

Operation & Maintenance Plan

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Presentation Outline

- Why is an O&M Plan Necessary?
- Benefits of having an O&M Plan
- Location of templates & support
- O&M Plan Key Components
- Emergency Response Plan



Why is an O&M Plan Necessary?

- Provides a written source of material that can be easily referred to for guidance in operating a water system
- Reference tool for standard operating procedures
- Provides guidelines for start-up and emergency situations
- Reference for equipment data
- NMED requirement during Sanitary Survey

Why is an O&M Plan Necessary? Cont.

- Helps achieve the bottom line.
 - Providing safe drinking water
 - Providing safe drinking water 100% of the time



O&M Benefits

- O&M Drives Improvements
 - Provides a structure to identify gaps in routine and emergency maintenance
 - Identify gaps in operational procedures
 - Supports infrastructure upgrades leading to improved operations
- Benefits
 - Longer term cost saving due to reduced incidents and events
 - Improved operational efficiency

O&M Templates & Resources

- Templates are available from the website:
<https://www.env.nm.gov/dwb/tools/Index.htm>
- Scroll ~2/3 way down to Operations and Maintenance header

structure. Created by New Mexico Environment Department Drinking Water Bureau.

Flooding

Flood Resilience: A Basic Guide for Water and Wastewater Utilities is a guide to help small and medium utilities become more resilient to flooding. In this approach, the utility examines the threat of flooding, determines the impacts to utility assets, and identifies cost-effective mitigation options. Created by USEPA.

What to Do After the Flood (Qué Hacer Después de una Inundación) is a factsheet for private well owners on the steps that should be taken to protect their water quality after a flood. Created by EPH.

Operations and maintenance

Operation and Maintenance Plan Template provides suggested content for an Operations and Maintenance Plan for small water systems. Created by the New Mexico Environment Department Drinking Water Bureau.

This Finished Water Storage White Paper reviews existing literature, research and information on the potential public health risks associated with covered storage reservoirs. Created by EPA.

Operators

Operator Roles and Responsibilities: A Best Practices Guide is a 2-page fact sheet that provides an overview of operator roles and responsibilities. Created by the EPH.

The NMED-SWQB Operator Certification Program's web site provides information on obtaining or maintaining operator certification, including upcoming operator training opportunities, the Operator Certification Study Guide, and an exam schedule.

New Mexico Utility Operator Certification Act regulations specify requirements for certification of water system operators.



- Click on Operations & Maintenance Plan Template to download file

O&M Plan Key Components

- 1) System Ownership & Information
- 2) Introduction & Overview
- 3) Organizational Structure & Contacts
- 4) Regulatory Agency & regulations
- 5) General System Description
- 6) System Operation & control
- 7) Testing, Record Keeping, Reporting
- 8) Maintenance
- 9) Spare Parts, supplies, chemicals
- 10) Safety

Example System Major Components

- Rural New Mexico MDWCA
- Population served = 450 persons
- 200 connections, 150 metered
- 2 Wells => Disinfection => 40,000 gallon storage tank
=> Distribution
- 1 WS2 Operator, 1 non-certified junior operator
- 3 Board members: President; Treasurer; Secretary

1. System Ownership & Information

- System Name & PWS #
- System Owner contact & mail information
- System physical address
- System mailing address
- Phone, Fax, e-mail
- Designations:
 - Federal Type (Community, Non-community, etc.)
 - Federal Source (Groundwater, GWUDI, purchased water, etc.)

