



Addressing Potable Reuse Certification Needs –The AWOT Certification Program

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**AWT OPERATOR
CERTIFICATION**



American Water Works Association

California-Nevada Section



CWEA

AWT Is Increasingly a Part of Water Treatment, Particularly Potable Reuse

California SWRCB DPR Expert Panel

- Expert panel calls out the need for a new operator certification that bridges the boundary between water and wastewater operators



Current Water and Wastewater Certification Does Not Include “Advanced Treatment”

- More complex treatment train
- Unique O&M
- Potable reuse = Enhanced risk

The image shows a form titled "EXAMINATION APPLICATION FOR WASTEWATER TREATMENT PLANT OPERATOR" from the "State Water Resources Control Board". The form includes a header with the "CALIFORNIA Water Boards" logo and the "State Water Resources Control Board" name. A large diagonal watermark reads "FOR EXAMINATION ONLY".

USE THIS FORM ONLY FOR EXAMINATION APPLICATIONS

I. APPLICANT INFORMATION:

Name: Last _____ First: _____
Mailing Address: _____
County: _____ Apt. # _____ City: _____
☐ Check box if your address has changed. State: _____ Zip: _____
Telephone: Cell: (____) _____
Telephone: Home: (____) _____
Last four digits of your Social Security Number: _____
Email Address: _____
☐ Check box to receive public notices from the Wastewater Operator Certification Program.
Are you presently a certified Wastewater Treatment Plant Operator in California?
If YES, Grade _____ Certificate Number _____ ☐ YES ☐ NO
Employer Name: _____
Employer Address: _____
Employer Telephone: (____) _____ City: _____ Zip: _____

II. EXAMINATION GRADE AND FEES:

(Check appropriate box)

GRADE I	GRADE II	GRADE III	GRADE IV	GRADE V
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
\$100	\$183	\$353	\$440	\$440

(With the exception of certain examination fees, fees are non-refundable. Please see instructions for more information.)

OFFICE USE ONLY:

Examination Date: _____
Total instructional points: _____
Signature of Sponsoring: _____
Approved/Denied for grade: _____
Reason for Denial: _____
Date: _____

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A New AWT Certification Program Is Needed

- AWT is integral to potable reuse
 - Operator training and certification identified as a concern for DPR
- AWT is increasingly a part of WTPs



There Is Also a Regulatory Issue with T operators at RW plants

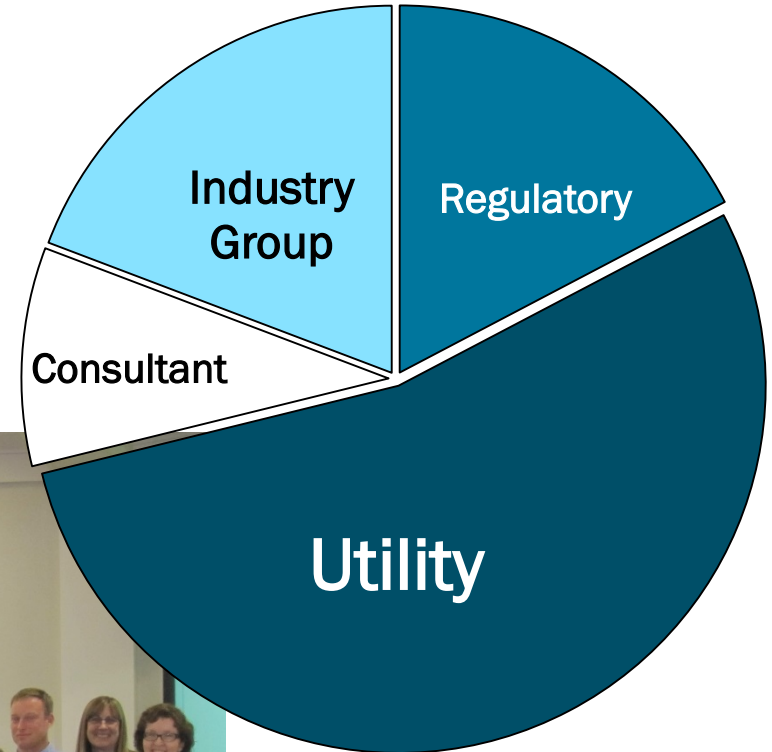
- Recycled water plants are allowed to use T or W operators
- State-wide 14,000 T operators vs. 6,000 W operators
- T operators can't use experience at recycled water plant to qualify for higher certification
- Similar issues for RW distribution systems that use D operators

