



Compliance Workshop **October 13, 2022**

Tools To Prepare Operators For Compliance
OTCO-B529367-OM (0.75 hours)

Curtis L. Truss Jr, OTCO Executive Director

Operator Training Update



Curtis L. Truss Jr.

- Executive Director (1998-Current)
- Assistant Director (1990-1998)
- Trustee (1988-1990)
- Instructor (1984-Current)
- City of Springfield Ohio Water & Wastewater (1973-1988)
- Central State University Water/Wastewater (1988-1990)
- OEPA Class III Water Certification (1984)
- OEPA Class III Wastewater Certification (1987)
- ORWA Circuit Rider (1994)
- AWWA Fuller Awardee (1998)
- AWWA Honorary Member (2008)
- AWWA Melick Awardee (2009)
- WEF 5-S Awardee (2005)
- Adjunct Instructor EGCC (2012)



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Operator Training Update



2021

- Need-To-Know
- Formula Sheets
- Blueprint



Operator Training Update



BACK IN 1939

AVERAGE COST

A first class stamp	\$0.03
A gallon of gas	\$0.10
A loaf of bread	\$0.08
A movie ticket	\$0.23
A new house	\$3,800.00

U.S. PRESIDENT

Franklin Roosevelt



U.S.
POPULATION
130.9 MILLION

TECHNOLOGY

The world's first practical helicopter, the VS-300, designed by Igor Sikorsky takes a tethered flight in Stratford, Connecticut.

AVERAGE WAGES
PER YEAR
\$1,730

'30s SLANG

Giggle Juice - Alcohol
Blow Your Wig - Excited
Grifter - Con man
Clam Bake - Fun time
Slip me a five - Shake hands

IN Style...

WOMEN

Soft & feminine looks
Puffed or butterfly sleeves
Flowing full skirts
Bobs and finger waves
Pumps • Peep toe shoes

MEN

Wide pointed lapels
High waisted pants
V-neck sweaters
Fedora hats • Newsboy caps
Oxfords • Wingtip shoes

IN THE NEWS...

Major League Baseball's Lou Gehrig ends his 2,130 consecutive games-played streak, after being diagnosed with ALS.

Drought conditions in the North Eastern U.S. causes mass crop failure and hardship.

John Steinbeck's novel *The Grapes of Wrath* is first published in the U.S.

Frank Sinatra makes his recording debut.

The big-screen adaptation of "*Gone with the Wind*" premieres Atlanta, Georgia.

Girl Scouts "*Thin Mints*" were first introduced in 1939 as "*Cooky-Mints*".

Hewlett Packard was founded in a one-car garage in Palo Alto by Bill Hewlett and David Packard.

IN THEATERS...

The Hunchback of Notre Dame
Gone with the Wind
The Wizard of Oz
Stagecoach
Of Mice and Men

Television...

NBC/RCA has its first public TV demo with FDR at opening of NY World's Fair

ON THE RADIO...

Over the Rainbow - Judy Garland
Moonlight Serenade - Glenn Miller
God Bless America - Kate Smith
Strange Fruit - Billie Holiday
Body & Soul - Coleman Hawkins

Operator Training Update



First written exams were given on November 3, 1939

136 Water Works Applicants

136 Sewage Works Applicants

Five locations throughout Ohio

Class “D” certificates were given orally.
Written Examinations – 1 hour to take.

Operator Training Update



Ohio Department of Health

First written exams were given on November 3, 1939

136 Water Works Applicants

136 Sewage Works Applicants

Five locations throughout Ohio

Class “D” certificates were given orally.
Written Examinations – 1 hour to take.

Operator Training Update



BACK IN 1964

AVERAGE COST

A first class stamp	\$0.05
A gallon of gas	\$0.30
A dozen eggs	\$0.54
A movie ticket	\$0.93
A new house	\$13,050.00

AVERAGE INCOME
PER YEAR
\$6,000

'60s SLANG

Gimme some skin -
Shaka hands
Lay it on me - Tell me
Outta sight - Awesome
Let's jax - Leaving a place
Hang loose - Relax
Going steady - Dating

IN Style...