1. Rural New Mexico MDWCA -System Ownership & Information

System Name and PWS #: **Rural New Mexico MDWCA PWS # NM 35-123-45**

System Owner (if private): **John Smith**
State of NM ID #, PRC # (or similar):

System Type (if MDWCA or similar): **MDWCA**

Physical Address: **123 CR-A**
City & Zip: **Rural, NM 87123**

Mailing Address: **234 CR-B**
City & Zip: **Rural, NM 87123**

Phone: **(575) 555-5555**
FAX: **(575) 555-5556**
Email: **water@rural.org**

Designations

Federal Type*: **Community** Non-transient Non-Community Transient Non-Community (Circle One)

Federal Source**:
(circle one)

Groundwater
Surface Water
Groundwater/GWUDI

Groundwater Purchase
Surface Water Purchas
Groundwater/GWUDI Purchase

3. System Organizational Structure & Contacts

- Organization (Municipality, MDWCA, etc.)
- Brief description of governing body's overall responsibilities
- Contacts (Name, Position, contact information, 1-sentence job description)
- Appendix A – detailed duties and responsibilities
- Appendix B – Operator certificates & contracts
- Chain of command – decision making abilities

3. Rural New Mexico MDWCA – System Organizational Structure & Contacts

Organization

Our water system is organized as a municipality / **MDWCA** / Water Co-Op / WSD / WUA / other.

The following individuals are members of the public water system's governance, operational and managerial staff. Each person has key responsibilities which contribute to the water system's goal of providing clean, potable drinking water to customers. The governing body is responsible for **financial and managerial decisions to ensure a constant safe drinking water supply**.

Contacts

The following is a list of all system contacts (including volunteers) that have decision-making responsibilities for our system:

EXAMPLES – identify name, title/position/staff role and contact info

John Smith, MDWCA president

All Managerial and Financial decisions are made by the president. Lead person in case of emergency

Sue Black, Treasurer

Responsible for meter reading, billing and collecting, issuing CCR. Reports to the President.

Jane Maroon, Secretary

Responsible for answering phones, customer complaints, aid treasurer with billing & collection, public notice during emergency events.

Ken Brown, Chief Operator

Responsible for operation and maintenance of the system; ordering spare parts, chemicals, and supplies; generating the annual Operating and Maintenance Budgets, and generating the monthly report to OPH. Reports to the President. Certified WS2. Lead operator in case of emergency.

Bob Blue, Operator

Responsible for recording all readings and performing all tests. Reports to the Chief Operator. Non-certified, training

Job titles along with the detailed duties and responsibilities can be found in Appendix A. Operator certificates are included in Appendix B. In general, the following staff (or volunteers) have decision-making responsibilities for the water system: **John Smith, President; Sue Black Treasurer; Ken Brown, Chief Operator.**

5. General System Description

- System background
 - Geographical location, population served, # connections
 - Average and peak flow demands
 - Types of services, rate structure
- Water Sources
 - Water rights
 - Typical raw water analysis (baseline)
- How water is conveyed
- Treatment/Disinfection
- Storage/Distribution Features
- Appendix D – System component map showing:
 - Wells/source; Treatment/Disinfection units; Storage tanks; Booster Stations; Pressure Tanks; Isolation valves; Pressure regulating & altitude valves; etc.

5. Rural New Mexico MDWCA – General System Description

EXAMPLE:

The Rural New Mexico MDWCA is owned by John Smith and operated by Ken White and serves 200 connections through 150 meters. All meters are for residential service. We have a population of Z based on the most recent census data. Average daily flow is 14 gpm; peak flow is 30 gpm.

Water is supplied to the system by two (2) 100 GPM @ 65 PSI well pumps pumping from 6 inch casings 300 feet deep with 20 feet long 6 inch screens. The pumps are automatically started and stopped by level control on an elevated 40,000 gallons storage tank. The elevation of the tank maintains 42 to 50 PSI on the distribution system. The well water is disinfected with 12.5% Sodium Hypochlorite solution prior to entering the storage tank. The distribution system consists of 6, 4, 3, and 2 inch PVC pipe and fittings; sampling, isolation, back flow prevention, and flush valves; and fire hydrants. There are five entry points and provisions for line isolation and flushing have been installed. In the event of an electrical power outage, a 50 HP diesel driven generator at each well site will provide the power necessary to keep the total system running. We can supply water to the Extra-Rural New Mexico MDWCA via a 6 inch tie-in. The tie-in valve is normally closed and a check valve prevents backflow into our system. Fire protection for the city is also provided.

