

New Mexico Environment Department
Utility Operator Certification Program

PUBLIC WASTEWATER FACILITY – LEVEL 1 (WW1)

Operator Guidebook with Need-to-Know Criteria

March 2026¹

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].

Public Wastewater Facility – Level 1 (WW1)

According to Subsection A of 20.7.4.13 NMAC, the Public Wastewater Facility – Level 1 (WW1) certification is required to operate the various types of treatment processes at public wastewater facilities 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+ |
| Raw wastewater lagoons | ← | WW1 | WW1 | WW1 | WW1 |

(“←” signifies WW1 also covers lower categories)

According to Subsection G of 20.7.4.14 NMAC, an operator holding a Public Wastewater Facility – Level 1 certification is also certified to perform any activity or function or make any process control or system integrity decision which requires:

- ✓ Small Wastewater (SWW) certification, and
- ✓ Wastewater Collection System – Level 1 (CS1) certification.

According to Subsection C of 20.7.4.13 NMAC, an operator holding a Public Wastewater Facility – Level 1 certification is also certified to perform wastewater analysis for regulatory compliance at public wastewater facilities as listed below.

| Level of Certification Needed | Type of Methodology Performed |
|--|---|
| SWW, SWWA, WW1 , WW2, WW3, WW4, WWLT1, WWLT2 or WWLT3 | Total Residual Chlorine (TRC) by the N-diethyl-p-phenylene-diamine (DPD) method, pH, Temperature, and Dissolved Oxygen (DO) by probe. |

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 Public Wastewater Facility – Level 1 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.

| WW1 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 WW1 exam | No substitutions |

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

A supplemental **WW1 Application Scenarios Pamphlet** may be available from NMED to help explain allowable substitution pathways.

Renewal Training Credits

WW1 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 WW1 operator's job and must include at least ten (10) training credits for approved training specifically in the operations and maintenance of public wastewater facilities. 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 **Public Wastewater Facility – Level 1 (WW1)** operator certification exam. The WW1 certification exam consists of 100 multiple-choice questions that cover the 14 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 WW1 exam is 70% (70/100).

| Main Content Areas | | Number of Exam Questions |
|--------------------|-----------------------------|--------------------------|
| 1 | Collection Systems | 12 |
| 2 | Cross-Connection Control | 5 |
| 3 | Disinfection | 5 |
| 4 | Effluent Polishing | 1 |
| 5 | General | 15 |
| 6 | Laboratory Procedures | 3 |
| 7 | Mechanical Systems | 13 |
| 8 | Plant Pretreatment | 3 |
| 9 | Wastewater Treatment Ponds | 17 |
| 10 | Regulations | 5 |
| 11 | Safety | 10 |
| 12 | Sampling & Reporting | 5 |
| 13 | Sedimentation | 2 |
| 14 | Solids Digestion & Handling | 4 |

Total: 100 questions on exam

**NEED-TO-KNOW CRITERIA FOR
PUBLIC WASTEWATER FACILITY – LEVEL 1 (WW1)**

| Content Area and Topics | Number of Exam Questions |
|---|--------------------------|
| 1. <u>Collection Systems</u> | 12 |
| <ul style="list-style-type: none"> Cleaning & maintenance <ul style="list-style-type: none"> Hydraulic cleaning Preventative maintenance Rodding Stoppages Lift stations <ul style="list-style-type: none"> Components Maintenance Operation Typical layout Manholes <ul style="list-style-type: none"> Components Location & types Maps Piping & joints <ul style="list-style-type: none"> Bedding & backfill Components Installation Materials Operation Problems & repairs Service connections | |

| Content Area and Topics | Number of Exam Questions |
|---|--------------------------|
| 2. <u>Cross-Connection Control</u> | 5 |
| <ul style="list-style-type: none"> Application General Maintenance Types of devices | |

| Content Area and Topics | Number of Exam Questions |
|---|--------------------------|
| 3. <u>Disinfection</u> | 5 |
| <ul style="list-style-type: none"> Gas chlorination <ul style="list-style-type: none"> Changing cylinders Components Equipment used Leaks Maintenance Operation Safety Storage & handling Troubleshooting Hypochlorination <ul style="list-style-type: none"> Equipment used Maintenance Operation Safety Storage & handling Process description <ul style="list-style-type: none"> Components Contact time Dosage Factors affecting disinfection Purpose Reactions of chlorine Typical pathogens Residual Sampling for fecal coliforms Ultraviolet light | |

| Content Area and Topics | Number of Exam Questions |
|---|--------------------------|
| 4. <u>Effluent Polishing</u> | 1 |
| <ul style="list-style-type: none"> Operating characteristics <ul style="list-style-type: none"> Land application of effluent Sand filters Wetlands (constructed) | |

| Content Area and Topics | Number of Exam Questions |
|---|--------------------------|
| 5. <u>General</u> | 15 |
| <ul style="list-style-type: none"> Basic chemistry <ul style="list-style-type: none"> Formulas pH Calculation (generally under specific topics) <ul style="list-style-type: none"> Dosage Efficiency Flow Hydraulics Volume Measurement Units Pollution removal <ul style="list-style-type: none"> Effluent limits Removal efficiencies Wastewater characteristics <ul style="list-style-type: none"> BOD Chemical Microbiological Physical Prohibited substances Solids Terms | |

| Content Area and Topics | Number of Exam Questions |
|---|--------------------------|
| 6. <u>Laboratory Procedures</u> | 3 |
| <ul style="list-style-type: none"> Tests (some lab tests on lower levels) <ul style="list-style-type: none"> pH Residual chlorine Suspended solids | |

