New Mexico Environment Department
Utility Operator Certification Program

SMALL WATER ADVANCED (SWA)

Operator Guidebook with Need to Know Criteria

March 2026[1]

The New Mexico Environment Department (NMED) administers the Utility Operator Certification Program to implement and enforce the rules of 20.7.4 NMAC (New Mexico Administrative Code) pursuant to the Utility Operators Certification Act [Chapter 61, Article 33 NMSA 1978].

Small Water Advanced (SWA)
According to Subsection A of 20.7.4.12 NMAC, the Small Water Advanced (SWA) certification is required to operate the various types of treatment processes at public water supply systems as listed below.

Type of Treatment Process	Population Served				
	25 to 500	501 to 5,000	5,001 to 10,000	10,001 to 20,000	20,000+
Filtration (sand, gravity)	**SWA**	----	----	----	----
Coagulation, sedimentation, filtration	**SWA**	----	----	----	----
Chemical precipitation (Mn, Fe, softening)	**SWA**	----	----	----	----
Pressure filtration	**SWA**	----	----	----	----
Ion exchange (softening, defluoridation)	**SWA**	----	----	----	----
Arsenic removal	**SWA**	----	----	----	----
Radionuclide removal	**SWA**	----	----	----	----
Special, such as desalinization	**SWA**	----	----	----	----

According to Subsection A of 20.7.4.14 NMAC, an operator holding a Small Water Advanced certification is also certified to perform any activity or function or make any process control or system integrity decision which requires:

- ✓ Small Water (SW) certification.

[1] This Guidebook was reviewed by the New Mexico Utility Operators Certification Advisory Board in January and February 2026.

Certification Eligibility

To be eligible to take the Small Water Advanced exam, an applicant must meet the following criteria. However, some criteria substitutions may be allowed as listed in the table provided on the next page. [References: 20.7.4.21 NMAC, and 20.7.4.22 NMAC]

- Submit a complete application through the NMED Utility Operator Certification Program online platform and pay the nonrefundable examination application fee.
- Be at least 18 years of age.
- Have a High School diploma or general equivalency diploma.
- Have a minimum of one year of experience*.

  "**Experience**" means actual work experience, full or part-time, as an operator in the fields of public water supply or public wastewater treatment; work experience in a related field may be accepted at the discretion of the NMED.
  [Reference: Subsection K of 20.7.4.7 NMAC]
- Complete a minimum of ten (10) training credits covering the topics listed in the need-to-know criteria of this document.

SWA Eligibility Criteria		**Allowable Substitutions** as set forth in Subsection B of 20.7.4.22 NMAC
Application	Completed application	No substitutions.
Fee	Payment of examination application fee	No substitutions.
Age	Evidence of Age of Majority (18 years of age)	No substitutions.
Education	High School or general equivalency diploma	1. In no case shall the actual experience be less than one year for any level except as in Subparagraph (d) of Paragraph (2) listed below. 2. Education may be substituted for the basic requirements or used for training credits as follows. In no case may the same education serve both as a substitute for experience and as training credits except as provided in the following paragraphs. a) One (1) year of additional experience may be substituted for the high school graduation or general equivalency diploma requirement. b) No more than one year (30 semester hours) of successfully completed college education in a non-related field may be substituted for any additional six months of the required experience. c) One year of an approved vocational school in the water and/or wastewater field may be substituted for only one additional year of the required experience. d) An associate's degree for a two-year program in an approved school in the water and/or wastewater field and six months of actual experience in that field (which may be accrued before, during, or after the school program) may be substituted for the requirements of any level up to and including level 2. e) Completion of at least three years of actual experience in the water and/or wastewater field plus high school diploma or equivalent, plus 15 semester hours of successfully completed college education directly related to the water or wastewater field may be substituted for any level up to and including level 3. f) A bachelor's degree for a major directly related to the water or wastewater field plus two years of actual experience in that field may be substituted for any level up to and including level 3. 3. Full time water and wastewater laboratory experience may be substituted for operator experience in a respective field at a rate of 25 percent of the actual experience held.
Experience*	One (1) year	
Training	Ten (10) hours of approved training credits	
Exam	Pass the SWA exam	No substitutions.

* "Experience" definition provided on previous page (page 2 of this document)

A supplemental **SWA Application Scenarios Pamphlet** may be available from NMED to help explain allowable substitution pathways.