6. System Operation & Control

(1 of 3)

- Table/outline of start-up, operation control, troubleshooting, shut down, and emergency procedures for each system feature (treatment unit, well)
 - Organize routine activities by daily, weekly, monthly, quarterly maintenance period
 - Appendix E – System Operations logs
- Well, Surface, GWUDI sources
 - Active and inactive sources
 - Static Water Level, Pumping Water level, volume produced, electrical data
 - Water Balance calculations
 - Appendix F – Well Permits & Water Rights Declarations from New Mexico Office of the State Engineer

6. System Operation & Control

(2 of 3)

- Transmission
- Treatment/Disinfection
- Storage
 - Water age
 - Inspection, cleaning, repair protocol
- Pressure Tanks
- Distribution (Pipes, valves, hydrants, meters)
 - SOP for new service installation
 - Specialty valves
 - Flushing Program
 - Valve exercise program

6. System Operation & Control

(3 of 3)

- Fire Protection (backflow prevention)
- SCADA
- Back-up power sources
- Appendix G – Description of any water purchase or sales agreements
- Appendix H – Equipment Technical Data, as-builts, specifications
- Appendix I – Manufacturer's O&M manuals

6. Rural New Mexico MDWCA – System Operation & Control

EXAMPLE:

Operation of the Rural New Mexico MDWCA is provided by Ken White who is/are currently licensed by the NMED-UOCP as WS2

Ken White, Bob Blue operational responsibilities and procedures are as follows:

Table 1 Distribution System Routine Operational Tasks (Adapted from EPA 816-F-06-038, September 2006)			Monthly	Monitor water quality (e.g., pH, temperature)	<ul style="list-style-type: none"> ❖ Provides information on potential contamination of raw and finished water. ❖ Helps determine effectiveness of treatment. ❖ Helps assure the compatibility of the water with the materials.
Frequency	Task	Benefits	Annually	Inspect valves Exercise valves	<ul style="list-style-type: none"> ❖ Improves reliability. ❖ Familiarizes crews with valve location. ❖ Identifies inoperable valves. ❖ Locates obstructed valve boxes. ❖ Ensures isolation of distribution system sections when necessary.
Continuously	Maintain the operating pressure range of distribution system	<ul style="list-style-type: none"> ❖ Reduces the risk of backflow contamination. ❖ Helps your system provide better service to customers. ❖ Reduces damage to infrastructure due to excess pressure. ❖ Provides adequate fire flow. 	Annually	Inspect valves Exercise valves	<ul style="list-style-type: none"> ❖ Improves reliability. ❖ Familiarizes crews with valve location. ❖ Identifies inoperable valves. ❖ Locates obstructed valve boxes. ❖ Ensures isolation of distribution system sections when necessary.
Daily	Track unaccounted for water	<ul style="list-style-type: none"> ❖ Can reduce pumping and treatment costs. ❖ Helps identify leaks, breaks, stolen water, and inaccurate meters. 	Annually	Inspect storage tanks	<ul style="list-style-type: none"> ❖ Identifies defects. ❖ Ensures that vents, overflows, and drains are screened.
Daily	Inspect storage tanks	<ul style="list-style-type: none"> ❖ Detects vandalism. ❖ Ensures that access hatches are locked. 	Annually	Inspect storage tanks	<ul style="list-style-type: none"> ❖ Identifies defects. ❖ Ensures that vents, overflows, and drains are screened.
Monthly	Test for presence of excess biofilms	<ul style="list-style-type: none"> ❖ Indicates a presence of inadequate chlorine residual, possible high disinfection byproduct levels, and water stagnation. 	Annually	Inspect storage tanks	<ul style="list-style-type: none"> ❖ Identifies defects. ❖ Ensures that vents, overflows, and drains are screened.