A committee is formed. Though we didn't start out with this cool logo....



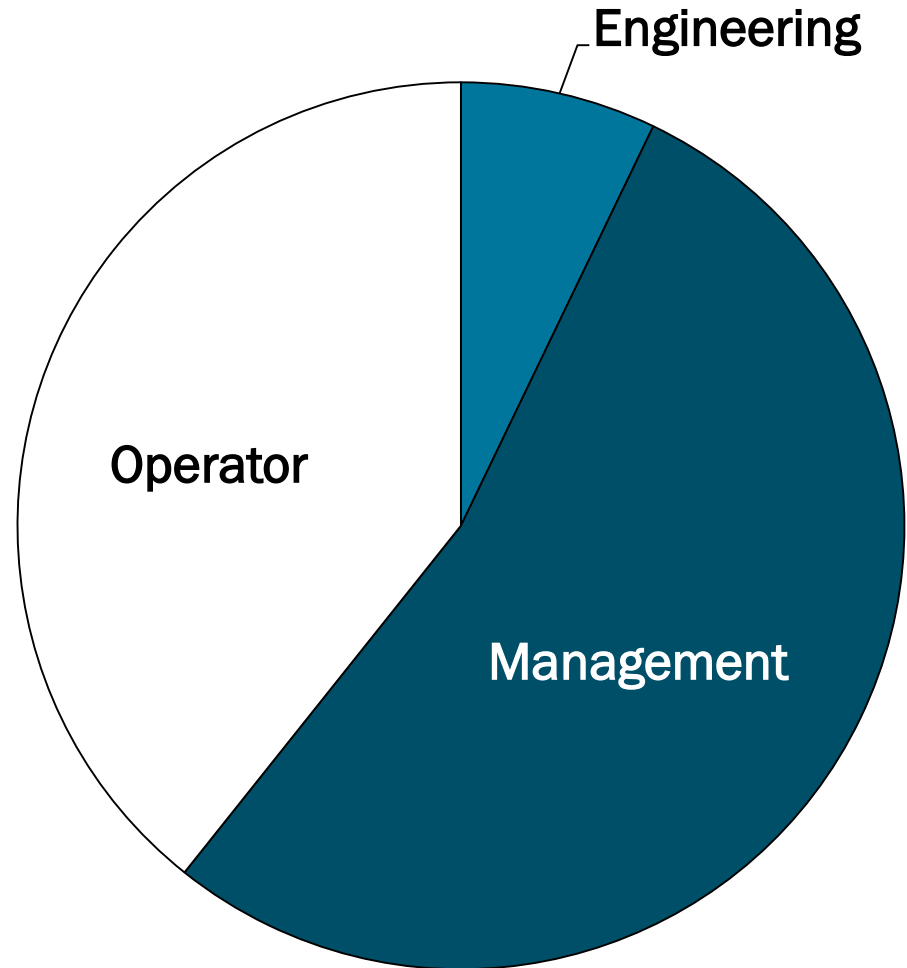
AWT Ops Cert Committee Makeup

- ~30 Committee Members
- ~30 Public Participants
- CA-NV Section AWWA Staff
- CWEA Staff



AWT Ops Cert Committee Utility Representation

- 15+ utilities represented
- Majority in operations or operations management
- Participation by State Water Board staff
 - DDW
 - Operator Certification

