



# FACILITY OPERATORS CERTIFICATION PROGRAM

CY 2021 Annual Report to the Water and Wastewater  
Facility Operators Certification Board

Prepared jointly by the Colorado Certified Water Professionals Office  
and the Colorado Water Quality Control Division

## INTRODUCTION

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The goal of the operator certification program is to protect public health and the environment. It does so by ensuring that skilled professionals are certified to oversee the treatment and distribution of safe drinking water as well as the collection and treatment of wastewater prior to discharge. Certification requirements in Colorado comply with the Safe Drinking Water Act, the Clean Water Act, and federal and state implementing regulations. Certified operators provide a critical barrier in safeguarding public and environmental health.

The State of Colorado's Operator Certification Program was approved by the U.S. Environmental Protection Agency consistent with the requirements of the Final Guidelines for the Certification and Recertification of the Operators of Community and Non-Transient, Non-Community Public Water Systems, 64 FR 5916 on June 22, 2001.

## PURPOSE OF THIS REPORT

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This report provides the Water and Wastewater Facility Operators Certification Board (board) with a comprehensive overview of program activities. It covers calendar year 2021 and includes data for the previous four years, when available, for comparison and trend purposes. The sources of data used to compile this report are official annual reports to the EPA and records maintained by the board's contractor and the Colorado Department of Public Health and Environment, Water Quality Control Division (division).

## BOARD INFORMATION

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The board is a ten member, governor-appointed board representing a variety of water and wastewater professionals. The board is established by Article 9 of Title 25, C.R.S. The board published Regulation 100 Water and Wastewater Facility Operators Certification Requirements in accordance with sections 25-9-101 - 110 C.R.S.

During this reporting period, the facility operators certification program consisted of three distinct groups: the board, including the board administrator; the division; and the board's contractor. They have interrelated responsibilities for activities within the program.

The board is authorized to adopt and amend rules related to operator certification. It also adopts and revises policy and guidance documents as needed. The board hears appeals of any contractor or division decisions that fall within its jurisdiction, and determines the appropriate disciplinary action for operator misconduct.

Subject to the board's oversight, the board's contractor administers the operator certification aspect of the program. Colorado Rural Water Association runs the Colorado Certified Water Professionals (CCWP) office to directly serve operators seeking initial or renewed Colorado certification. The CCWP office also reviews and approves training unit credit for courses submitted to meet required operator continuing education. The CCWP Portal automates many of the tasks associated with operator and course provider applications and reviews. This tool is utilized and managed by the CCWP office.

The division is responsible for compliance and enforcement to ensure every water and wastewater facility is under the supervision of a certified operator holding a certificate equal to or greater than the classification of the facility. The division is also responsible for the classification of all water and wastewater facilities in accordance with Regulation 100, Sections 100.4 to 100.9, and for the investigation of complaints of misconduct by certified operators in the performance of their duties. The division serves as staff to the board and as the liaison between the division and the board, board contractor, certified operators, and facility owners. In that role the division provides compliance assistance, regulation implementation, outreach and education.

# Colorado Certified Water Professionals Program

## 2021 Annual Report



2021 was a successful year for the certified operators of Colorado and the CCWP Program. Despite the continued presence of COVID-19, access to career advancement and certification retention was available to those interested throughout 2021. The CCWP program was able to function without disruption or interruption due to the CCWP portal, the online operator certification platform, and the CCWP staff's ability to work remotely. The program continues to provide timely review of operator applications, customer service and certification trainings to those it serves. The program's goal remains the same: It seeks to serve operators who serve the communities of Colorado.

PSI testing centers re-opened throughout 2021 providing more testing locations and seats for certification exams. In early 2021 Colorado partnered with ABC and PSI to make remotely proctored exams an option for people wanting to take certification exams. CCWP recorded a 20% increase in exam application submitted from 2020 to 2021. PSI reports that there were 840 more exams administered in 2021 than in 2020. Further, 60% of the operators who passed their exams did so on their first attempt. Approximately 11% of the 2021 exams were remotely proctored.

The course providers that deliver professional development for the Colorado operators adapted to the virtual training needs, social distancing guidance and fluctuating community restrictions for in-person trainings. Operator trainings, schools and conferences were moved to virtual platforms or cancelled throughout the year, limiting the opportunities for professional development and training unit accrual. The CCWP program refined its guidance for training unit approval including the requirements for online training and provided one-on-one trainings with every online training provider to ensure that course providers were issuing training for courses that meet Colorado's standards. There were 5.2% fewer certification renewal applications in 2021 than in 2020. Despite the drop in renewals, there are nearly the same number of active Colorado certifications as 2019 and 2020. These are certifications that are within the The most notable difference observed is there were 38% fewer active restricted certificates in 2021 than in 2020.

The information in this report was collected using CCWP Portal and PSI testing data. The information in this report is a collection of the best information the CCWP Program has at this time, and the program continues to work to validate this data and improve data collection with the partners at LaunchIT, USAePay and PSI to ensure data reports are consistent and accurate.

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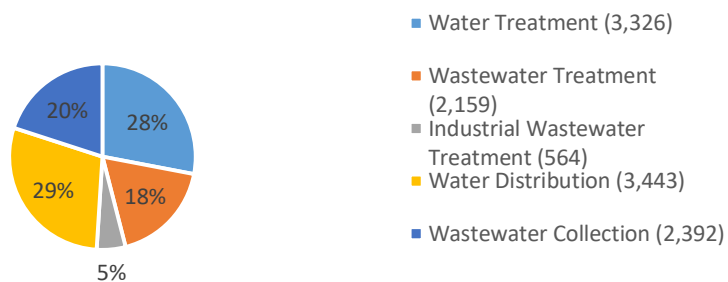
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### Section 1: Active Certificates and Active Operators as of 12/31/2021

On December 31, 2021 there were 11,884 Colorado Certified Water Professionals certifications on the CCWP Portal. This number excludes expired certificates within 2-year restoration period and renewed certificates not effective as of December 31<sup>st</sup>. There was virtually no change in the number of active and restorable certificates compared to 2019 and 2020. There were 38% fewer active restricted certificates in 2021.