8. Maintenance

- Preventative Maintenance (PM) task table or outline for each feature based on manufacturer's recommendations
 - Organize tasks daily, weekly, monthly, quarterly, annual
 - Develop breakdown maintenance tracking documents to collect maintenance history
- Table or outline of contractors approved to service/repair system equipment
- Repair/service protocol & SOPs
 - Internal
 - 3rd party
- Appendix L – preventative breakdown maintenance tracking documents

8. Rural New Mexico MDWCA – Maintenance (1 of 2)

Frequency	System Feature	Maintenance
Weekly	Well #1, well #2	Check for leaky fittings, damaged wire
Weekly	Treatment unit	Check chlorine feed, inventory chemical. Order more if necessary
Quarterly	Well #1, Well #2	Record Static Water Level & Pumping Water level
Quarterly	Storage tank	Check for leaks, check overflow vents for proper screening

8. Rural New Mexico MDWCA – Maintenance (2 of 2)

System Feature	Service	Contact
Well #1, Well #2	Replace pump	Well Supply Shop, Albuquerque, NM (505) 555-xxxx
Storage Tank	Rehab/replace tank	D&R Tank, Albuquerque, NM, (505) 555-xxxx,
Distribution	Plumbing line replacement	TP Pump & Pipe, Albuquerque, NM (505) 555-xxxx
Well #1, Well #2	Descale/rehab well	Red Top Drilling; 123 A St., Wagon Mound, NM (575) 555-xxxx

O&M Plan Key Components

- 1) **System Ownership & Information**
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- 8) **Maintenance**
- 9) Spare Parts, supplies, chemicals
- 10) Safety

Emergency Response Plan



Emergency Response Plan (ERP)

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Drinking Water Bureau



Bottom Line

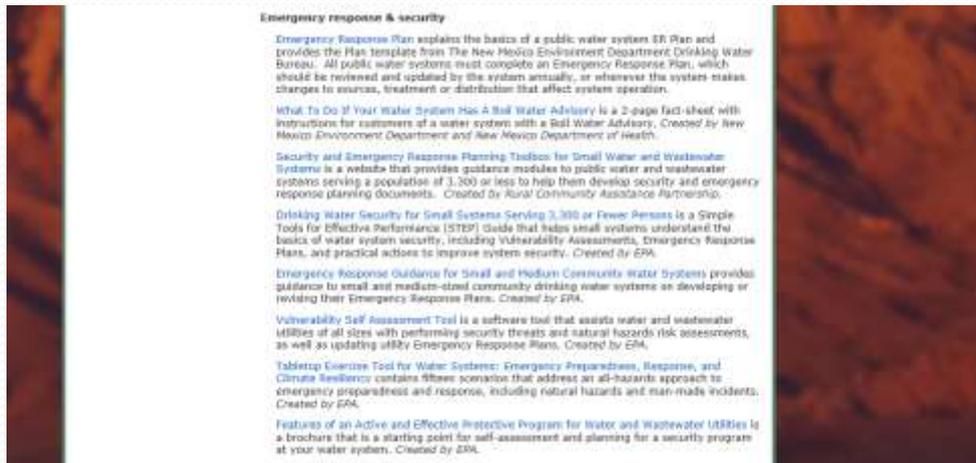
- Providing safe drinking water
- Providing safe drinking water 100% of the time

Why is an Emergency Response Plan Necessary?

- Provides written source of information that can be easily referred to in water system emergency.
- Plan Emergency response to situations ahead of time
- Proper ERP & planning can reduce damage to system during emergency, can provide more reliable safe water
- Required during NMED Sanitary Survey

ERP Template & Resources

- Templates are available from the website:
<https://www.env.nm.gov/dwb/tools/Index.htm>



- Scroll ~1/2 way down webpage to Emergency Response & Security section
- ERP template listed first, additional resources