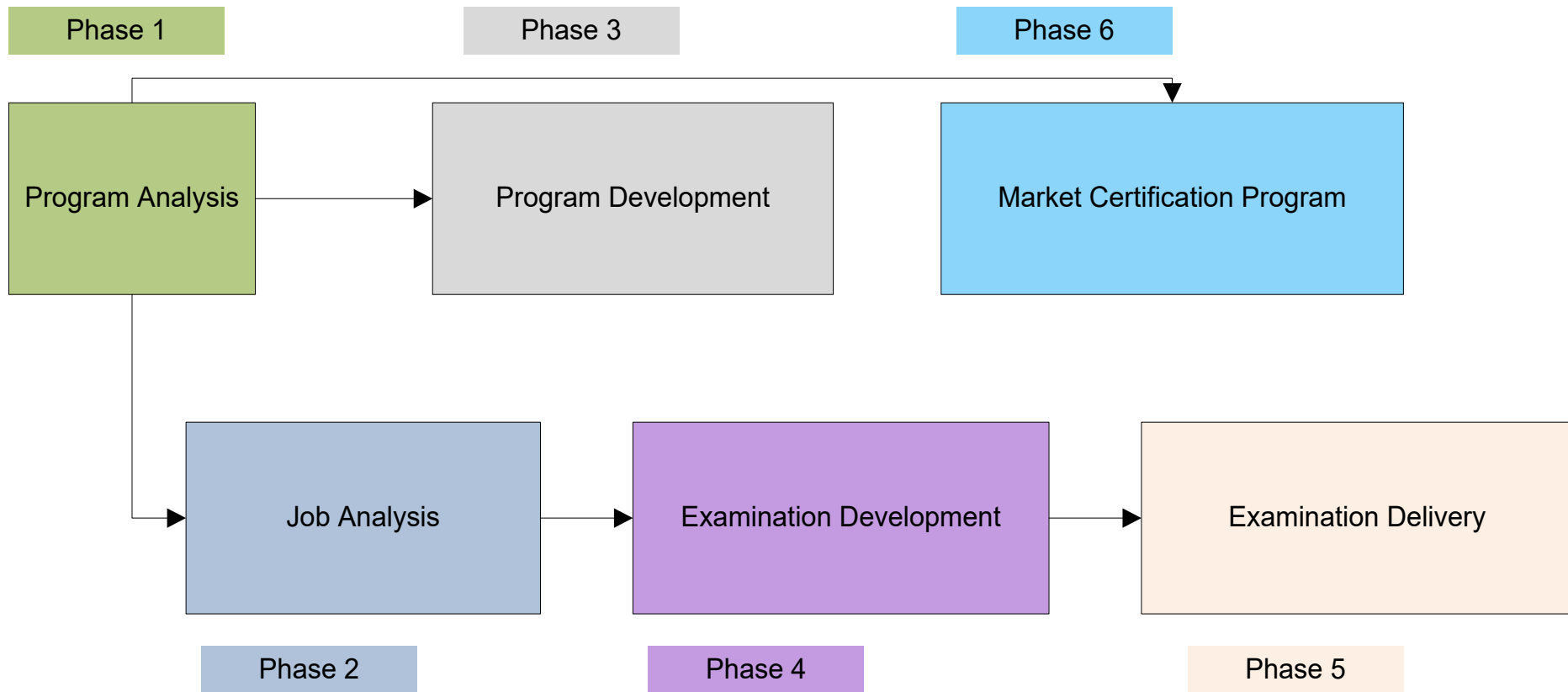


Certification Program/Committee Goals

- Craft an AWT operator certification program that **works for agencies big and small**
 - Provides benefit without being overly restrictive and affecting future qualified operator pool
- Address potable reuse operator training and certification concern – **remove potential roadblock for DPR**
- **Address current regulatory issues** with T operators at RW facilities

What Is Required to Develop a Certification Program?