WOMEN

Mini skirts
Mini dresses
Go-go boots
Textured stockings
Hair bows
Pale lipstick

MEN

Striped sweaters
Light-colored suits
Tighter-fitting pants
Uncuffed trousers

U.S. PRESIDENT *Lyndon Johnson*



World
POPULATION
3.273 BILLION

TECHNOLOGY

The first Ford Mustang from Ford Motor Company is made.

The first driverless train runs on London Underground.

The first high speed rail network opens in Japan.

Sony introduces the first VCR home video recorder.

IN THE NEWS...

The Civil Rights Act of 1964 is signed into law by President Johnson, making it illegal to discriminate against someone based on their race, religion, sex, national origin, or the colors of their skin.

Dr. Martin Luther King, Jr., is awarded the Nobel Peace Prize for his nonviolent resistance to racial prejudice in America.

The Beatles have 13 singles on Billboard's Hot 100 at the same time.

Hasbro launches G.I. Joe, an action figure for boys.

Charlie and the Chocolate Factory by Roald Dahl is published.

IN THEATERS...

From Russia with Love

The Carpetbaggers

My Fair Lady

Mary Poppins

Goldfinger



ON Television...

Bonanza
Bewitched
Gomer Pyle, U.S.M.C.
The Andy Griffith Show
The Fugitive

ON THE RADIO...

I Want to Hold Your Hand - The Beatles
She Loves You - The Beatles
Hello, Dolly! - Louis Armstrong
Oh, Pretty Woman - Roy Orbison
I Get Around - The Beach Boys

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1964 Ohio EPA Advisory Board Held Exams (Formed In 1962)



