



Colorado Department
of Public Health
and Environment

Water Quality Control Division Operator Certification Program

2013 Annual Report Water and Wastewater Facility Operator Certification Board

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Introduction

Operator certification is an important step in protecting public health and the environment by promoting compliance with the Safe Drinking Water Act, the Clean Water Act, and federal and state implementing regulations.

The goal of the operator certification program is to ensure that skilled professionals are overseeing the treatment and distribution of safe drinking water as well as the collection and treatment of wastewater prior to discharge. The State of Colorado's Operator Certification Program was approved by the U.S. Environmental Protection Agency as 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

The report provides the Water and Wastewater Facility Operators Certification Board (board) with a comprehensive overview of program activities. The report covers calendar year 2013 and includes data for the previous four years, where available, for comparison and trending purposes. The sources of data used to compile this report are the official annual reports to the U.S. Environmental Protection Agency, board contractors' annual reports, and records maintained by the board's contractors and the Colorado Department of Public Health and Environment, Water Quality Control Division (division).

Organizational information

The board is a nine 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 through 110, C.R.S.

The facility operator certification program is made up of four distinct groups: the board, the board administrator, the division and board contractors. They have interrelated responsibilities for activities within the program.

	Application review	Application appeal	Training unit approval	Examinations	Compliance & enforcement	Facility penalty	Outreach & education	Facility classification	Classification appeals	Disciplinary actions	Regulation & policy revisions
Board		X				X			X	X	X
Board administrator		X				X			X		X
Division					X	X	X	X	X	X	X
Contractors	X	X	X	X							

Table 1 - Responsibilities of the board, administrator, division, and contractors.

The division is responsible for compliance and the enforcement that every water and wastewater facility is required to be 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 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 liaison between the division and the board, certified operators, and facility owners providing compliance assistance, regulation implementation, outreach and education.

The board contracts the operator certification and examination aspects of the program to the Colorado Environmental Certification and Testing, Inc. (CECTI), a non-profit organization comprised of subject matter experts who volunteer their time and expertise in support of the program. The members of CECTI also review and approve training courses to meet the professional development requirements for certification renewal. The contractor subcontracts daily operations to Total Events and Management Services, Inc. (TEAMS). TEAMS manages the Operator Certification Program Office (OCPO), which oversees the daily operation of operator certification.

Facility compliance

Article 9 of Title 25, C.R.S., 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.”

Public water systems

Reporting year	Number of public water systems	Number in compliance	Number non-compliant	Compliance rate (%)
<i>Community water systems</i>				
2009	926	914	12	98%
2010	927	916	11	98%
2011	933	916	17	98%
2012	871	848	23	97%
2013	869	811	58	93%
<i>Non-transient, non-community water systems</i>				
2009	179	178	1	99%
2010	184	182	2	98%
2011	182	180	2	98%
2012	176	171	5	97%
2013	167	157	10	94%
<i>Transient, non-community water systems</i>				
2009	778	761	17	98%
2010	767	750	17	98%
2011	782	746	36	95%
2012	968	859	109	89%
2013	970	839	131	86%

Table 2 -Public water systems compliance status.

The division has historically tracked system classification and ORC information separate from the division’s drinking water data system of record, the Safe Drinking Water Information System (SDWIS). Maintaining an accurate inventory of facilities outside SDWIS has proven to be very difficult and resulted in an inaccurate inventory.

Since late 2011 the division has been integrating the facility classifications and the water treatment and distribution operator in responsible charge (ORC) information into SDWIS. The integration was completed in September 2013. Reports were also developed to utilize both the division's facility data and OCPO's operator certification data. The reports compare the facility classification with the operator certificate level and the validity of the certificate at the time of the report.

The integration of data into a single data system significantly improved the division's ability to accurately determine compliance with Regulation 100. As part of the integration project the division discovered that there were approximately 200 transient non-community water systems that were not being tracked for compliance with Regulation 100. Table 2 shows the increase in the inventory of transient non-community water systems being tracked from 2011 to 2013. Table 2 above also shows a decrease in the number of regulated community water systems.

In late 2012 and early 2013, the division systematically reviewed how the *Colorado Primary Drinking Water Regulations* applicability criteria was being applied to consecutive systems. As a result approximately 50 community water systems, from a high of 933 in 2011, were removed from the active community water system inventory.