It's Complicated, Rigorous and Proscribed



Step 1 – Confirm Interest

**Step 2 – Define Certification Program
Target**

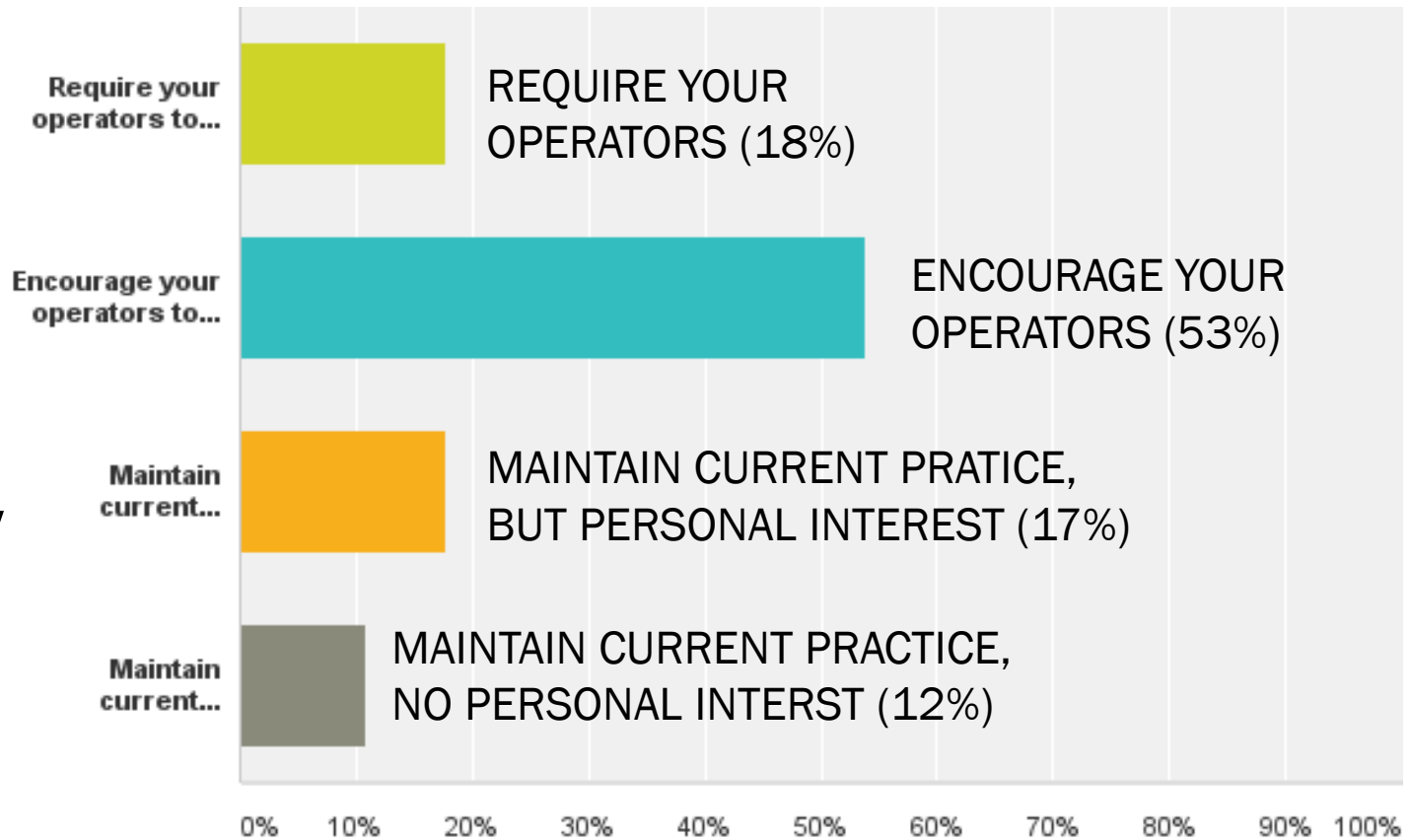
Industry Was Supportive of Certification Program