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Superior Water Starts Here™



LOGIN

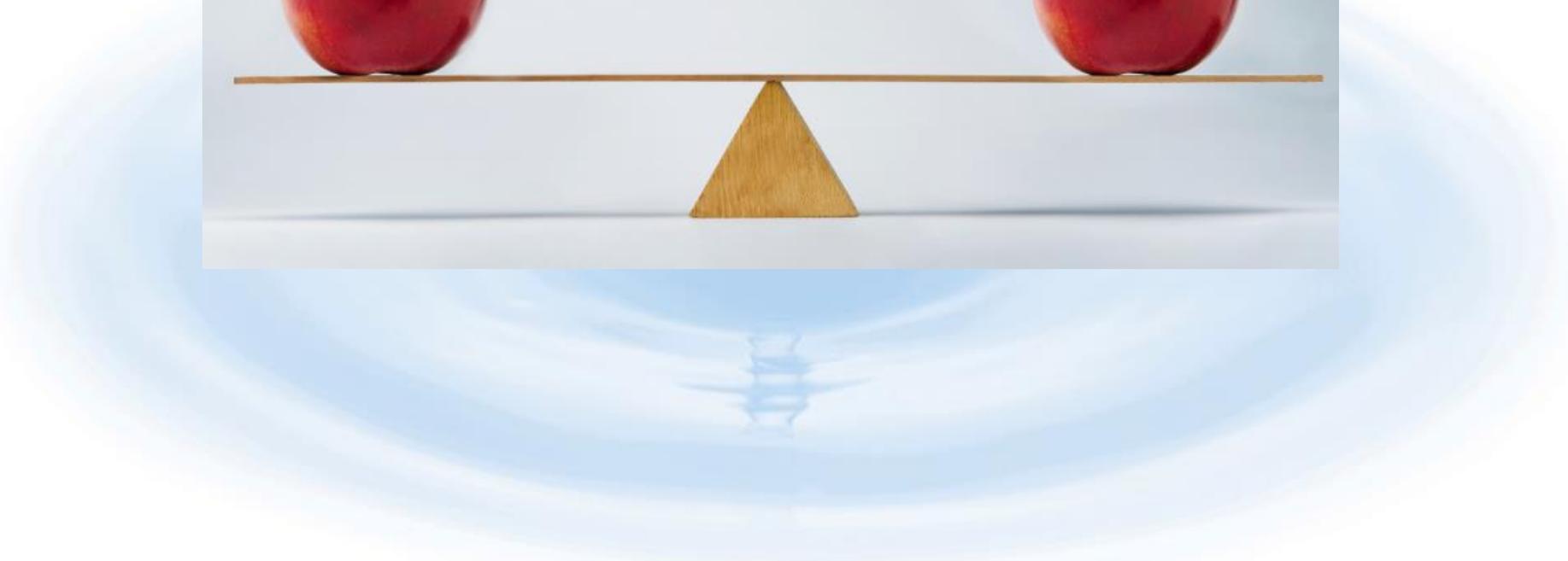
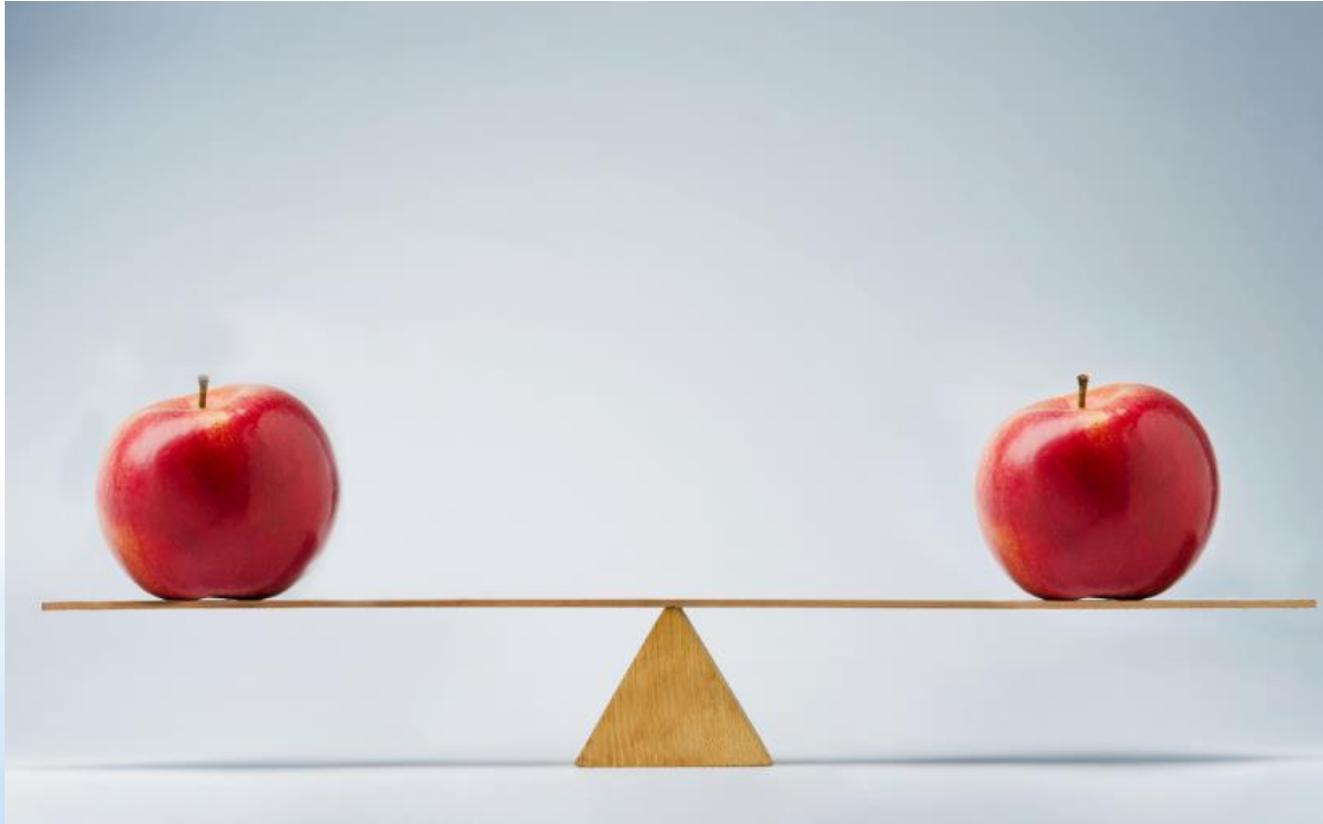
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About Water Professionals International