Active Certificates December 31, 2018	Active Certificates December 31, 2019	Active Certificates December 31, 2020	Active Certificates December 31, 2021
11,685	11,879	11,851	11,884

**Active Certificates by Type**



<b>Active and Restorable Certificates on December 31, 2021</b> Number of certificates* by category and level (includes restricted certificates) <i>Information collected using the CCWP Portal</i>	
Certification Type and Level	Active Certificates
<b>Water Treatment Operator</b>	
T	28
S	453
D	920
C	648
B	425
A	852
Water Treatment Operator total	3,326
<b>Wastewater Treatment Operator</b>	
S	169
D	692
C	471
B	231
A	596
Wastewater Treatment Operator total	2,159
<b>Industrial Wastewater Treatment Operator</b>	
D	240
C	122
B	69
A	133
Industrial Wastewater Treatment Operator total	564

<b>Active and Restorable Certificates on December 31, 2021 (continued)</b>		
Number of certificates* by category and level (includes restricted certificates)		
<i>Information collected using the CCWP Portal</i>		
Certification Type and Level	Active Certificates	Active Restricted Certificates
<b>Water Distribution System Operator</b>		
1	1,283	4
2	847	4
3	463	0
4	850	16
Water Distribution System Operator total	3,443	24
<b>Wastewater Collection System Operator</b>		
1	915	3
2	556	3
3	308	0
4	613	7
Wastewater Collection System Operator total	2392	13
<b>Grand Total all Categories / Level</b>	<b>11,884</b>	<b>37</b>

\*Active certificates are certificates that are currently effective (excludes expired certificates within 2-year restoration period and renewed certificates that have not become effective yet)

#### Number of Active Restricted Certificates by Category and Level

<b>Active Restricted Certificates by Type and Level on December 31, 2021</b>	
Certification Type and Level	Active Restricted Certificates
<b>Water Distribution System Operator</b>	
1	4
2	4
3	0
4	16
Water Distribution System Operator total	24
<b>Wastewater Collection System Operator</b>	
1	3
2	3
3	0
4	7
Wastewater Collection System Operator total	13
<b>Restricted Certification Total all Categories/Levels</b>	<b>37 in 2021, 60 in 2020</b>

<b>Active Operator Report on December 31, 2021</b>
<i>Includes operators holding restricted certificates</i>
<b>Active Operators</b>
5,443 (2% decrease from 2020)

\*\*Active operators hold at least one active certificate.

### Number of active operators holding restricted certificates

Active Operator Report on December 31, 2021	
Operators with Active Restricted Certificates	% of Total Operators
37	< 1%

*\*\*Active operators hold at least one active certificate.*

## Section 2: 2021 Examination Information

### Certification by Examination

There were approximately 218 exams applications submitted per month in 2021 which reflects a 20% increase in applications submitted in 2021 compared to 2020. Rejected application make up less than one percent of application received and reviewed. They are typically rejected because operators submit applications in error. For example, someone who currently holds a Small Water System certification applies to take a class D Water Treatment certification exam because of changing system requirements without realizing he or she is a candidate for a class C Water Treatment certification exam.

### Examination Applications

Examination Applications Received and Reviewed January 1, 2021 through December 31, 2021	
Application Status	Number of Applications
Approved	2,583
Awaiting Reply	24
Ineligible	11
Total Received Applications	2,618; 2,182 submitted in 2020

### Number of Applications Approved in 2021

Examination Applications Reviewed January 1, 2021 through December 31, 2021		
Application Status	Number of Applications	% of Applications Received
Approved	2,583	98.6%

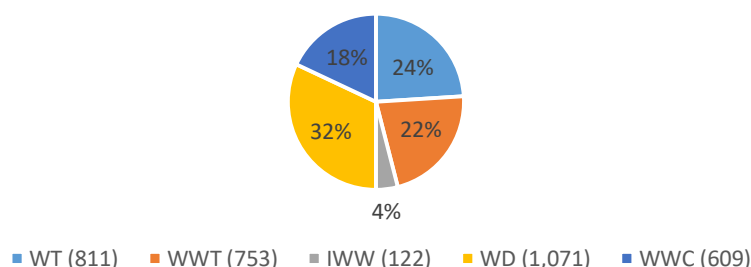
### Exams Administered by Category and Level

*Data source: PSI Online Database*

PSI continues to administer exams for Colorado operators. Once exam applications are approved, operators contact PSI directly to schedule examinations. When operators pass exams successfully, PSI shares the data with the CCWP Portal, and the CCWP staff issues certifications to operators on the CCWP Portal. There were 3,366 exams administered in 2021 which is a 33% increase from 2020. Interestingly, the exact same percentage of industrial wastewater, water distribution and wastewater collection certifications were administered in 2020 and 2021, and only a 2% average change in water and wastewater treatment exams administered. Though it seems strange there were far more exams administered per month than applications submitted, operators can take exams multiple times if unsuccessful on their previous attempts without having to reapply.



Exams Administered January 1, 2021 - December 31, 2021  
Total Exams: 935 in 2019/2,526 in 2020/3,366 in 2021



Water Treatment Exams Administered January 1, 2021 through December 31, 2021	
Exam Class and Type Administered	Number in 2019/2020/2021
Water Treatment – T	0/1/0
Water Treatment – S	16/40/44
Water Treatment – D	92/199/257
Water Treatment – C	61/130/204
Water Treatment – B	43/98/121
Water Treatment – A	62/176/185
Total Water Treatment Exams Administered	274/ 644/811

Wastewater Treatment Exams Administered January 1, 2021 through December 31, 2021	
Wastewater Treatment – S	5/13/24
Wastewater Treatment – D	85/170/232
Wastewater Treatment – C	43/123/190
Wastewater Treatment – B	46/132/203
Wastewater Treatment – A	38/73/104
Total Wastewater Treatment Exams Administered	217/511/753

Industrial Wastewater Treatment Exams Administered January 1, 2021 through December 31, 2021	
Industrial Wastewater Treatment – D	18/45/42
Industrial Wastewater Treatment – C	13/25/38
Industrial Wastewater Treatment – B	5/14/13
Industrial Wastewater Treatment – A	5/13/29
Total Industrial Wastewater Treatment Exams Administered	41/97/122

Water Distribution Exams Administered January 1, 2021 through December 31, 2021	
Water Distribution – 1	98/304/398
Water Distribution – 2	68/262/305
Water Distribution – 3	60/150/198
Water Distribution – 4	30/111/170
Total Water Distribution Exams Administered	256/827/1,071

Wastewater Collection Exams Administered January 1, 2021 through December 31, 2021	
Wastewater Collection – 1	53/171/230
Wastewater Collection – 2	40/152/159
Wastewater Collection – 3	27/79/142
Wastewater Collection – 4	27/45/170
Total Wastewater Collection Exams Administered	147/447/609

### Examination Pass and Fail Rates

Of the 3,366 exams administered, operators passed 56.4% of the exams taken in 2021 which represents a 2% decrease in the overall pass rate of 2020. There was also a 2% decrease in 2020 from 2019. Approximately 60% of the operators who passed their exams in 2021 did so on their first attempt. In 2020, 67% passed on their first attempt. Though small, there was a 7.2% decrease in first attempt pass rates compared to 2020. However, there was a 3.17% increase between subsequent pass rates between 2020 and 2021.