Fifteen Core Elements

1. Emergency Response Mission and Goals
2. System Information
3. Chain of Command
4. Events that Cause Emergencies
5. Severity of Emergencies
6. Emergency Notifications
7. Water Quality Sampling
8. Effective Communication
9. Vulnerability Assessment
10. Response Actions for Specific Events
11. Alternative Water Sources
12. Curtailing Water Usage
13. Returning to Normal Operation
14. Training and Rehearsals
15. Plan Approval

Example System Major Components

- Rural New Mexico MDWCA
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- 2 Wells => Disinfection => 40,000 gallon storage tank
=> Distribution
- 1 WS2 Operator, 1 non-certified junior operator
- 3 Board members: President; Treasurer; Secretary

1. Emergency Response Mission & Goals

- Reflect obligation to protect health and safety of customers, staff, and assets
- Be able to maintain or restore safe and reliable drinking water.

1. Rural New Mexico MDWCA – Emergency Response Mission & Goals

Mission statement for emergency response	In an emergency, the mission of the Rural New Mexico MDWCA is to protect the health of our customers by being prepared to respond immediately to a variety of events that may result in contamination of the water or disruption of supplying water.
Goal 1	Be able to quickly identify an emergency and initiate timely and effective response action.
Goal 2	Be able to quickly notify local, state, and federal agencies to assist in the response.
Goal 3	Protect public health by being able to quickly determine if the water is not safe to drink or use and being able to immediately notify customers effectively of the situation and advise them of appropriate protective action.
Goal 4	To be able to quickly respond and repair damages to minimize system down time.

2. System Information

- System Name
- System PWS ID #
- System address/location
- Physical directions to system
- Population served
- System ownership
- Name of person in charge of implementing emergency plan

2. Rural New Mexico MDWCA – System Information

Public Water System identification Number (PWS ID#)	PWS # NM 35-123-45
System name and address	Rural New Mexico MDWCA, 123 CR-A, Rural, NM, 87123
Directions to the system	North on 285. Take right and head west for 2.9 mile to CR-A. Take a left onto CR-A drive and go .5 miles. Office is on the left. Pump-house and treatment facilities are .2 miles past office on the right.
Basic description and location of system facilities	The Rural New Mexico MDWCA water system has two groundwater wells of 180' and 223' depth. The wells pump through the pump-house and chlorination treatment facilities into one 40,000 galloon storage reservoir which feeds the distribution system.
Location/Town	Rural
Population served and service connections from NMED Drinking Water Bureau records.	600 people 200 connections
System owner (the owner should be listed as a person's name)	John Smith – President Rural New Mexico MDWCA
Name, title, and phone number of person responsible for maintaining and implementing the emergency plan.	John Smith President (505) 555-5557 Cell (505) 555-5555 Office

3. Chain of Command

- Assign lead person in event of emergency. Lead person will be responsible for making key decisions.
- Tasks:
 - Handle incoming phone calls and admin support
 - Provide information to public and media
 - Contact customers
 - Assess system's facilities and operations in the field
 - Organize and carry out repairs

3. Rural New Mexico MDWCA – Chain of Command

Name and title	Responsibilities during an emergency	Phone Number(s)
John Smith - President	Lead Person – provide information to regulatory agencies and news media; Maintain contact with Operator during emergency situation.	(575) 123-4567
Ken Brown – Chief Operator	In charge of operating water system, perform inspections, maintenance, access facilities; provide recommendations to water system president. Perform repairs to damaged portions of system within operator capability.	(575) 123-4568
Jane Maroon - Secretary	Provide information to public customers	(575) 123-4569

4. Events that Cause Emergencies

- Natural Disasters
 - Floods/Flash floods
 - Fire/post –fire flash floods
 - Earthquake
 - High winds
 - Drought
 - Waterborne Diseases
- Human Caused Events
 - System Neglect
 - Construction accidents
 - Cross connections
 - Chemical spills
 - Vandalism
 - Terrorism