As an alternative to Ohio EPA's paper and pencil examination, Ohio EPA has approved the Association of Boards of Certification (ABC) as an approved examination provider. Operators may now choose to take ABC examinations and then seek Ohio certification for all levels of certification except Class IV.

Operator Training Update





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	
Wastewater Collection					
Wastewater Collection	1	=	Wastewater Collection	2	
Wastewater Collection	2	=	Wastewater Collection	4	
Wastewater Treatment					
Wastewater Treatment	A	=	Small Wastewater Treatment	A	
Wastewater Treatment	1	=	Wastewater Treatment	2	
Wastewater Treatment	2	=	Wastewater Treatment	3	
Wastewater Treatment	3	=	Wastewater Treatment	4	

*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).

Operator Training Update



Approved Exam Provider



Office of Fiscal Administration
P.O. Box 1049
Columbus, Ohio 43216-1049
P: (614) 644-2752 F: (614) 644-2909



Water Supply Need-to-Know Criteria

*A Need-to-Know Guide when preparing for the
Ohio EPA Water Supply Certification Examination.*

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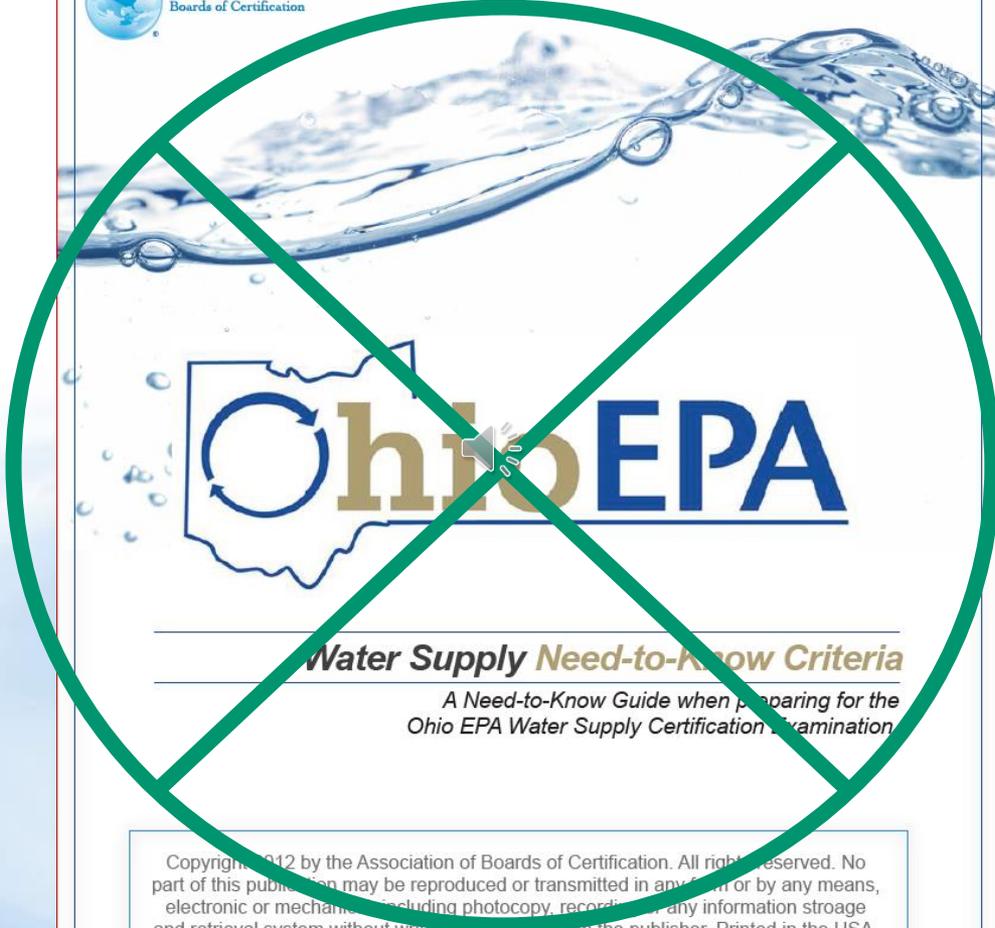
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Water Supply Need-to-Know Criteria