Integration of ORC and facility classification data into SDWIS results in an accurate inventory for ORC tracking, but the addition of systems previously not tracked for compliance contributed to a decrease in compliance rate from 2011 to 2012. The division began evaluating compliance requirements for both water treatment and distribution system ORCs in 2012. This paradigm shift in compliance determination also contributed to a decrease in the compliance rate starting with reporting year 2012.

The integration results in accurate and timely compliance determination. In October 2013, the division began to determine the complete compliance status for all drinking water systems with the requirements of Regulation 100 on a monthly basis. Compliance status reports answer the following three questions for each regulated public water system:

- Has the system reported the ORC's name and operator identification number to the division?
- Does the ORC have a valid certificate?
- Is the reported ORC's certificate at or above the level of classification of the facility they are operating?

If the answers to all three questions are not in the affirmative for both treatment and distribution, the system is determined to be out of compliance with Regulation 100. The result was an additional drop in the compliance rate for 2013.

The most significant decrease in compliance rate is for transient non-community water systems which experienced a nine percentage point drop from 2011 to 2013. In 2013, the division identified approximately 60 transient non-community water systems whose operator held a Class T certificate, but the facility did not meet the restrictions identified in section 100.9.2(d). Specifically, the system had additional treatment beyond non-gaseous chlorine and in accordance with Regulation 100 the Class T certificate was not sufficient to operate the treatment facility. These violations contributed significantly to the lower compliance rate for reporting year 2013.

The division's increased ability to maintain a more accurate inventory coupled with the improved ability to assess compliance has resulted in a four to nine percent drop in compliance rates from 2011.

Wastewater facilities

The division continues its work to integrate the facility classifications and ORC information for permitted domestic and industrial wastewater treatment facilities and wastewater collection systems into the Integrated Compliance Information System (ICIS), the data system of record for all wastewater facilities subject to division oversight. The division has historically tracked classification and ORC information separate from ICIS.

Until the integration is complete, the division will continue to track permitted facility classification and ORC information separate from ICIS. Unlike drinking water facilities whose identification number is specific to a physical location, permits are issued to a permittee and can be transferred, expire or are reissued under a different permit number. This makes maintaining an accurate inventory very difficult without integration in the standardized data system.

The result of the historical and current tracking method, the division is not able to determine accurate compliance with the ORC requirements for wastewater facilities. The table below shows the number of facilities that have reported an ORC and the number of those that have not reported having an ORC.

Reporting year	Wastewater permitted facilities	Total facilities (treatment & collection)	With operator	No operator of record	% with operator of record
<i>Domestic sewerage facilities</i>					
2011	598		581	17	97%
2012	474	854	743	111	87%
2013	550	911	893	18	98%
<i>Collection only facilities</i>					
2011	124	124	119	5	96%
2012	152	152	131	21	86%
2013	149	149	132	17	89%
<i>Industrial Class 1 facilities</i>					
2011	129	129	127	2	98%
2012	131	131	82	49	63%
2013	167	167	117	50	70%

Table 3 - Wastewater facilities with operators of record.

The division has not been able to complete the verification of ORC status and facility classification for a significant number of permitted facilities. This is reflected in the lower numbers of facilities that have reported an operator for 2012 and 2013 as detailed above in Table 3.

Permitted industrial Class 2 facilities

Industrial facilities permitted under the Colorado Discharge Permit System are classified as either Class 1 or Class 2 facilities. Industrial Class 2 facilities are exempt from complying with the ORC requirement. There were 842 Class 2 industrial facilities in 2013.

Class 2 facilities include facilities which discharge pursuant to a Colorado Discharge Permit System general industrial 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.

During 2013 the board approved six reclassifications from class 1 to class 2 industrial facilities.

Facility enforcement

Notices of Violation (NOV) are formal enforcement actions that are taken against the owner of facilities who fail to comply with the requirement to ensure their facility is under the supervision of a certified operator who holds a certificate in a class equal to or higher than the class of the facility or system. Prior to 2011 there was no formal enforcement for failure to comply with the requirements of Regulation 100.

Reporting year	Drinking water	Wastewater	Total NOV's issued	Returned to compliance
2009	0	0	0	n/a
2010	0	0	0	n/a
2011	2	0	2	2
2012	11	4	15	15
2013	1	3 ¹	4	2

¹ In addition, there were two unpermitted facilities that were required to place the facility under the direct supervision of an ORC as part of an enforcement action. Both have complied.

