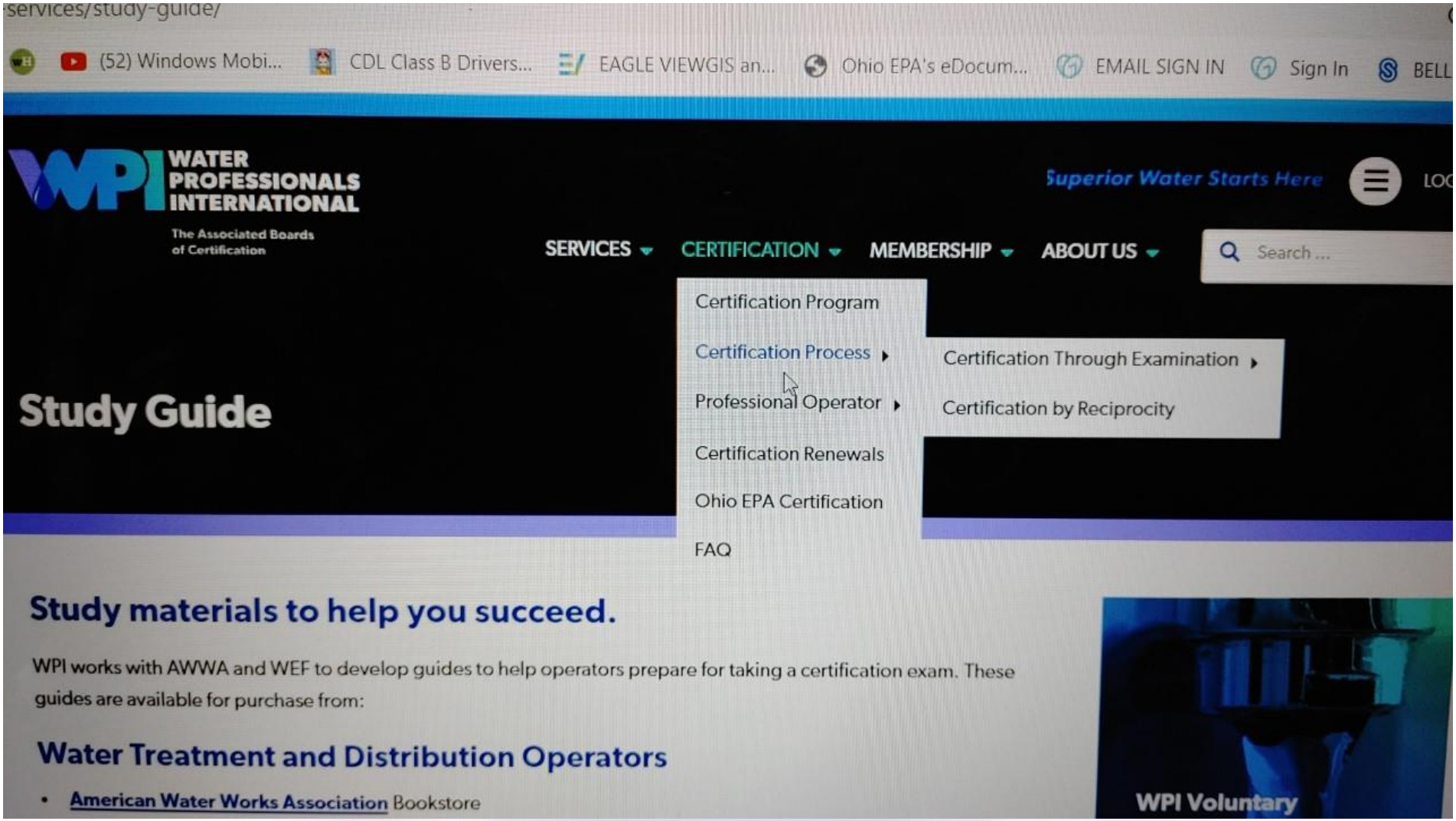




credibility and public reputation of the organizations you represent. In certain municipalities and union contracts operators may receive additional compensation for acquiring and maintaining multiple certificates. Obtaining a professional operator (PO) designation and WPI certification may qualify an individual for additional compensation. Please check with your supervisor and/or union representative to see if you are eligible for additional compensation