Renewal Training Credits

SWA operator certification must be renewed at three-year intervals. Certification renewal requires the holder obtain thirty (30) training credits for approved training during the three-year period preceding the date on which the renewal application is due. The thirty training credits must be in support of the SWA operator's job and must include at least ten (10) training credits for approved training specifically in the operations and maintenance of public water supply systems. NMED Utility Operator Certification Program approval of training credits will be based on alignment with the topics listed in the need-to-know criteria of this document.

Exam Content

NMED and a panel of subject-matter experts developed the **Small Water Advanced (SWA)** operator certification exam. The SWA certification exam consists of 75 multiple-choice questions that cover the 18 main content areas listed below. This need-to-know criteria document provides a breakdown of the topics and subtopics within each main content area. A list of suggested study references is provided at the end of this document. The minimum passing score on the SWA exam is 70% (53/75).

	Main Content Areas	Number of Exam Questions
1	Chemical Stabilization	2
2	Coagulation & Flocculation	4
3	Cross-Connection Control	3
4	Disinfection	6
5	Distribution	7
6	Filtration	6
7	General	7
8	Ion Exchange Softening	2
9	Laboratory Procedures	2
10	Mechanical Systems	7
11	Pressure Filtration	3
12	Regulations	4
13	Safety	6
14	Sampling & Reporting	4
15	Sedimentation	2
16	Storage	3
17	Taste and Odor	3
18	Wells	4
	Total:	75 questions on exam

NEED-TO-KNOW CRITERIA FOR SMALL WATER ADVANCED (SWA)

Content Area and Topics	Number of Exam Questions
1. Chemical Stabilization	**2**
Corrosion Control Provisions Lead & Copper Rule Iron & Manganese control Treatment pH adjustment	

Content Area and Topics	Number of Exam Questions
2. Coagulation & Flocculation	**4**
Operation & maintenance Normal & abnormal conditions Problems & corrections Troubleshooting Process control Jar test Process description Chemicals used Components Purpose	

Content Area and Topics	Number of Exam Questions
3. Cross-Connection Control	**3**
Applications General Maintenance Types of devices	

Content Area and Topics	Number of Exam Questions
4. Disinfection	**6**
Hypochlorination Equipment used Maintenance Operation Safety Storage & handling Process description Factors affecting disinfection Purpose Reactions of chlorine Typical pathogens Residual Ozone Disinfection	

Content Area and Topics	Number of Exam Questions
5. Distribution	**7**
Maps Meters Accountability Types Piping & joints Hydraulics Installation Materials Operations & maintenance Valves Purpose Types	

Content Area and Topics	Number of Exam Questions
6. Filtration	**6**
Gravity Filtration Operation & maintenance Backwash Maintenance Normal & abnormal conditions Problems & corrections Troubleshooting Process control Process description Components Purpose Slow sand filtration Types	

Content Area and Topics	Number of Exam Questions
7. General	**7**
Basic chemistry pH Symbol identification Hydrologic cycle Groundwater Surface water Measurement Units Purpose Terms Water characteristics Chemical Microbiological Physical Terms	

Content Area and Topics	Number of Exam Questions
8. Ion Exchange Softening	**2**
Operation & maintenance Maintenance Normal & abnormal conditions Problems & corrections Troubleshooting Process control Process description Components Chemistry of softening Purpose	

Content Area and Topics	Number of Exam Questions
9. Laboratory Procedures	**2**
Tests Hardness Turbidity	

Content Area and Topics	Number of Exam Questions
10. Mechanical Systems	**7**
Chemical feeders Calibration Operation & maintenance Types General maintenance Instrumentation Metering equipment Motors Components Maintenance-general Operation Pumps Components Hydraulics Maintenance Operation Troubleshooting Types Valves Characteristics Operations & maintenance Types	

Content Area and Topics	Number of Exam Questions
11. Pressure Filtration	**3**
Operation & maintenance Backwash Normal & abnormal conditions Problems & corrections Troubleshooting Process controls Process description Components Purpose Types	

Content Area and Topics	Number of Exam Questions
12. Regulations	**4**
EPA SDWA Regulations NM Utility Operator Certification Regulations NM Drinking Water Regulations	

Content Area and Topics	Number of Exam Questions
13. Safety	**6**
Chemical handling Confined space entry Electrical Emergency Action Plan Excavation & shoring Facility Security Fire First aid Hazardous gases Job Safety Hazard Analysis Ozone Safety Personal Rotating machinery Safety Data Sheets Working in streets	

Content Area and Topics	Number of Exam Questions
14. Sampling & Reporting	**4**
Records Reporting requirements SDWA compliance sampling Asbestos Chemical contaminants Disinfection byproducts group Lead and Copper group Microbiological contaminants Physical contaminants Public notification requirements Sampling procedure Preservation Representative sampling Testing Process description Components Purpose Types	