88% overall favorable

71% would look to include at their facility

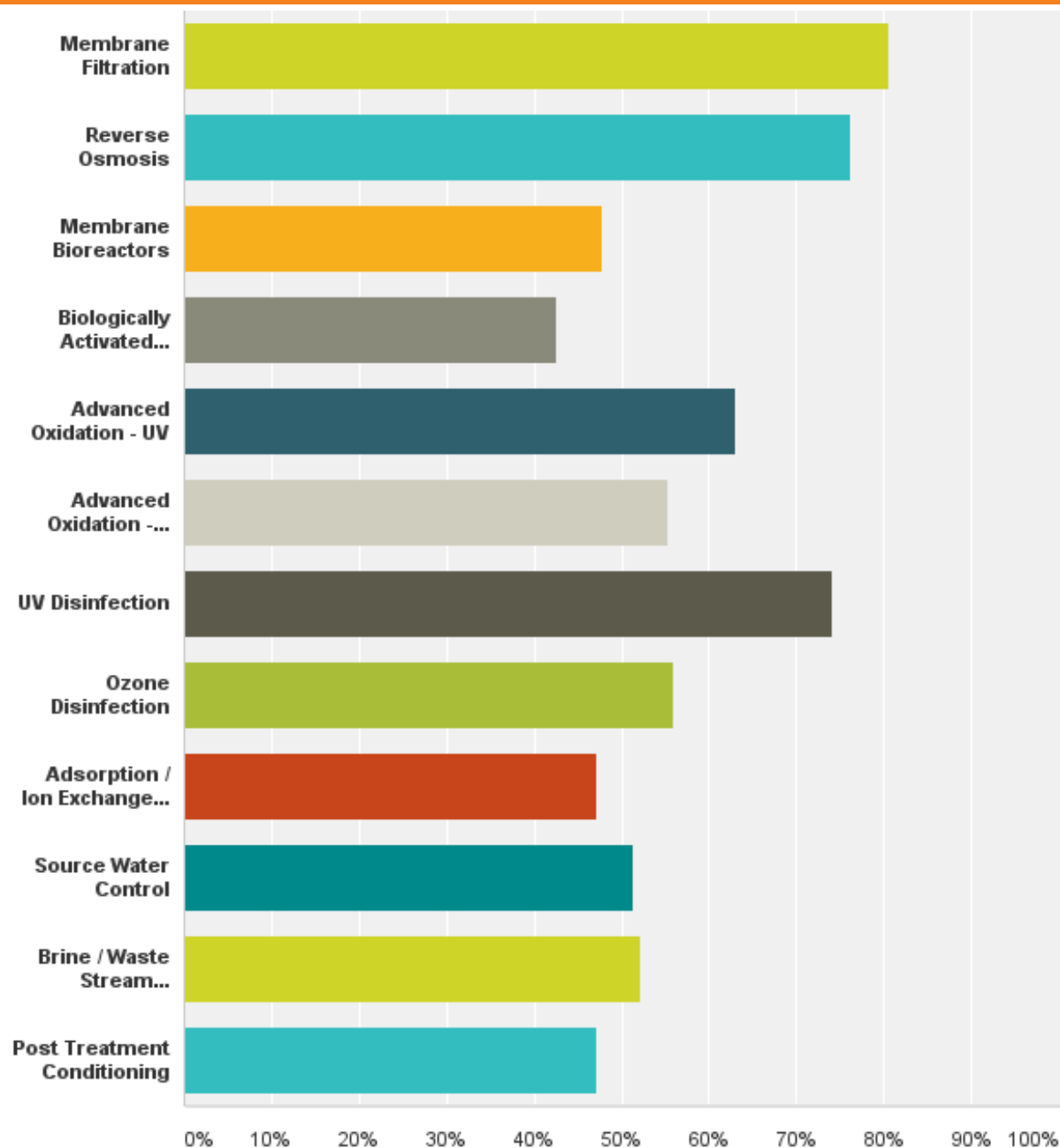
Q14: If an AWT Certification program were offered, would your company / agency likely

...