Operator Training Update

Operator Training Update



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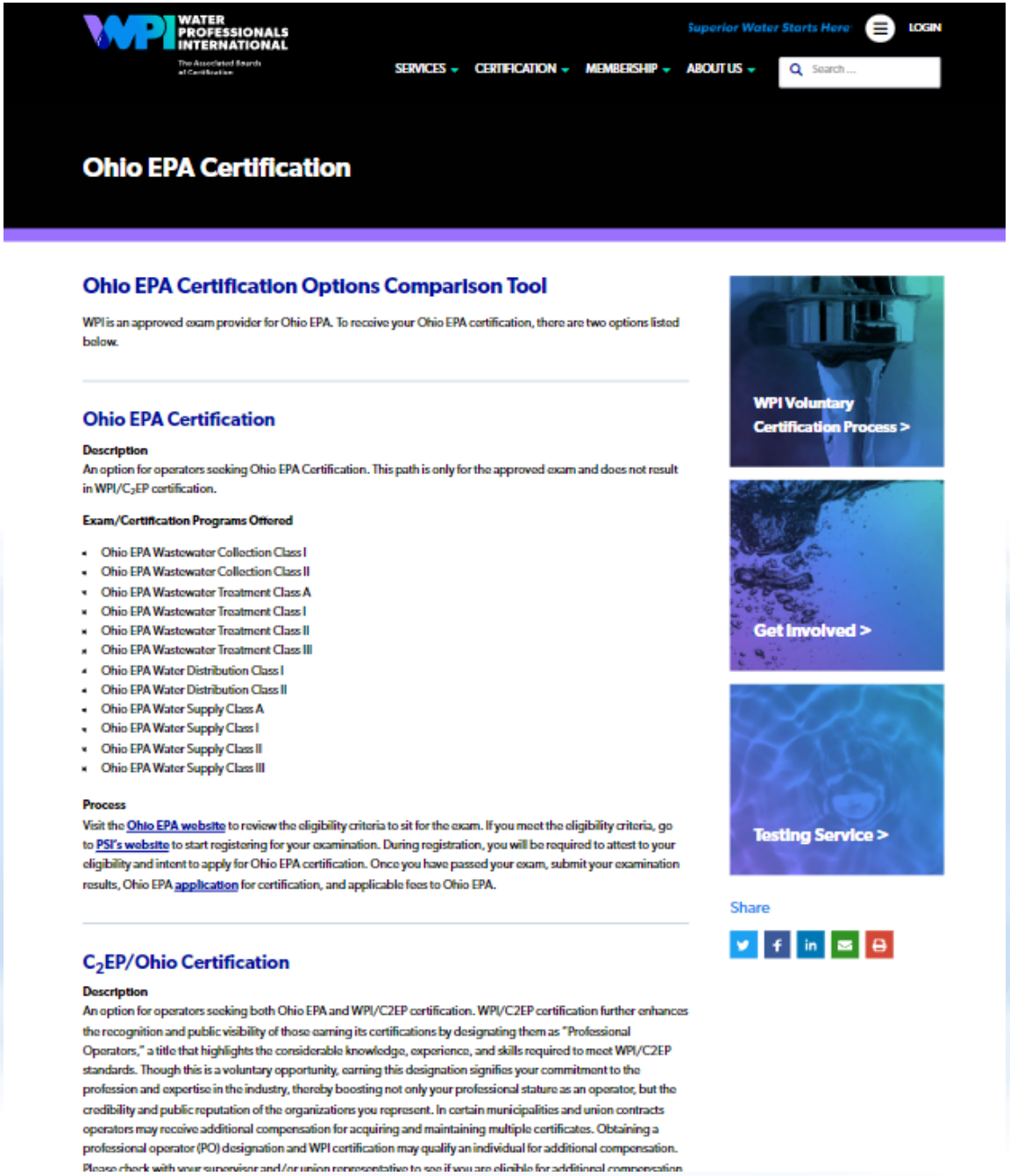

WATER PROFESSIONALS INTERNATIONAL
The Associated Boards of Certification

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Ohio EPA Certification

Ohio EPA Certification Options Comparison Tool

WPI is an approved exam provider for Ohio EPA. To receive your Ohio EPA certification, there are two options listed below.