Content Area and Topics	Number of Exam Questions
15. Sedimentation	**2**
Loading rates & efficiency Hydraulic Removal efficiency Solids Operating characteristics Operation & maintenance Factors affecting setting Maintenance Normal & abnormal conditions Problems & corrections Troubleshooting Process control Detention time Process description Components Purpose	

Content Area and Topics	Number of Exam Questions
16. Storage	**3**
Operations & maintenance Corrosion control Disinfection Inspection Process description Components Purpose Types	

Content Area and Topics	Number of Exam Questions
17. Taste & Odor Control	**3**
Causes & Prevention Operation & maintenance Normal & abnormal conditions Problems & corrections Troubleshooting Process control Process description Activated carbon Purpose Types	

Content Area and Topics	Number of Exam Questions
18. Wells	**4**
Components Operation Troubleshooting Water level measurement Process description Sanitary characteristics Well Pumps	

SUGGESTED STUDY RESOURCES

The following is a non-inclusive, non-endorsement listing of reference sources that can be reviewed to help prepare for the New Mexico **Small Water Advanced (SWA)** operator certification exam.

Small Water System Operations and Maintenance

- California State University, Sacramento (CSUS) Foundation, Office of Water Programs, *Small Water System Operations and Maintenance*, (latest editions)

Drinking Water Treatment

- American Water Works Association (AWWA), Water System Operations (WSO), *Water Treatment, Grade 1*
- American Water Works Association (AWWA), Water System Operations (WSO), *Water Treatment, Grade 2*
- American Water Works Association (AWWA), Water System Operations (WSO), *Water Treatment, Grade 3 & 4*
- California State University, Sacramento (CSUS) Foundation, Office of Water Programs, *Water Treatment Plant Operation, Volume 1* and *Volume 2*, (latest edition)

Drinking Water Distribution

- American Water Works Association (AWWA), Water System Operations (WSO), *Water Distribution, Grades 1 & 2*
- American Water Works Association (AWWA), Water System Operations (WSO), *Water Distribution, Grades 3 & 4*
- California State University, Sacramento (CSUS) Foundation, Office of Water Programs, *Water Distribution System Operation and Maintenance*, (latest edition)

Mathematics

- American Water Works Association (AWWA), *Math for Water Treatment Operators: Practice Problems to Prepare for Water Treatment Operator Certification Exams*
- American Water Works Association (AWWA), *Math for Distribution System Operators: Practice Problems to Prepare for Distribution System Operator Certification Exams*
- *Basic Math Concepts for Water and Wastewater Plant Operators*, by Joanne Kirkpatrick Price, (latest edition)

Regulations

- Safe Drinking Water Act, https://www.epa.gov/sdwa, and U.S. Code of Federal Regulations, Title 40, Part 141
- U.S. Environmental Protection Agency, Drinking Water Rule Quick Reference Guides, https://www.epa.gov/dwreginfo/drinking-water-rule-quick-reference-guides
- New Mexico Administrative Code, Title 20, Chapter 7, Part 10, Drinking Water (20.7.10 NMAC)
- New Mexico Administrative Code, Title 20, Chapter 7, Part 4, Utility Operator Certification (20.7.4 NMAC)

Worker Safety

- American Water Works Association (AWWA), *Let's Talk Safety: 52 Talks on Common Utility Safety Practices for Water Professionals*, (latest edition)
- American Water Works Association (AWWA), *Chlorine Safety Pocket Guide*, (latest edition)

Water Sampling

- American Water Works Association, American Public Health Association, and Water Environment Federation, *Standard Methods for the Examination of Water and Wastewater* (latest edition)
- U.S. Environmental Protection Agency, *Quick Guide to Drinking Water Sample Collection* (latest edition)
- U.S. Environmental Protection Agency, The Standardized Monitoring Framework: A Quick Reference Guide

Laboratory Procedures

- American Water Works Association, American Public Health Association, and Water Environment Federation, *Standard Methods for the Examination of Water and Wastewater* (latest edition)
- CRC Handbook of Laboratory Safety, (latest edition)
- Water Environment Federation (WEF), *Basic Laboratory Procedures for the Operator—Analyst*, (latest edition)
- Water Environment Federation (WEF), *Water and Wastewater Laboratory Techniques*, (latest edition)

Additional Study Aids

- American Water Works Association (AWWA), *Water Operator Certification Exam Prep*
- American Water Works Association (AWWA), *Water Operator Certification Exam Prep App*