Q12: What treatment technologies would you want included in an Advanced Water Treatment Program (all that apply)?

- Answered: 282
Skipped: 188





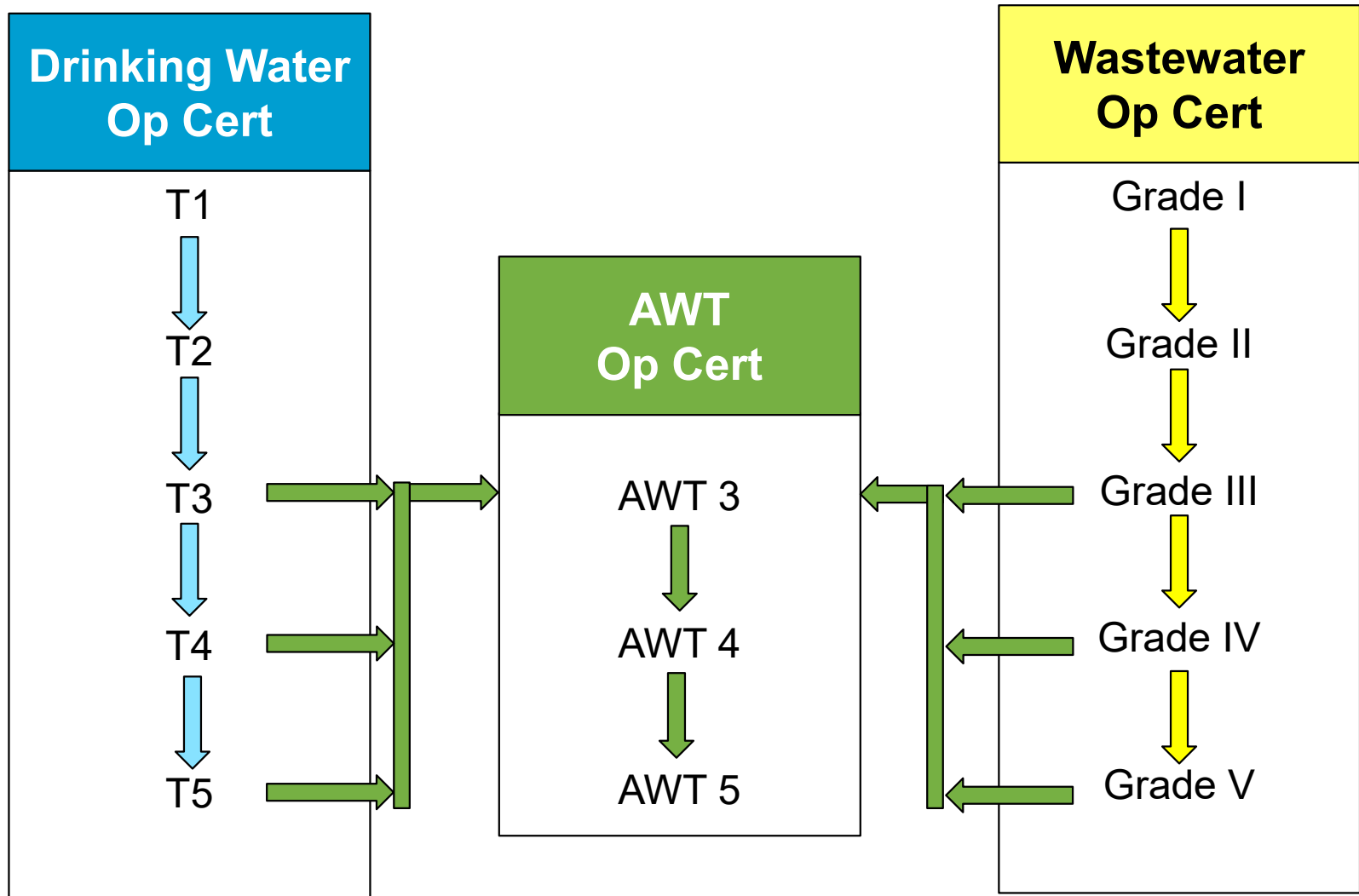
CUWA White Paper Workshop Participation by AWT Committee Member Agencies and Associations