Table 4 - Notices of violation and status.

Operator certification

Exams

Building an educated, experienced, and professional workforce is a primary focus in operator certification. To facilitate monitoring and evaluation of certification trends, data is maintained that includes the number of exams taken, certified operator counts and training opportunities.

Reporting year	Exams Taken	Number Pass	Number Fail	Pass Rate
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<i>Written exams</i>				
2009	2548	1465	1083	57%
2010	2528	1350	1178	53%
2011	2047	1081	966	53%
2012	1660	909	751	55%
2013	1548	827	721	53%
<i>Electronic exams</i>				
2011	467	293	174	63%
2012	649	429	220	66%
2013	1039	688	351	66%
<i>Overall, written and electronic</i>				
2011	2514	1374	1140	55%
2012	2310	1338	971	58%
2013	2587	1515	1081	59%

Table 5 - Examination pass rates, all levels.

The table above indicates that the written exam pass rate has remained steady between 53 and 57 percent over the last five years. The 2013 pass rate for exams taken electronically was 66%, with an overall 2013 pass rate of 59%.

The increase in overall pass rate is a result of the increased pass rate for those taking the exams electronically. As the number of people taking exams electronically has steadily increased so has the overall exam pass rate.

Electronic testing allows operators to make an appointment to take exams at their convenience in the OCPO office. Electronically administered exams are administered in a room with a maximum of eight people taking the exam. The atmosphere is quieter, more relaxed and questions are presented one at a time eliminating the distractions inherent in the traditional paper and pencil exams. As more people opt to take the exams electronically, the program anticipates a continued increase in the overall pass rate.

Late Fees

In 2012, the board authorized a late fee for submitting a renewal application after the certificate's expiration date and for submitting the administrative fee for new certificates more than 60 days after the notice of eligibility. For calendar year 2013, \$20,450 in late fees were collected.

Restricted or grandparented certificates

All operators with a restricted certificate have allowed the certificate to expire or have tested and received a standard certificate.

Professional development

	2009	2010	2011	2012	2013
Total approved courses available	347	347	571	600	575

Table 8 - Approved training opportunities for professional development.

Certificates Issued—new, renewal and by reciprocity

Certification category	2009	2010	2011	2012	2013
Water treatment	337	304	308	818	1067
Water distribution	348	372	334	877	1091
Class S water	52	126	96	196	196
Class T water				24	24
Wastewater treatment	340	347	271	629	762
Industrial wastewater treatment					213
Wastewater collection	290	302	260	650	753
Class S wastewater				71	68
Total	1367	1116	1269	3265	4174

Table 6 - Total certificates issued by category.

Active Operator Count

Colorado has 5,419 active water and wastewater certified water professionals holding 10,902 certificates.

Water treatment								
	W-A	W-B	W-C	W-D	W-S	W-T		
2011	760	239	569	778	539	75		
2012	795	303	637	856	584	76		
2013	778	336	623	906	582	77		
Wastewater treatment								
	WW-A	WW-B	WW-C	WW-D	WW-S			
2011	580	146	401	671				
2012	609	160	423	772	204			
2013	599	162	448	788	191			
Industrial wastewater treatment								
	Ind-A	Ind-B	Ind-C	Ind-D				
2011	113	31	174	172				
2012	117	32	176	166				
2013	119	47	172	184				
Water distribution					Wastewater collection			
	D-1	D-2	D-3	D-4	C-1	C-2	C-3	C-4
2011	1079	604	139	865	699	401	145	687
2012	1117	631	179	879	765	390	160	684
2013	1145	635	203	857	804	417	163	666

Table 7 - Active operator count by category and level.

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 by phone, email or mail. Complaints can be made anonymously and confidentiality of the complainant is maintained throughout the investigation and disposition of the complaint. Complaints come from facility customers, division staff from interaction and inspections, co-workers, supervisors, subordinates, etc.

