New Voluntary AWT Operator Certification — The AWTO™ Certification Program

Erin Mackey, Ph.D., P.E.
Brown and Caldwell & Member, AWT Certification Committee
emackey@brwncauld.com
Why a new certification?
Current Water and Wastewater Certification Does Not Include “Advanced Treatment”

- More complex treatment train
- Unique O&M
- Potable reuse = enhanced risk
Confluence of Many Groups

- 2013: SB322 requires state to investigate DPR feasibility
- WateReuse CA DPR initiative
- Various industry surveys
- Joint CA-NV Section AWWA/CWEA Committee embarks on program development

Certification Program Need

- Recycled Water Committee
- Certification Committee
- DDW DPR Expert Panel
- The Water Research Foundation
- CUWA
- Utility Input
A Primary Goal of the AWTOCC is a Certification Program that Works for All

Potable Reuse Operator Training and Certification Framework

Revised February 2016

CUWA Report 2016
Developing a Certification Program Is Complicated, Rigorous and Proscribed
## Job Content Domains

<table>
<thead>
<tr>
<th>Content Domain</th>
<th>AWT 3</th>
<th>AWT 4</th>
<th>AWT 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source Water</td>
<td>3%</td>
<td>4%</td>
<td>3%</td>
</tr>
<tr>
<td>Advanced Water Treatment Processes</td>
<td>40%</td>
<td>40%</td>
<td>24%</td>
</tr>
<tr>
<td>Advanced Water Treatment Support Processes</td>
<td>11%</td>
<td>14%</td>
<td>4%</td>
</tr>
<tr>
<td>Advanced Treated Water Management</td>
<td>3%</td>
<td>4%</td>
<td>3%</td>
</tr>
<tr>
<td>Operations and Maintenance</td>
<td>16%</td>
<td>18%</td>
<td>14%</td>
</tr>
<tr>
<td>Controls and Monitoring</td>
<td>6%</td>
<td>6%</td>
<td>13%</td>
</tr>
<tr>
<td>Laboratory</td>
<td>12%</td>
<td>7%</td>
<td>1%</td>
</tr>
<tr>
<td>Regulations and Reporting</td>
<td>2%</td>
<td>2%</td>
<td>10%</td>
</tr>
<tr>
<td>Safety</td>
<td>6%</td>
<td>6%</td>
<td>29%</td>
</tr>
<tr>
<td>Sample Task Statements</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Membranes</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recognize and correct problems in membrane systems</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calculate membrane surface area</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calculate daily membrane water production</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Advanced Oxidation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calculate oxidant dosing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measure oxidant residual</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Track major process control inputs</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
What is Advanced Water Technology?
What are Advanced Water Technologies?

- Adsorption/Exchange
- Advanced Oxidation
- Biological Filtration
- Advanced Disinfection
- Finished Water Chemical Stabilization
- Iron and Manganese Removal
- Membrane Bioreactors (MBR)
- Membrane Desalination
- Membrane Filtration
AWTO™ - Supplement to Existing Operator Certification
Reasons to Get Certified
Reasons to Get Certified

1) Advance your water career

2) Agencies may require certification to work at a AWTF

3) Corrects issue of fairness for operators

4) Increase AWT training and networking
Supported by Water Agencies

[Logos of various water agencies]
Practice Your Skills at an AWTF
Potential Study Resources

Download the Candidate Handbook
AWTOOperator.org

1. AWTO Candidate Handbook
2. Reference List of Exam Items
Potential Study Resources

- CA-NV AWWA and CWEA workshops
- SWMOA workshops / membrane certificate
- WRF (WE&RF) AWT training modules
- AWWA Manuals of Practice
- WEF Manuals of Practice
- CSUS Office of Water Programs
- Community College AWTF classes
- Manufacturer operations & training sessions
- Regulations, reporting and safety directions from Federal, State and local jurisdictions
- Private trainers
CA-NV AWWA & CWEA AWT Workshops
Exam Study Suggestions

- Study groups
- Flash cards
- Ask for help from Senior Operators
- Study, study, study
Signing up for the Exam

1) Download Candidate Handbook

AWTOperator.org
## Signing up for the Exam

### 2) Remember the Minimum Qualifications

<table>
<thead>
<tr>
<th>Grade</th>
<th>Certification</th>
<th>Experience (can be obtained prior to exam)</th>
<th>Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWT3</td>
<td>State T3 or WW3 or higher</td>
<td>None</td>
<td>Pass AWT3 exam</td>
</tr>
<tr>
<td>AWT4</td>
<td>AWT3</td>
<td>2 years in one or more AWT processes</td>
<td>Pass AWT4 exam</td>
</tr>
<tr>
<td>AWT5</td>
<td>AWT4</td>
<td>3 years in one or more AWT processes, of which, 1 year must be in at least two AWT processes</td>
<td>Pass AWT5 exam</td>
</tr>
</tbody>
</table>
Signing up for the Exam

3) Download the exam application

AWTOperator.org or CA-NV-AWWA.org
Signing up for the Exam

4) Volunteer Administrator Review
Signing up for the Exam

5) The computerized testing center will contact you
Taking the Exam

The center will ask for ID and provide a list of center rules
Taking the Exam

Results are instant
Next Step > Next Exam?

AWT3
AWT Operator
Grade 3

AWT4
AWT Operator
Grade 4

AWT5
AWT Operator
Grade 5

Wait
90
Days
Did Not Pass
Did Not Pass

Re-Apply
Renewing

DETAILS COMING SOON