Recommendations

1. Centered on AWT technologies
2. Stand-alone or "add-on" to both water or wastewater operator certification
3. One test per level of certification
4. Broad program to ensure adequate population of operators

A Supplement to Existing Operator Certification



Job Analysis

What do people do all day?

Job Analysis Content Domains

Content Domain	AWTO 3	AWTO 4	AWTO 5
Source Water	3%	4%	3%
Advanced Water Treatment Processes	40%	40%	24%
Advanced Water Treatment Support Processes	11%	14%	4%
Advanced Treated Water Management	3%	4%	3%
Operations and Maintenance	16%	18%	14%
Controls and Monitoring	6%	6%	13%
Laboratory	12%	7%	1%
Regulations and Reporting	2%	2%	10%
Safety	6%	6%	29%

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Task & Knowledge Statements

Sample Task Statements

Membranes

Recognize and correct problems in membrane systems

Calculate membrane surface area

Calculate daily membrane water production

Advanced Oxidation

Calculate oxidant dosing

Measure oxidant residual

Track major process control inputs

Task Statement Samples

AWT Grade 3	Task Statements	Freq.	Applic.	Risk
1 Source Water				
a Wells and Groundwater (Brackish and Fresh)				
	Analyze well water and groundwater quality	D	30	Moderate
	Determine drawdown level	M	30	Moderate
	Calculate a disinfectant dosage in a well	Y	30	Minor
	Recognize the influence of surface water on a groundwater source	Y	30	Moderate
b Surface water (Fresh, Saline, and Seawater)				
	Recognize potential sources of contamination in surface water	D	30	Major
	Discriminate between normal and abnormal conditions in surface water	D	30	Major
	Calculate the volume of surface water contained in a surface water storage facility	M	30	Moderate
	Collect a water sample from a surface water source	D	30	Moderate
	Recognize abnormal odors or colors in surface water	D	30	Moderate
c Wastewater				
	Recognize water resource recovery facility upsets/operations that will impact AWT processes	D	40	Moderate
	Collect a water sample from a secondary/tertiary source	D	40	Moderate

Where Are We Now?

In
Progress

- ✓ Funding Support Program
- ✓ Marketing and Outreach
- ✓ Revisit Certification Regs

WW and DW Operators
at Grade 3 level or higher
(T3 or G3) can apply to
take AWT Grade 3 exam

Starting:

Spring 2019



Education Support for AWT0 Certification

Sources

- AWWA Manuals of Practice
- WEF Manuals of Practice
- WRF (WE&RF) project reports and white papers
- Manufacturers' operations & training manuals
- Agency on the job training materials
- Regulations, reporting and safety directions from federal, state and local jurisdictions
- Academia content and manuals of instruction (CSUS OWP, for example)
- Various expert panel reports
- Extraction documents from interviews with subject matter experts

Funding Goal: \$200,000
Funding Status:\$180,000

Need to Invest in

- SME workshops
- Question bank for 3 exams
- Psychometricians
- Professional exam writers
- Publishing the exams
- AWT website/marketing/communications



Supporters



(Contributors so far)

There's More to Do

- Communication with stakeholders (employers, operators, regulators, etc.) www.awtoperator.org
- Decide whether to pursue third party accreditation
- Prepare for refinements and refresh of the Grade 3 exam
- Contribute to the development of regulatory changes regarding operator experience credits
- Implement certification processes (applications, exam scheduling, issuing certifications / renewals)
- Celebrate with early certificants, employers and other stakeholders!!!



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Producing Pure Water

AWTOperator.org

Sign-up for our e-mail list