Types of complaints received:

- Waterborne disease outbreak resulting from failure to properly maintain the distribution system
- Sample collection protocol not maintained
- Failure to monitor and report in compliance with the Colorado Primary Drinking Water Regulations
- Falsification of experience/education requirements on applications for examination
- Falsification of laboratory data/falsification of records
- Un-cooperative with division staff during the investigation of an acute situation at a drinking water system while acting as the facility's operator in responsible charge

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

Type of action	2009	2010	2011	2012	2013
Board actions taken					
Letter of reprimand	1	3	0	0	0
Consent agreement	0	1	0	0	0
Dismissed for lack of evidence (no action taken)	1	4	1	6	0
Total investigations	2	8	1	6	0

Table 9 - Disciplinary action investigations conducted (with disposition).

Stakeholder groups and participation

The EPA has identified stakeholder involvement as important to the public health objectives of the program. It helps 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 include:

- Certified operators.
- Drinking water system owners.
- Domestic and industrial wastewater permittees.
- Environmental/public health groups.

- The general public.
- Consumer groups.
- Technical assistance providers.
- Utility managers.
- Trainers.
- Water and wastewater professional organizations.

Division facility operator certification staff participates as a member of the Rocky Mountain Section American Water Works Association and Rocky Mountain Water Environment Association Joint Small Systems Committee, CDPHE 2015 Public Water System Training Strategy Administrative Framework Project Task Force and Value of Water Project.

The EPA has recommended each state have a stakeholder advisory committee. The division is committed to expanding its participation in existing organizations and other outreach activities. The division is also working toward the formation of a stakeholder advisory committee.

Regulation revisions

Table 10 briefly identifies revisions to Regulation 100, 5 CCR 1003-2 and the effective date of the revisions. For a detailed description of the changes refer to the corresponding statements of basis and purpose comprising sections 100.45-100.49, Regulation 100.

Reporting year	Regulation 100 revisions	Statement of basis and purpose
2009	Amended 04/28/09; effective 6/30/09	section 100.45
	Amended 09/29/09; effective 11/30/09	section 100.46
2010	Amended 11/24/09; effective 1/30/2010	section 100.47
2011	Amended 11/29/11, effective 01/30/12	section 100.48
2012	Amended 04/24/12, effective 06/30/12	section 100.49
2013	No changes	

Table 10 - Regulation 100, 5 CCR 1003-2 revisions.

Outreach and education

Division facility operator certification staff participates in conferences, seminars, and trainings. These specifically targeted presentations provide additional opportunities for contact with the public, businesses owners and permittees, special district and town boards, trustees, city councils and other municipal officials and certified water professionals. Presentations have been given to contract operators and regional certified water professional organizations.

The following table gives a brief overview of outreach and assistance efforts with an annual total number of events attended and/or presented.

Event	Number of Events				
	2009	2010	2011	2012	2013
RMSAWWA Action Now Seminars	10	10	10	10	0
Rocky Mountain Plant Operator School: fundamental	2	2	2	2	2
Rocky Mountain Plant Operator Schools: intermediate-advanced	3	3	3	3	2
Colorado Rural Water Association Conference - Colorado Springs	2	2	2	2	2
Colorado Rural Water Association Conference - Grand Junction	2	2	2	0	0
Leadville Operator School	2	2	2	2	2
Joint RMSAWWA-RMWEA Small Systems Committee Seminars	0	0	3	3	3
Colorado Environmental Health Association Conference	1	0	0	1	0
ABC Annual Conference	1	1	1	1	1
RMSAWWA-RMWEA Annual Conference	0	0	1	1	1
Colorado Distribution & Collection Short School	0	0	1	1	0
Triennial EPA Operator Certification/Capacity Development Workshop	0	0	0	0	1
Regional EPA Operator Certification/Capacity Development Workshop	0	0	1	0	0
Facility or small group presentations	0	0	0	3	2
Total events attended	23	22	28	29	16

Table 11 - Facility operator certification staff outreach and education.

There was a significant decrease in the number of outreach opportunities by the division for 2013. Division staff was not asked to participate in the Action Now seminars for calendar year 2013 which resulted in ten less outreach events.

Program cost information

Fees

Income originates from fees charged to applicants for individual operator certification and training unit approvals as authorized by statute and regulation. All fees are paid directly to the board's contractors.

Program cost

Tables 12 and 13 provide program costs for the board contractors, the board's administrator and division staff. These expenditures only reflect a portion of the actual cost of the program.