A Need-to-Know Guide when preparing for the Ohio EPA Water Supply Certification Examination

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Formula/Conversion Table

Water Treatment, Distribution, & Water Laboratory Exams



$$\text{Alkalinity, mg/L as CaCO}_3 = \frac{(\text{Titration Volume, mL})(\text{Acid Normality})(50,000)}{\text{Sample Volume, mL}}$$

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

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

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

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

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

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

Where SA = surface area

$$\text{Area of Rectangle}^* = (\text{Length})(\text{Width})$$



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



$$\text{Alkalinity, as mg CaCO}_3/\text{L} = \frac{(\text{Titration Volume, mL})(\text{Acid Normality})(50,000)}{\text{Sample Volume, mL}}$$

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

$$\begin{aligned} \text{*Area of Circle} &= (.785) (\text{Diameter}^2) \\ &= (\pi) (\text{Radius}^2) \end{aligned}$$

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

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

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Formula/Conversion Table

Water Treatment, Distribution, & Water Laboratory Exams



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- Information For Testing Clients ▾
- ABC Testing Services by WPI ▾
- Certification Program Contacts
- FAQ

- ABC Testing Services by WPI
- Standardized Exams ▾
- Examination Resources ▾

- Information for Examinees
- Study Guides
- Exam References ▾
- Need to Know Criteria
- Formula/Conversion Tables
- Computer-Based Testing

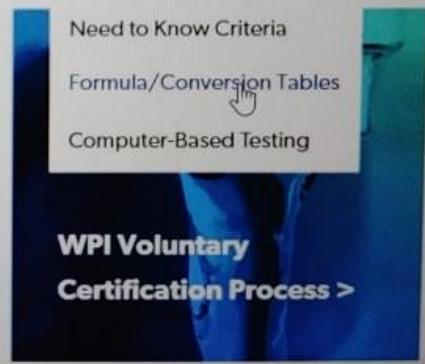
Study Guide

Study materials to help you succeed.

WPI works with AWWA and WEF to develop guides to help operators prepare for taking a certification exam. These guides are available for purchase from:

Water Treatment and Distribution Operators

- [American Water Works Association](#) Bookstore
Phone (800) 926-7337
- [WSO Water Treatment, Grade 1](#)
- [WSO Water Treatment, Grade 2](#)



Area of Rectangle = (Length)(width)

Operator Training Update



Formula/Conversion Tables

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](#)

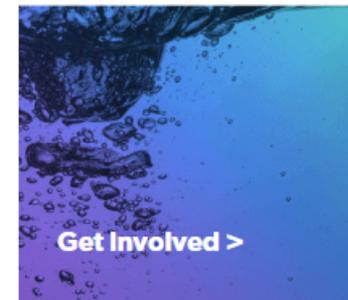
Plant Maintenance

- [United States](#)