<b>Pass Rate for Certification Exams Administered January 1, 2021 through December 31, 2021 Total Exams Administered: 3,209</b>		
Certification Exam Type	Exams Passed/Total Exams by Type	Pass Rate
Water Treatment	501/780	64%
Wastewater Treatment	281/708	40%
Industrial Wastewater Treatment	82/118	70%
Water Distribution	590/1020	58%
Wastewater Collection	356/583	61%
<b>Overall Pass Rate</b>	<b>1810/3209 (1472/2526 in 2020)</b>	<b>56.4% (58.3% in 2020)</b>

<b>Certification Exams Passed on the First Attempt with Pass Rate January 1, 2021 through December 31, 2021</b>		
Certification Exam Type	Exams Passed on First Attempt/Total First Attempts	Pass Rate on First Attempt
Water Treatment	404/566	71.4%
Wastewater Treatment	180/546	33.0%
Industrial Wastewater Treatment	68/91	74.7%
Water Distribution	449/690	65.1%
Wastewater Collection	293/424	69.1%
<b>Overall First Attempt Pass Rate</b>	<b>1,394/2,317 (1209/ 1794 in 2020)</b>	<b>60.2% (67.4% in 2020)</b>

<b>Certification Exams Failed on the First Attempt with Fail Rate January 1, 2021 through December 31, 2021</b>		
Certification Exam Type	Exams Failed on First Attempt/Total First Attempts	Fail Rate on First Attempt
Water Treatment	162/566	28.6%
Wastewater Treatment	203/546	37.2%
Industrial Wastewater Treatment	23/91	25.3%
Water Distribution	241/690	34.9%
Wastewater Collection	131/424	30.9%
<b>Overall First Attempt Fail Rate*</b> <b>*7% of exams are re-credentials</b>	<b>760/2,317 (585/ 1794 in 2020)</b>	<b>32.8% (32.6% in 2020)</b>

<b>Certification Exams Passed on Subsequent Attempt January 1, 2021 through December 31, 2021</b>		
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Certification Exam Type	Exams Passed on Subsequent Attempt/Total Subsequent Attempt(s)	Pass Rate on Subsequent Attempt(s)
Water Treatment	94/209	44.98%
Wastewater Treatment	97/319	30.41%
Industrial Wastewater Treatment	14/27	51.85%
Water Distribution	138/325	42.46%
Wastewater Collection	63/159	39.62%
<b>Overall Subsequent Attempt Pass Rate</b>	<b>406/1,039 (263/732 in 2020)</b>	<b>39.07% (35.9% in 2020)</b>

#### Examination Pass and Fail Rates

Pass Rates and Average Exam Scores for Certification Exams Administered January 1, 2021 through December 31, 2021			
Certification Exam Type	Exams Passed/Total Exams by Type and Class	Pass Rate	Average Exam Score (passed and failed)
Water Treatment	501/780	64%	
T	2/2	100%	100%
S	36/41	87.8%	81.63%
D	175/249	70.3%	73.49%
C	142/194	73.2%	75.26%
B	86/117	73.5%	74.99%
A	60/177	33.9%	66.28%
Wastewater Treatment	281/708	40%	
S	18/24	75.0%	75.58%
D	114/215	53.0%	68.98%
C	73/185	39.5%	67.63%
B	52/187	27.8%	64.88%
A	24/97	24.7%	64.06%
Industrial Wastewater Treatment	82/118	70%	
D	38/39	97.4%	81.50%
C	20/38	52.6%	69.84%
B	11/13	84.6%	78.31%
A	13/28	46.4%	68.96%
Water Distribution	590/1020	58%	
1	249/377	66.0%	72.81%
2	161/292	55.1%	70.91%
3	120/189	63.5%	72.48%
4	60/162	37.0%	66.84%
Wastewater Collection	356/583	61%	
1	163/218	74.8%	75.00%
2	105/152	69.1%	73.52%
3	57/137	41.6%	68.17%
4	31/76	40.8%	67.56%
<b>Overall Pass Rate and Exam Score</b>	<b>1810/3209 (1472/2526 in 2020)</b>	<b>56.4% (58.3% in 2020)</b>	

### Identification of trends, issues and problems for board attention or action- 2021 Examinations

- The one certification exam type that has a significantly lower pass rate than the others is wastewater treatment with only a 40% pass rate; in 2020, the pass rate was 44%. Additionally, far fewer people pass wastewater treatment exams on the first or subsequent attempts than any other operator type. However, the average scores for the wastewater exams were not significantly lower than the other exam types' average scores.
- Of the 3,366 exams administered in 2021, 391 of them used remote proctoring as an online method of taking an operator exam. This means that 88.4% of exams were administered in PSI testing centers.

### Section 3: 2020 Renewed and Restored Certificates

All Certification Renewals and Restorations January 1, 2021 through December 31, 2021		
Certification Type	Renewals Type and Class	% per Type Renewed
Water Treatment	651 Total	
T	6	1%
S	114	18%
D	146	22%
C	95	15%
B	72	11%
A	218	33%
Wastewater Treatment	477 Total	
S	41	9%
D	147	31%
C	98	20%
B	42	9%
A	149	31%
Industrial Wastewater Treatment	104 Total	
D	37	36%
C	25	24%
B	12	12%
A	30	28%
Water Distribution	680 Total	
(2 restricted certificates included) 1	218	32%
(3 restricted certificates included) 2	169	25%
3	74	11%
(12 restricted certificate included) 4	219	32%
Wastewater Collection	535 Total	
(1 restricted certificate included) 1	170	32%
(3 restricted certificate included) 2	128	24%
3	70	13%
(5 restricted certificate included) 4	167	31%
<b>Total Renewals and Restorations</b>	<b>2,447 (2,580 in 2020)</b>	

Restricted Renewals January 1, 2021 through December 31, 2021	
Certification Type and Class	Restricted Renewal
Water Distribution	17 Total
1	2
2	3
3	-
4	12
Wastewater Collection	9 Total
1	1
2	3
3	-
4	5
<b>Total Restricted Renewals</b>	<b>26</b>
Certification Restorations January 1, 2021 through December 31, 2021	
Certification Type	Restorations Type and Class
Water Treatment	72
T	2
S	20
D	20
C	10
B	6
A	14
Wastewater Treatment	57
S	4
D	19
C	11
B	6
A	17
Industrial Wastewater Treatment	15
D	5
C	4
B	3
A	3
Water Distribution	105
1	41
2	34
3	8
4	22
Wastewater Collection	103
1	33
2	25
3	12
4	33
<b>Total Restorations</b>	<b>352</b>

\*Note: No restricted certifications were restored in 2021

### Identification of trends, issues and problems for board attention or action- Renewals

- There are far fewer operators restoring certifications than in previous years because the CCWP Portal reminds operators via email about upcoming renewal deadlines. There were about 29 restoration applications reviewed per month.
- With the exception of wastewater collection certifications, all other certification types had fewer renewals in 2021 than in 2020. Overall, there were 5.2% fewer renewal applications in 2021.