There are many certified water professionals from across the state who volunteer their time and expertise serving on the CECTI board and participating as members of the calendar, exam application, exam review, proctor, reciprocity, renewal and training unit approval committees. These volunteers donated over 3,266 hours in support of the certification

program in 2013. In addition, many non- certified water professional volunteers have donated their time in support of the program in various capacities, such as exam proctors.

	CECTI ¹	Certification Council ¹
2009	\$230,872	\$199,213
2010	\$261,311	\$249,458
2011	\$269,695	\$234,225
2012	\$264,705	\$224,026
2013 ²	\$350,362	

¹ From contractor's annual reports to the board

² CECTI and the Certification Council merged in 2013 to become CECTI

Table 12 - Contractor program expenses.

Board administrator and division program staff salary expenses are identified below in Table 13. Salary costs for division and the board administrator staff are paid through state general funds, federal grants, and drinking water and permitted facility fees, not by facility operator certification program fees.

	Salary expenses for board administrator and division program staff	Full time equivalent (FTE)
SFY ¹ 2011	\$132,178	1.965 FTE 0.05 ² Management 0.1 PAIII 0.53-EPS III 1.0-EPS II 0.33-PA I
CY ³ 2012	\$249,994	3.425 FTE 0.05 ² Management 0.1 PAIII 1.0-EPS III 1.0-EPS II 0.66-PA I 0.66 GP I ⁶
CY 2013	\$210,663	2.308 FTE 0.034 ⁴ Management 0.05 ⁵ Management 0.1 PAIII 1.0-EPS III 0.75-EPS II ⁷ 0.375-PA I ⁷

¹ SFY - State fiscal year (July 1- June 30); not reported are salary costs for July 1 to December 31, 2011

² Part time position 0.5 FTE January-August 2013 - estimated 10% dedicated to WWFOCB

³ CY—Calendar year; reporting moved to calendar year reporting effective January 1, 2012

⁴ Part time position 0.5 FTE January-August 2013 - estimated 10% dedicated to WWFOCB

⁵ Full time position effective July 1, 2013 - estimated 10% dedicated to WWFOCB

⁶ Position was a term-limited position and expired in August 2012

⁷ Positions were moved to other programs within the division effective October 1, 2013

Table 13 - Board administration and division salary expenses.

Since July 2010 and December 2013, there have been many changes in facility operator certification program staffing within the division. Some of these changes are reflected above in Table 13. The division liaison to the board retired in 2010 after a decade of service and a new division liaison was hired in mid-2011. A term-limited position was filled in early 2011 then vacated in mid-2011. The position was originally at an EPS III level and was changed to a GP1 level. Staff was hired to fill the position from December 2011 until August 2012. This left two and a half full time division staff dedicated to the facility operator certification program. In addition, the board administrator retired in August 2013 and a new board administrator was hired in July 2013.

Division management recognized the correlation between compliance with Regulation 100 and overall compliance with permits or drinking water regulations. For each regulated entity there were several division staff members who were responsible for one piece or another of the facility's compliance with all applicable requirements. This frequently led to a duplication of efforts by division staff. It was not unusual for a regulated entity to receive multiple letters from the division requiring them to communicate with several different staff members. This often led to confusion for both division staff and the regulated entity.

To facilitate a more holistic approach to interactions between division staff and the regulated community and to efficiently use limited division resources, division management made several significant changes within division programs in October 2013.

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 clean water regulations, the permit and with Regulation 100 for wastewater facilities.

As part of this change, one and a half dedicated facility operator program staff positions were moved to other positions within the clean water and drinking water programs. The division liaison to the board position remains dedicated to the facility operator certification program.

Many duties assigned to the division through facility operator certification statute and regulation are now performed as part of routine duties including compliance, enforcement, sanitary survey and inspection, design review and approval, administrative support, and management oversight work. Through the changes made in 2013, the division is better able to fulfill the oversight obligations assigned by statute and regulation.

The routine tasks assigned to many division staff members are not included in the table above. All division staff are paid through state general funds, federal grants and drinking water and permitted facility fees.

The true costs of the operator certification program are difficult to assess because of the division of duties among division staff and the countless hours donated by volunteers to the program. Together, the program fees charged to individuals and trainers remain as low as possible.

Summary

The staff and volunteers focus on ensuring that skilled, certified water professionals throughout Colorado are 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 working to improve the exam pass rate and increase compliance by facility owners without compromise.