4. Rural New Mexico MDWCA – Events that Cause Emergencies

Type of event	Probability or risk (High-Med-Low)	Comments
Wildfire	Medium	In event of wildfire, follow area-wide emergency instructions as given. Ensure safe and reliable drinking water for customers as long as possible, maintain storage tank level for fire suppression. If the community is evacuated, shut down water system as outlined in O&M plan. Re-start using start-up guidelines upon return. Inspect system prior to serving water to customers, ensure proper disinfectant residual.
Drought	Low	Should we enter a long-term period of drought that impacts water supply, the system will begin curtailing measures to slow water usage. Update frequency to record SWL & PWL, ensure adequate water sources.
Construction accidents	medium	Locate line break, locate nearest upstream isolation valve and close. Repair water line, disinfect repair per NMED guidelines & sampling protocol & flush if necessary to remove high residual water. Once repair complete, re-open isolation valve and return line to service.

5. Severity of Emergencies (1 of 2)

- Level I Emergency – Normal (routine)
 - Minor disruptions that affect 10% or less of system and can be resolved within 24 hours.
 - System personnel able to handle and repair issue
 - Not likely that public health jeopardized
- Level II Emergency – Alert/Minor Emergency
 - Disruptions that affect 50% or more of water system and can be resolved within 72 hours
 - May need to coordinate with NMED & issue public health advisory

5. Severity of Emergencies (2 of 2)

- Level III Emergency – Major Emergency
 - Disruptions that affect 50% or more of system and require more than 72 hours to be resolved.
 - System may experience significant mechanical or contamination issue.
 - Issuance of health advisory is necessary
 - May require declaration of Stat of Water Supply Emergency and/or Boil Water advisory
- Level IV Emergency – Natural Disaster
 - Widespread meteorological or geological event that disrupts more than 50% of water system for greater than a week.
 - System may experience major damage or contamination
 - Immediate health advisory & consultation with NMED-DWB
- Level V Emergency – Major Terrorism Act
 - Release of contamination of radiological, biological, or chemical agents that will adversely affect health of water customers

5. Rural New Mexico MDWCA – Severity of Emergencies

Level I – 10% or less of system affected, expected repair within 24 hours (Definition)

Description: Short power outages; Small distribution line breaks; Minor mechanical problems in pump house

Level II – 50% or more of system affected, expected repair within 72 hours (Definition)

Description: Distribution Main line breaks; TC+ sample; failure of disinfectant system; inadequate storage to handle water usage; long-term drought with declining water level in wells

Level III – 50% or more of system affected, expected repair more than 72 hours (Definition)

Description: Confirmed TC+/EC+; Complete malfunction of water treatment facilities; complete malfunction of source water well;

Level IV – Natural Disaster – 50% or more of system affected, expected repairs more than a week (Definition)

Description: Earthquake; Flood; Wildfire;

Level V – Act of Terrorism – Public Health under immediate risk (Definition)

Description: Act of terrorism, introduction of chemical, radiological, or biological threat to source water or distribution system

6. Emergency Notification

- Assign responsibility to oversee and carry out notifications
- Assemble comprehensive call-up lists with names and phone numbers
 - Local law enforcement
 - NMED-DWB
 - NMDOH
 - Local city officials
 - Local emergency responders
 - Service & repair providers
- Write out procedures for quickly sending information to appropriate parties

6. Rural New Mexico MDWCA – Emergency Notification (1 of 2)

Entity	Phone Numbers (Both Day and Night)
Local Law Enforcement	Rural County Sherriff's Department Emergency - 911 Daytime (575) 444-4444
Fire Dept.	Rural County Volunteer Fire Department Emergency - 911 Daytime (575) 444-4445
Ambulance service	Rural Ambulance service Emergency - 911 Daytime (575) 444-4446
Local Health Jurisdiction	
Water Testing Laboratory	Water Lab 'R' Us (575) 345-6789
Local emergency management	
Water System Operator	Ken Brown (575) 123-4568
Neighboring Water System	Extra-rural New Mexico MDWCA (575) 123-5678
News Media Contact	Bob Lucy (575) 386-2389
Local Radio Station	KATM (575) 333-1236
Other	