### Section 4: 2021 Certification by Reciprocity

Reciprocity Applications Received and Reviewed January 1, 2021 through December 31, 2021		
Certification Type	Application Type and Class	
Wastewater Treatment		14
	S	1
	D	1
	C	1
	B	6
	A	5
Water Treatment		17
	D	1
	C	4
	B	4
	A	8
Industrial Wastewater Treatment		0
Water Distribution		7
	1	1
	2	3
	3	1
	4	2
Wastewater Collection		5
	1	3
	4	2
<b>Total Reciprocity Applications</b>		<b>43</b>

Approved and Approved for Exam Reciprocity Applications January 1, 2021 through December 31, 2021		
Certification Type	Application Type and Class	
Water Treatment		14
	D	1
	C	3
	B	4
	A	6
Wastewater Treatment		12
	D	1
	C	1
	B	5

A	5
Industrial Wastewater Treatment	0
Water Distribution	5
1	1
2	1
3	1
4	2
Wastewater Collection	4
1	3
4	1
<b>Total Approved Reciprocity Applications</b>	<b>35</b>

<b>Ineligible and Expired Reciprocity Applications January 1, 2021 through December 31, 2021</b>	
Certification Type	Application Type and Class
Water Treatment	3
A	2
C	1
Industrial Wastewater Treatment	1
A	1
Wastewater Treatment	2
B	1
S	1
Water Distribution	2
2	2
Wastewater Collection	1
4	1
<b>Total Ineligible and Expired and Pending Applications</b>	<b>8</b>

#### **Identification of trends, issues and problems for board attention or action- Reciprocity**

- There were the same number of reciprocity application in 2021 as in 2020.
- The revised reciprocity policy allows applicants to take Colorado exams equivalent to the type and class they hold in other state to avoid having to take Colorado sequential exams. In 2021, 14 applicants were approved to take these exams. Five of the fourteen applicants took and passed the Colorado exams.
- Top 3 reasons for reciprocity application denials
  - 1) Applicants did not apply for the appropriate level of certification in Colorado
  - 2) Applicants did not meet the experience requirement in Colorado (Their home state required less experience or recognized substitutions that Colorado does not recognize)
  - 3) Applicant did not provide sufficient documentation to approve application

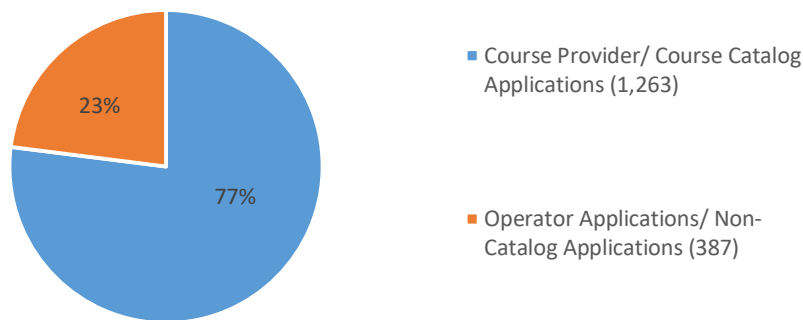
### **Section 5: 2021 Course Provider Applications for TUs**

There was over a 36% increase in course provider applications from 2020 to 2021. Conversely, there were 7% fewer non-catalog training unit applications in 2021 than in 2020. More course providers are uploading TUs into the CCWP portal for people who complete their courses. Please note, there is a higher number of rejected applications than in the past because operators are accidentally submitting non-catalog TU applications without payment for unverifiable webinars.

<b>2021 Course Applications Received and Reviewed January 1, 2021 through December 31, 2021</b>	
Approved	1,237
Not Approved	0
Expired/ Required More Information from Course Provider	26
Total Applications	1,263

<b>Non-Catalog Course Applications Received and Reviewed January 1, 2021 through December 31, 2021</b>	
Approved	243
Not Approved	98
Resent for more information/ Closed for failure to resubmit	46
Total Applications	387

Training Unit Applications  
1,650 Total Application





### Section 6: 2021 Financial Summary

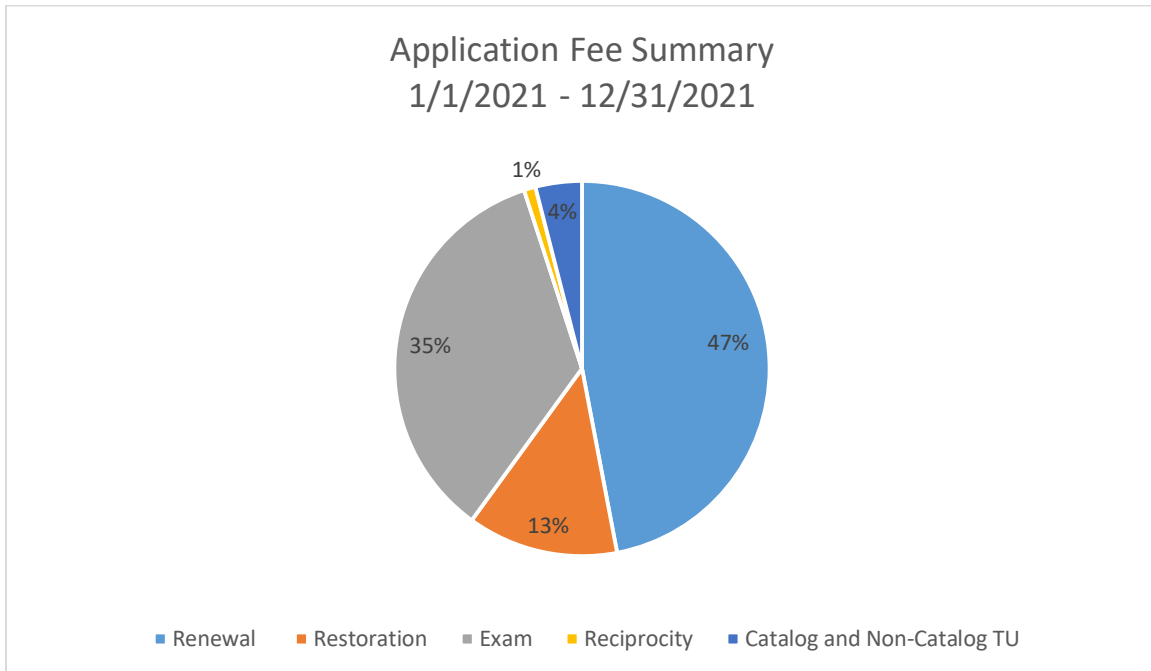
CCWP Portal Fees Collected by Category and Level – Examination Applications January 1, 2021 - December 31, 2021			
Fee Type	Number of Fees	Fee Amount	Amount Collected
Industrial Wastewater Treatment Operator			
D	46	\$50.00	\$2,300.00
C	33	\$50.00	\$1,650.00
B	14	\$50.00	\$700.00
A	17	\$50.00	\$850.00
Industrial Wastewater Treatment Operator total	110	\$50.00	\$5,500.00
Wastewater Collection System Operator			
1	202	\$50.00	\$10,050.00
2	128	\$50.00	\$6,400.00
3	95	\$50.00	\$4,700.00
4	60	\$50.00	\$3,000.00
Wastewater Collection System Operator total	485	\$50.00	\$24,150.00
Wastewater Treatment Operator			
S	19	\$50.00	\$950.00
D	188	\$50.00	\$9,400.00
C	107	\$50.00	\$5,300.00
B	118	\$50.00	\$5,900.00
A	75	\$50.00	\$3,700.00
Wastewater Treatment Operator total	507	\$50.00	\$25,250.00
Water Distribution System Operator			
1	344	\$50.00	\$17,150.00
2	244	\$50.00	\$12,200.00
3	155	\$50.00	\$7,750.00
4	120	\$50.00	\$6,000.00
Water Distribution System Operator total	863	\$50.00	\$43,100.00
Water Treatment Operator			
T	3	\$50.00	\$150.00
S	41	\$50.00	\$1,950.00
D	225	\$50.00	\$11,200.00
C	171	\$50.00	\$8,500.00
B	107	\$50.00	\$5,250.00
A	114	\$50.00	\$5,550.00
Water Treatment Operator total	661	\$50.00	\$32,600.00
EXAM APPLICATIONS total 23% increase from 2020	2,626 (2,138 in 2020)	\$50.00	\$130,600.00 \$106,050.00 in 2020