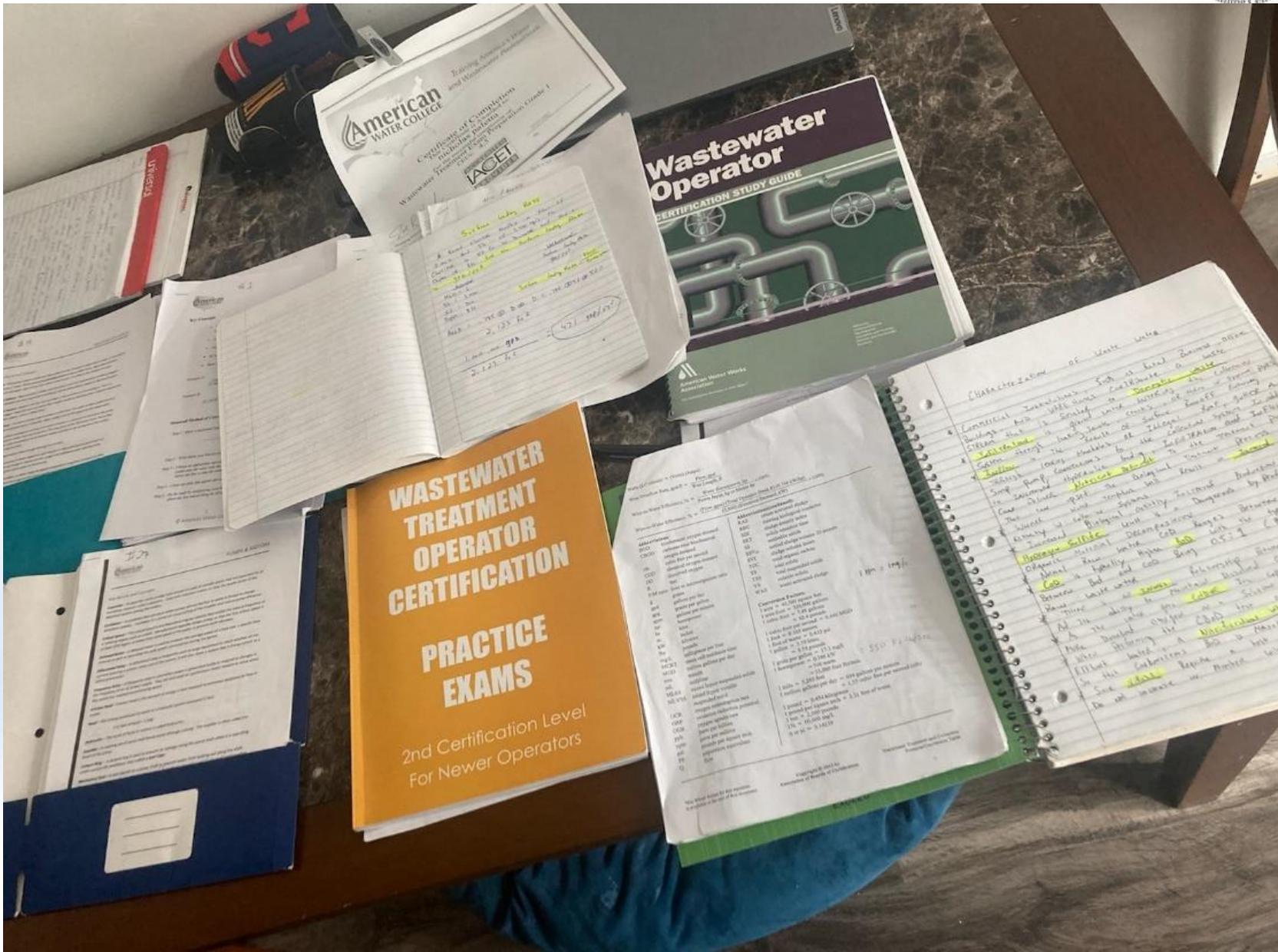
Biosolids Land Application

- [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