| Content Area and Topics | Number of Exam Questions |
|--|--------------------------|
| 7. <u>Mechanical Systems</u> | 13 |
| <ul style="list-style-type: none"> Chemical feeders <ul style="list-style-type: none"> Calibration Operation & maintenance Types General maintenance <ul style="list-style-type: none"> Metering equipment Motors <ul style="list-style-type: none"> Components Maintenance Operation Pumps <ul style="list-style-type: none"> Components Hydraulics Maintenance Operation Troubleshooting Types Valves <ul style="list-style-type: none"> Characteristics Operations & maintenance | |

| Content Area and Topics | Number of Exam Questions |
|--|--------------------------|
| 8. <u>Plant Pretreatment</u> | 3 |
| <ul style="list-style-type: none"> Communitor <ul style="list-style-type: none"> Operating characteristics Operation & maintenance Grit removal <ul style="list-style-type: none"> Characteristics Grit channels <ul style="list-style-type: none"> Operating characteristics Operations & maintenance Screening/grit disposal Screens & racks <ul style="list-style-type: none"> Operating characteristics Operations & maintenance | |

| Content Area and Topics | Number of Exam Questions |
|---|--------------------------|
| 9. Waste Treatment Ponds | 17 |
| Loading rates & efficiency Detention time Hydraulic Population Operating characteristics Facultative ponds Operation & maintenance Normal & abnormal conditions Troubleshooting Organic Loading Process control Facultative ponds Process description Components Purpose Types | |

| Content Area and Topics | Number of Exam Questions |
|--|--------------------------|
| 10. Regulations | 5 |
| NM Utility Operator Certification Regs (20.7.4 NMAC) NM ground water regulations (20.6.2 NMAC) NPDES permit requirements | |

| Content Area and Topics | Number of Exam Questions |
|--|--------------------------|
| 11. Safety | 10 |
| Chemical handling Confined space entry Electrical Excavation & shoring Fire First aid Hazardous gases Safety Data Sheets (SDS) Personal Protective Equipment Rotating machinery Working in streets | |

| Content Area and Topics | Number of Exam Questions |
|---|--------------------------|
| 12. <u>Sampling & Reporting</u> | 5 |
| <ul style="list-style-type: none"> Non-compliance reporting NPDES sampling Records Reporting requirements Sampling procedure <ul style="list-style-type: none"> Preservation Representative sampling Testing <ul style="list-style-type: none"> DO pH | |

| Content Area and Topics | Number of Exam Questions |
|---|--------------------------|
| 13. <u>Sedimentation</u> | 2 |
| <ul style="list-style-type: none"> Loading rates & efficiency <ul style="list-style-type: none"> Removal efficiency Operating Characteristics <ul style="list-style-type: none"> Primary clarifier Secondary clarifier Operation & maintenance <ul style="list-style-type: none"> Maintenance Normal & abnormal conditions Problems & corrections Troubleshooting Process control <ul style="list-style-type: none"> Detention time Process description <ul style="list-style-type: none"> Components Purpose | |

| Content Area and Topics | Number of Exam Questions |
|--|--------------------------|
| 14. <u>Solids Digestion & Handling</u> | 4 |
| <ul style="list-style-type: none"> Operating characteristics <ul style="list-style-type: none"> Clarigester & Imhof tanks | |

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 **Public Wastewater Facility – Level 1 (WW1)** operator certification exam.

Wastewater Collection

- California State University, Sacramento (CSUS) Foundation, Office of Water Programs, *Operation and Maintenance of Wastewater Collection Systems, Volume 1 and Volume 2*, (latest edition)

Wastewater Treatment

- California State University, Sacramento (CSUS) Foundation, Office of Water Programs, *Operation of Wastewater Treatment Plants, Volume 1 and Volume 2*, (latest edition)
- Water Environment Federation (WEF), *Wastewater Treatment Fundamentals I – Liquid Treatment* (latest edition)
- Water Environment Federation (WEF), *Wastewater Treatment Fundamentals II – Solids Handling and Support Systems* (latest edition)

Mathematics

- American Water Works Association (AWWA), *Math for Wastewater Treatment Operators, Grades 1 and 2* (latest edition)
- *Basic Math Concepts for Water and Wastewater Plant Operators*, by Joanne Kirkpatrick Price, (latest edition)

Regulations

- Clean Water Act, <https://www.epa.gov/laws-regulations/summary-clean-water-act>, and U.S. Code of Federal Regulations, Title 40
- U.S. Environmental Protection Agency, National Pollutant Discharge Elimination System (NPDES), <https://www.epa.gov/npdes>
- New Mexico Administrative Code, Title 20, Chapter 6, Part 2, Ground and Surface Water Protection (20.6.2 NMAC)
- New Mexico Administrative Code, Title 20, Chapter 6, Part 8, Ground and Surface Water Protection – Supplemental Requirements for Water Reuse (20.6.8 NMAC)
- New Mexico Administrative Code, Title 20, Chapter 7, Part 4, Utility Operator Certification (20.7.4 NMAC)

Safety and Security

- Water Environment Federation (WEF), *Safety, Health, and security Standards for Water Resource Recovery, Manual of Practice 1* (latest edition)

Wastewater 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, *NPDES Compliance Inspection Manual, EPA 300-B-94-014, Chapter 5 – Sampling*, (latest edition)
- U.S. Environmental Protection Agency, *Wastewater Sampling Operating Procedures*, (latest edition)

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)
- Water Environment Federation (WEF), *Basic Laboratory Procedures for the Operator—Analyst*, (latest edition)

Additional Study Aids

- Water Environment Federation (WEF), *Wastewater Treatment Fundamentals I – Liquid Treatment Operator Certification Study Questions* (latest edition)
- Water Environment Federation (WEF), *Wastewater Treatment Fundamentals II – Solids Handling and Support Systems Operator Certification Study Questions* (latest edition)