CCWP Portal Fees Collected by Category and Level – Reciprocity Applications January 1, 2021 - December 31, 2021			
Fee Type	Number of Fees	Fee Amount	Amount Collected
Industrial Wastewater Treatment Operator			
D			
C			
B			
A			
Industrial Wastewater Treatment Operator total	0	0	0
Wastewater Collection System Operator			
1	3	\$85.00	\$255.00
2	0	\$85.00	\$00.00
3	0	\$85.00	\$00.00
4	2	\$85.00	\$170.00
Wastewater Collection System Operator total	5	\$85.00	\$425.00
Wastewater Treatment Operator			
S	1	\$85.00	\$00.00
D	1	\$85.00	\$85.00
C	1	\$85.00	\$85.00
B	6	\$85.00	\$510.00
A	5	\$85.00	\$425.00
Wastewater Treatment Operator total	14	\$85.00	\$1,105.00
Water Distribution System Operator			
1	1	\$85.00	\$85.00
2	3	\$85.00	\$170.00
3	1	\$85.00	\$85.00
4	2	\$85.00	\$170.00
Water Distribution System Operator total	7	\$85.00	\$510.00
Water Treatment Operator			
T	0	\$85.00	\$00.00
S	0	\$85.00	\$00.00
D	2	\$85.00	\$85.00
C	4	\$85.00	\$340.00
B	5	\$85.00	\$425.00
A	8	\$85.00	\$595.00
Water Treatment Operator total	19	\$85.00	\$1,445.00
<b>RECIPROCITY total</b> <b>5% decrease from 2020</b>	<b>41 (43 in 2020)</b>	<b>\$85.00</b>	<b>\$3,485.00</b> <b>\$3,655.00 in 2020</b>

CCWP Portal Fees Collected by Category and Level – Renewal Applications January 1, 2021 - December 31, 2021			
Fee Type	Number of Fees	Fee Amount	Amount Collected
Industrial Wastewater Treatment Operator			
D	32	\$85.00	\$2,720.00
C	21	\$85.00	\$1,785.00
B	9	\$85.00	\$765.00
A	27	\$85.00	\$2,295.00
Industrial Wastewater Treatment Operator total	89	\$85.00	\$7,565.00
Wastewater Collection System Operator			
1	142	\$85.00	\$11,900.00
2	100	\$85.00	\$8,500.00
3	59	\$85.00	\$5,015.00
4	130	\$85.00	\$11,050.00
Wastewater Collection System Operator total	431	\$85.00	\$36,465.00
Wastewater Treatment Operator			
S	38	\$85.00	\$3,230.00
D	128	\$85.00	\$10,880.00
C	86	\$85.00	\$7,310.00
B	34	\$85.00	\$2,890.00
A	134	\$85.00	\$11,390.00
Wastewater Treatment Operator total	420	\$85.00	\$35,700.00
Water Distribution System Operator			
1	182	\$85.00	\$15,385.00
2	135	\$85.00	\$11,475.00
3	66	\$85.00	\$5,610.00
4	185	\$85.00	\$15,725.00
Water Distribution System Operator total	568	\$85.00	\$48,195.00
Water Treatment Operator			
T	4	\$85.00	\$340.00
S	93	\$85.00	\$7,905.00
D	129	\$85.00	\$10,795.00
C	85	\$85.00	\$7,225.00
B	67	\$85.00	\$5,695.00
A	203	\$85.00	\$17,255.00
Water Treatment Operator total	581	\$85.00	\$49,215.00
<b>RENEWAL FEES total</b> <b>3% decrease from 2020</b>	<b>2,089</b> <b>(2,162 in 2020)</b>	<b>\$85.00</b>	<b>\$177,140.00</b> <b>\$183,090.00 in 2020</b>