Ohio EPA Certification

Description

An option for operators seeking Ohio EPA Certification. This path is only for the approved exam and does not result in WPI/C_2EP certification.

Exam/Certification Programs Offered

- Ohio EPA Wastewater Collection Class I
- Ohio EPA Wastewater Collection Class II
- Ohio EPA Wastewater Treatment Class A
- Ohio EPA Wastewater Treatment Class I
- Ohio EPA Wastewater Treatment Class II
- Ohio EPA Wastewater Treatment Class III
- Ohio EPA Water Distribution Class I
- Ohio EPA Water Distribution Class II
- Ohio EPA Water Supply Class A
- Ohio EPA Water Supply Class I
- Ohio EPA Water Supply Class II
- Ohio EPA Water Supply Class III

Process

Visit the Ohio EPA website to review the eligibility criteria to sit for the exam. If you meet the eligibility criteria, go to PSI's website to start registering for your examination. During registration, you will be required to attest to your eligibility and intent to apply for Ohio EPA certification. Once you have passed your exam, submit your examination results, Ohio EPA application for certification, and applicable fees to Ohio EPA.

C_2EP/Ohio Certification

Description

An option for operators seeking both Ohio EPA and WPI/C2EP certification. WPI/C2EP certification further enhances the recognition and public visibility of those earning its certifications by designating them as "Professional Operators," a title that highlights the considerable knowledge, experience, and skills required to meet WPI/C2EP standards. Though this is a voluntary opportunity, earning this designation signifies your commitment to the profession and expertise in the industry, thereby boosting not only your professional stature as an operator, but the credibility and public reputation of the organizations you represent. In certain municipalities and union contracts operators may receive additional compensation for acquiring and maintaining multiple certificates. Obtaining a professional operator (PO) designation and WPI certification may qualify an individual for additional compensation. Please check with your supervisor and/or union representative to see if you are eligible for additional compensation

WPI Voluntary Certification Process >

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C_2EP/Ohio Certification

Description

An option for operators seeking both Ohio EPA and WPI/C2EP certification. WPI/C2EP certification further enhances the recognition and public visibility of those earning its certifications by designating them as "Professional Operators," a title that highlights the considerable knowledge, experience, and skills required to meet WPI/C2EP standards. Though this is a voluntary opportunity, earning this designation signifies your commitment to the profession and expertise in the industry, thereby boosting not only your professional stature as an operator, but the credibility and public reputation of the organizations you represent. In certain municipalities and union contracts operators may receive additional compensation for acquiring and maintaining multiple certificates. Obtaining a professional operator (PO) designation and WPI certification may qualify an individual for additional compensation. Please check with your supervisor and/or union representative to see if you are eligible for additional compensation.

Exam/Certification Programs Offered

- C_2EP Collection Class I
- C_2EP Collection Class II (Ohio EPA Wastewater Collection Class I)
- C_2EP Collection Class III
- C_2EP Collection Class IV (Ohio EPA Wastewater Collection Class II)
- C_2EP Distribution Class I (Ohio EPA Water Distribution Class I)
- C_2EP Distribution Class II
- C_2EP Distribution Class III (Ohio EPA Water Distribution Class II)
- C_2EP Distribution Class IV
- C_2EP Wastewater Treatment Class I
- C_2EP Wastewater Treatment Class II (Ohio EPA Wastewater Treatment Class I)
- C_2EP Wastewater Treatment Class III (Ohio EPA Wastewater Treatment Class II)
- C_2EP Wastewater Treatment Class IV (Ohio EPA Wastewater Treatment Class III)
- C_2EP Water Treatment Class I (Ohio EPA Water Supply Class I)
- C_2EP Water Treatment Class II
- C_2EP Water Treatment Class III (Ohio EPA Water Supply Class II)
- C_2EP Water Treatment Class IV (Ohio EPA Water Supply Class III)

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