Entity	Phone Numbers (Both Day and Night)
State Police	911; (575) 123-7890
Drinking Water Bureau	877-654-8720
State Testing laboratory	(575) 236-7890
Other	

Entity	Phone Numbers (Both Day and Night)
Electrician	Bob "Sparky" Jones (575) 423-8975
Electric Utility	Sparky Electric co-op (575) 423-7897
Plumber	Jeff Cook (575) 234-7892
Pump Specialist	Red Top drilling (575) 285-3492
Soil Excavator	Rural county works (575) 239-8098
Equipment Rental	Frank's Supply (575) 129-2342
Other	

6. Rural New Mexico MDWCA – Emergency Notification (2 of 2)

Notifying water system customers

Who is Responsible:	Mary Maroon - Secretary
Procedures:	Call water customers, highest priority (schools, health care facilities, homes with elderly or sick people) first. Contact all water user connections and explain emergency & precautions

Alerting local law enforcement, state drinking water officials, and local health

Who is Responsible:	Sue Black, Treasurer
Procedures:	Notify law enforcement, local health, and state drinking water officials.

Contacting service and repair contractors

Who is Responsible:	Ken Brown, Chief operator
Procedures:	Determine service repair required. If chief operator is unable to fix it himself, then call and schedule appropriate repair.

Contact neighboring water systems, if necessary

Who is Responsible:	Sue Black, Treasurer
Procedures:	Determine level of water emergency, check with Ken Brown to determine system storage potential. Contact Extra-Rural New Mexico MDWCA if water supplies are low.

Procedures for issuing a health advisory

Who is Responsible:	John Smith, MDWCA President
Procedures:	Issue health advisory, inform secretary to notify public. Notify NMED-DWB, post public health advisory.

9. Rural New Mexico MDWCA – Vulnerability Assessment

System component	Description and condition	Vulnerability	Improvements or mitigating actions	Security improvements
Source				
Storage				
Treatment				
Pump house and pumping facilities				
Computer and telemetry system				
Other considerations				

10. Response Actions for Specific Events

- Confirm and analyze the type and severity of emergency
- Take immediate action to save lives
- Take action to reduce injuries and system damage
- Make repairs based on priority demand
- Return the system to normal operations

10. Rural New Mexico MDWCA – Response Action for Specific Events

Power outage, Transmission or Main break, Disinfection Equipment failure, etc.

Assessment	
Immediate actions	
Notifications	
Follow-up actions	

11. Alternative Water Sources

- Interconnections to Adjacent System
- NM WARN
- Alternative Sources of Water
- Water Hauler trucks must be certified potable

13. Returning to Normal Operation

- Return to normal operation may be simple or complex, depending on severity and type of emergency
- Considerations:
 - Has system been repaired to the point it can meet demand?
 - Has the system been properly disinfected & flushed?
 - Has the water been tested in accordance with sampling regulations?
 - Is there adequate staff to operate system?

14. Training and Rehearsals

- Emergency Response training is essential (AHEAD OF TIME)
- Drills, table-top exercises
- Train for likely emergencies to system

14. Rural New Mexico MDWCA – Training and Rehearsals

Training

Identify staff position training needs and expectations.	
Position	Training needs and expectations
Water System Manager	
Field support	
Administrative support	

Emergency rehearsals

Schedule for drills, tabletop exercises, and other ways to practice emergency response:

Event	Description	People and organizations involved	Date

Fifteen Core Elements

1. **Emergency Response Mission and Goals**
2. **System Information**
3. **Chain of Command**
4. **Events that Cause Emergencies**
5. **Severity of Emergencies**
6. **Emergency Notifications**
7. **Water Quality Sampling**
8. **Effective Communication**
9. **Vulnerability Assessment**
10. **Response Actions for Specific Events**
11. **Alternative Water Sources**
12. **Curtailing Water Usage**
13. **Returning to Normal Operation**
14. **Training and Rehearsals**
15. **Plan Approval**

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