CCWP Portal Fees Collected by Category and Level – Restoration Applications January 1, 2021 - December 31, 2021			
Fee Type	Number of Fees	Fee Amount	Amount Collected
Industrial Wastewater Treatment Operator			
A	3	\$135.00	\$405.00
B	3	\$135.00	\$405.00
C	4	\$135.00	\$540.00
D	5	\$135.00	\$675.00
Industrial Wastewater Treatment Operator total	15	\$135.00	\$2,025.00
Wastewater Collection System Operator			
1	33	\$135.00	\$4,320.00
2	25	\$135.00	\$3,375.00
3	12	\$135.00	\$1,620.00
4	33	\$135.00	\$4,455.00
Wastewater Collection System Operator total	103	\$135.00	\$13,770.00
Wastewater Treatment Operator			
A	17	\$135.00	\$2,295.00
B	6	\$135.00	\$810.00
C	12	\$135.00	\$1,485.00
D	20	\$135.00	\$2,615.00
S	4	\$135.00	\$540.00
Wastewater Treatment Operator total	59	\$135.00	\$7,745.00
Water Distribution System Operator			
1	41	\$135.00	\$5,400.00
2	34	\$135.00	\$4,590.00
3	8	\$135.00	\$1,080.00
4	22	\$135.00	\$2,970.00
Water Distribution System Operator total	105	\$135.00	\$14,040.00
Water Treatment Operator			
A	14	\$135.00	\$1,890.00
B	6	\$135.00	\$810.00
C	10	\$135.00	\$1,350.00
D	21	\$135.00	\$2,700.00
S	21	\$135.00	\$2,785.00
T	2	\$135.00	\$270.00
Water Treatment Operator total	74	\$135.00	\$9,805.00
<b>RESTORATIONS total</b>	<b>356</b>	<b>\$135.00</b>	<b>\$47,385.00</b>
<b>5% decrease from 2020</b>	<b>(367 in 2020)</b>		<b>\$49,615.00 in 2020</b>
<b>Grand Total of ALL Certification Applications in 2021</b> <b>5% increase from 2020 but the average cost per application decreased.</b>	<b>5,116</b> <b>(4,721 in 2020)</b>		<b>\$358,610.00</b> <b>\$342,410.00 in 2020</b>

CCWP Portal Fees- Training Unit Applications January 1, 2021 - December 31, 2021		
Fee Type	Number of Fees	Fees Collected
Non-Catalog TU applications	48	\$750.00
Catalog Course Applications	235	\$13,850.00
<b>TU APPLICATION FEES total</b>	<b>283 (283 in 2020)</b>	<b>\$14,600.00 \$16,150.00 in 2020</b>



2021 Expenditures Compared to Board-Approved Budget			
Description	Budget	Expenditures	Percent to Budget
<b>Income</b>			
App & Admin fees for exams	\$170,000.00	\$131,150.00	77%
App & Admin fees for renewals	\$255,000.00	\$195,490.00	77%
App & Admin fees for reciprocity	\$3,400.00	\$4,710.00	139%
TU Course approval fee	\$25,000.00	\$13,775.00	55%
Late fees	\$17,500.00	\$31,270.00	179%
<b>INCOME TOTALS</b>	<b>\$470,900.00</b>	<b>\$376,395.00</b>	<b>80%</b>
<b>Expenses</b>			
<b>Salaries and Fringe</b>			
Program Director	\$90,000.00	\$90,000.00	100%
Program Coordinator	\$68,400.00	\$68,400.00	100%
Program Assistant	\$68,400.00	\$68,400.00	100%
Accounting (bookkeeper)	\$24,000.00	\$24,000.00	100%
Executive Director	\$48,000.00	\$48,000.00	100%
<b>Operating Expenses</b>			
Support Services to Launch IT	\$13,020.00	\$4,500.00	35%
Hosting, Maintenance and offsite backup	\$8,400.00	\$8,400.00	100%
IT Services	\$3,000.00	\$3,000.00	100%
CO Treasurer Certificate Fee	\$24,825.00	\$20,480.00	82%
Bulk mailing, printing and postage	\$2,400.00	\$0.00	0%
Credit Card payment Processing	\$15,900.00	\$11,468.50	72%
Financial Audit	\$7,545.00	\$5,000.00	66%
WPI Membership Dues	\$1,800.00	\$1,800.00	100%
ABC Conference Attendance	\$6,000.00	\$6,000.00	100%
Training, staff	\$6,000.00	\$4,500.00	75%
Training, operators	\$6,000.00	\$5,000.00	83%
Travel Expense for Program Staff	\$6,000.00	\$3,791.01	63%
Office Supplies, Printing	\$2,400.00	\$2,400.00	100%
Office Rent and Utilities	\$6,000.00	\$6,000.00	100%
Miscellaneous Expenses	\$6,000.00	\$4,500.00	75%
<b>EXPENSE TOTALS</b>	<b>\$414,090.00</b>	<b>\$385,639.51</b>	<b>93%</b>

Identification of trends, issues and problems for board attention or action- CCWP Financials

The efficiency of the CCWP Portal saves operators and course providers both time and money; unfortunately, it negatively impacts the CCWP's earning potential

- There are very few rejected applications.
- Every year there are fewer and fewer late fees collected.
- Operators only pay CCWP exam applications fees once and have 180 days to take and pass exams; however, they pay WPI/PSI \$100.00 every time they take an exam.
- Course providers can submit up to ten course applications at once. There was a 38% increase in application submitted between 2020 and 2021, yet there was a 7% decrease in funds collected from course providers.
- Operators can submit non-catalog TU applications for TU consideration. In 2021, 387 applications were reviewed, yet only \$750. This means that the average funds collected per application are less than \$2.00.

#### **Section 7: 2021 CCWP Staff**



**Vanessa Roy**  
CCWP Program Assistant



**Paula Martinez**  
CCWP Program Coordinator



**Larisa Oringdolph**  
CCWP Director



**COLORADO**  
Department of Public  
Health & Environment

# FACILITY OPERATORS CERTIFICATION PROGRAM

CY 2021 Annual Report to the Water and Wastewater  
Facility Operators Certification Board

April 13, 2022

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## INTRODUCTION

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The Water Quality Control Division's (division) responsibilities for Colorado's water and wastewater facility operators certification program include:

- monitoring, encouraging and, as needed, enforcing facility compliance with the requirement to operate under the supervision of a certified operator in responsible charge,
- investigating allegations of operator misconduct,
- interacting with stakeholders,
- drafting regulatory, policy and guidance revisions for board consideration,
- outreach and education efforts, and
- ensuring that periodic internal and external reviews of the program are done.

Division activities in these areas during calendar year 2021 are documented in the following sections of this report.

## FACILITY COMPLIANCE

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Article 9 of Title 25, C.R.S., Water and Wastewater Treatment Facility Operators, requires “every water treatment facility, domestic or industrial wastewater treatment facility, wastewater collection system and water distribution system be under the supervision of a certified operator, holding a certificate in a class equal to or higher than the class of the facility or system.”

Regulation 100, the Water and Wastewater Facility Operator Certification Requirements, uses this statutory language to identify the purpose for the regulation. Compliance with the certified operator in responsible charge (ORC) requirement is determined by the following:

- Has the facility owner reported the ORC's name and operator identification number to the division? (100.10.4)
- Does the ORC have a valid certificate? (100.16.3)
- Is the reported ORC's certificate at or above the level of classification of the facility they are operating? (100.10.2, 100.10.5)

If a response to any of these questions is no, the facility owner is out of compliance with Regulation 100.

### Public water systems

Accurate and timely compliance determination is a division priority. Operator data from the CCWP Portal allows the division to monitor the ORC compliance status for all drinking water systems required to comply with Regulation 100. Compliance can be determined at any time, although the division usually runs compliance reports monthly as part of its routine work flow.

Water treatment facilities and water distribution systems are classified separately, impacting the number of unique public water systems in the state. During 2021, 43 public water systems received violations for failing to meet the ORC requirements. Colorado enforces the requirement to provide public notice within 30 days of the violation notice, which is a powerful motive for compliance.

Systems that do not return to compliance in a timely manner may be issued a formal enforcement order with penalties.

Although treatment facilities and water distribution systems are classified separately, according to EPA, the operator violation is a system level violation. That means failure to have both a treatment and a distribution operator, for a system that has both processes, is a single violation. Table 1 lists the number of public water systems by type and their compliance rates. Prior to 2020, the number of systems in Table 1 indicated the total number of facilities classified as water treatment plus the total number of systems classified as water distribution. For 2020 and 2021, the count of systems reflects the number of a) treatment only systems, b) distribution only systems and c) systems that have both water treatment and water distribution components. This simplifies the accounting of the compliance rate.

**Table 1 -Public water system facilities and compliance status.**

Reporting year	Treatment and distribution systems	Compliance rate (%)
Community		
2017	1619	99%
2018	1575	98%
2019	1635	98%
2020	911	97%
2021	917	98%
Non-transient Non-community		
2017	274	98%
2018	281	98%
2019	291	99%
2020	174	99%
2021	174	98%
Transient Non-community		
2017	1475	96%
2018	1506	98%
2019	1543	98%
2020	970	98%
2021	971	97%

## Wastewater facilities

In 2021, the division issued 144 compliance advisories to industrial wastewater facilities and 71 compliance advisories to domestic wastewater facilities for failure to meet the ORC requirements. By December 31, 2021, 33 industrial wastewater facilities and 24 domestic wastewater facilities under general permits were still under compliance advisories. Due to a position vacancy in the division, the

number of domestic wastewater facilities under individual permits which were still out of compliance with the ORC requirement at the end of 2021 could not be determined.

Table 2 shows the compliance rates for both domestic and industrial wastewater treatment facilities.

**Table 2 - Wastewater facilities required to have an ORC.**

Reporting year	Permitted facilities	Compliance rate
Permitted Domestic Wastewater Facilities		
2017 Individual	245	97%
2017 General	295	99%
2018 Individual	248	100%
2018 General	260	100%
2019 Individual	255	92%
2019 General	275	92%
2020 Individual	262	91%
2020 General	266	96%
2021 Individual	249	86%
2021 General	273	86%
Permitted Industrial Wastewater Facilities		
2017 Individual	137	88%
2017 General	75	71%
2018 Individual	119	100%
2018 General	240	100%
2019 Individual	135	70%
2019 General	104	44%
2020 Individual	134	78%
2020 General	102	26%
2021 Individual	129	98%
2021 General	167	15%

A transposition error caused inaccurate compliance rates for 2020 individual and general industrial wastewater facilities to be reported in the 2020 Annual Report. The correct 2020 compliance rates are reflected above in Table 2.

The compliance rate for industrial wastewater facilities under individual permits rose from 78% in 2020 to 98% in 2021. Factors contributing to this improvement include

- the success of the updated process for tracking and sending compliance advisories;
- many operators with expired certificates restored their certificates; and
- a number of facilities eligible for ORC exemptions due to passive treatment obtained exemptions during 2020.

The compliance rate for industrial wastewater facilities under individual permits dropped from 26% in 2020 to 15% in 2021. Factors contributing to this change include:

- The November 2020 Regulation 100 revision that updated the definition of “Industrial Wastewater Treatment Facility” effectively removed an ORC exemption for facilities designed to operate for less than one year. This had an impact on dewatering facilities.
- New dewatering permits issued in 2020 allowed more facilities to qualify. The number of permitted facilities in this category was 102 in 2020. It rose to 167 in 2021.

A number of industrial facilities are automatically exempted from the ORC requirement. Per Regulation 100.1.6, automatic exempted facilities include facilities which discharge pursuant to a Colorado Discharge Permit System general permit for:

- Industrial stormwater.
- Construction stormwater.
- Municipal stormwater.
- Water treatment plant wastewater discharge.
- Construction dewatering activities.
- Aquatic animal production.
- Sand and gravel mining and processing stormwater.
- Sand and gravel mining wastewater and stormwater combined.
- Minimal industrial discharge.
- Subterranean dewatering or well development.
- Hydrostatic testing of pipelines, tanks and similar vessels.
- Non-contact cooling water.
- Pesticides application.
- Commercial washing of outdoor structures.

Per 100.1.6, the WWFOCB can grant discretionary exemptions from the ORC requirement under certain conditions. In 2021, three discretionary exemptions were granted, all for meeting the passive or no treatment requirement of Regulation 100.1.6(c)(i).

## FACILITY ENFORCEMENT

In 2021, three formal drinking water enforcement actions and one formal wastewater notice of violation (NOV) were issued to facilities that failed to comply with the ORC requirement. By the end of the year, all but one had returned to compliance.

Table 3 - Notices of violation with status.

Reporting year	Drinking water	Wastewater	Total DW and WW NOVs issued	Returned to compliance
2017	4	0	4	1
2018	5	0	5	4
2019	2	3	5	5

2020	5	2	7	5
2021	3	1	4	3

## DISCIPLINARY ACTION INVESTIGATIONS

The board is authorized to take disciplinary action against a certified operator under sections 25-9-104(6) and -104(6.5) C.R.S. This authority provides the board with discretion to reprimand a certified operator or suspend or revoke an operator's certification. As delegated in statute, the division investigates allegations of operator misconduct and makes recommendations to the board for action.

Complaints are received in writing by email or mail. Complaints come from facility customers, co-workers, supervisors, subordinates, etc. and division staff from a variety of interactions including on-site inspections and visits. Confidentiality is maintained throughout the complaint investigation and disposition.

Below is a summary of complaints received against a certified operator for misconduct in the exercise of their duties.

**Table 4 - Disciplinary action investigations conducted (with disposition).**

Type of action	2017	2018	2019	2020	2021
Letter of reprimand				1	1
Consent agreement					
Suspension or revocation				2	6
Conference	2				
Warning letter		4	1	3	
Closed - lack of evidence	1	1		4	
Investigation still open at end of the year				1	1
<b>Total investigations</b>	<b>3</b>	<b>5</b>	<b>1</b>	<b>11</b>	<b>8</b>

## STAKEHOLDER GROUPS AND PARTICIPATION

The EPA identified stakeholder involvement as important to the public health objectives of the program. Stakeholders help ensure the relevancy and validity of the program and the confidence of all interested parties. States are required to include ongoing stakeholder involvement in the revision and operations of state operator certification programs. Stakeholder involvement goes beyond public comment on rule revisions and participation in board meetings.

### Examples of stakeholders:

- Certified operators.
- Contract operators.
- Drinking water system owners.

- Domestic and industrial wastewater permittees.
- Local government officials
- Environmental/public health groups.
- The general public.
- Consumer groups.
- Technical assistance providers.
- Utility managers.
- Trainers.
- Water and wastewater professional organizations.

In addition to providing an opportunity for public comment at the beginning of every meeting, the board received feedback from stakeholders during a “town hall” session in October.

### Specific staff participation:

A number of division staff participates in a variety of activities with stakeholders. These include:

- Rocky Mountain Section American Water Works Association and Rocky Mountain Water Environment Association Joint Small Systems Committee.
- Colorado Water and Wastewater Utility Councils.
- Water Quality Management Program advisory boards at Red Rocks Community College and Arvada West High School.

## REGULATION REVISIONS

Table 5 identifies revisions to Regulation 100, 5 CCR 1003-2, adopted by the board in the past 5 years, along with the associated effective dates. For a detailed description of changes, refer to the corresponding statements of basis and purpose comprising sections 100.54-100.59 of Regulation 100.

Table 5 - Regulation 100, 5 CCR 1003-2 revisions.

Reporting year	Regulation 100 revisions	Statement of basis and purpose
2017	Amended 06/20/17, effective 08/31/17	Section 100.54
2018	Amended 09/25/18, effective 03/01/19	Section 100.55
2018	Amended 11/27/18, effective 03/01/19	Sections 100.56 and 100. 57
2019	Amended 11/26/19, effective 1/30/20	Section 100.58
2020	Amended 9/29/20, effective 11/30/20	Section 100.59
2021	Amended 1/26/21, effective 3/31/21	Section 100.60
2021	Amended 3/30/21, effective 5/15/21	Section 100.61

## DIVISION OUTREACH AND EDUCATION EFFORTS

The division's outreach and education efforts through the Local Assistance Unit focused on three main areas in 2021:

- Course providers continued to reach rural and small systems during the pandemic through monthly in-person and webinar training events.
- Coaches continued to focus on building a culture of health with operators and system staff.
- Course providers continued to develop specialized training curriculum including:
  - How to draft required written delegation plans;
  - Functional exercises for emergency water supply;
  - Code of conduct and ethics discussions; and
  - The role of decision-makers in a water system.

The Local Assistance Unit provided 24 group training events in 2021, reaching 740 operators from 495 systems. In addition, division coaches provided one-on-one assistance at 76 facilities.

## DIVISION PROGRAM EXPENSES

The division liaison to the board position is the only staff person wholly dedicated to the facility operator certification program. Many duties assigned to the division through facility operator certification statute and regulation are performed as part of the routine duties for approximately 76 division staff including compliance, enforcement, sanitary survey and inspection, design review and approval, facility classification, administrative support and management oversight.

Division management recognizes a correlation between compliance with Regulation 100 and overall compliance with permits or drinking water regulations. To facilitate an efficient and effective approach to interactions between division staff and the regulated community and to efficiently use limited resources, each water and wastewater facility is assigned to a single compliance specialist. The compliance specialist oversees the facilities compliance with all applicable regulations including Regulation 100. The drinking water specialist oversees compliance with the primary drinking water regulations and with Regulation 100 for drinking water facilities. The clean water specialist oversees compliance with the permit and with Regulation 100 for wastewater facilities.

Table 6 shows the salary expenses for the board administrator and the division liaison for calendar year 2021. The costs associated with the routine tasks assigned to over 76 division staff members are not included in Table 8. The salaries of the liaison to the board and the board administrator were paid through state general funds, federal grants, drinking water and permitted facility fees.

**Table 6 - Board administrator and division salary expenses.**

	Salary expenses for board administrator and division program staff <sup>1</sup>	Full time equivalent (FTE)
2017	\$144,367	1.2 FTE

		0.1 Management, 0.1 PAIL, 1.0-EPS III <sup>1</sup>
2018	\$121,983	1.2 FTE 0.1 Management, 0.1 PAIL (for 7 months), 1.0-EPS III <sup>1</sup>
2019	\$153,356	1.6 FTE 0.6 Management, 1.0-EPS III <sup>1</sup>
2020	\$155,584	1.6 FTE 0.6 Management, 1.0-EPS III <sup>1</sup>
2021	\$160,636	1.6 FTE 0.6 Management, 1.0-EPS III <sup>1</sup>

<sup>1</sup> Directly assigned to the operator certification program (does not include 76+ staff who have some responsibility for operator certification program implementation)

## REVIEWS

### Internal and external reviews

As part of the Final Guidelines for the Certification and Recertification of the Operators of Community and Non-transient Non-community Public Water Systems, February 5, 1999, the U.S. Environmental Protection Agency recommends that states perform periodic internal reviews and occasional external or peer reviews. Examples of items to review include: regulations, exam items for relevancy and validity, compliance, enforcement, budget and staffing, training relevancy, training needs through examination performance, and data management systems.

The division conducts routine internal reviews of regulations and policies. Through its contract with ABC, the board ensures regular reviews of exam items. The division continually assesses compliance, enforcement, while the board oversees budget and staffing with regards to its contract with CRWA. The CCWP office reviews training courses at least annually and routinely evaluates training needs by assessing examination performance data.

The program continues to seek input from external sources through periodic peer reviews.

### Sunset review

The sunset review is the analysis and evaluation of regulatory agencies to determine the least restrictive regulation consistent with the public interest. The purpose of the sunset review is to evaluate the need for the continued existence of existing regulatory bodies in accordance with the criteria established in statute.

Sunset reviews provide valuable information for the program, but in accordance with the Operator Certification Guidelines Implementation Guidance, January 2000, the U.S. Environmental Protection Agency determined a sunset review does not meet the periodic external or peer review requirement.

In accordance with Section 25-9-103(4), C.R.S., the last sunset review report was released in October 2019. In 2020, the state legislature implemented the recommendations contained in the



2019 sunset report by continuing the Water and Wastewater Facility Operators Certification Board until September 1, 2031.

## SUMMARY

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The division focused on ensuring that skilled, certified water professionals throughout Colorado were overseeing the treatment and distribution of safe drinking water as well as the collection and treatment of wastewater prior to discharge to waters of the state. The division remains committed to providing training and assistance to help operators succeed and to increasing compliance by facility owners by appropriately applying all the tools at our disposal.