



EPA Region 8 Drinking Water Unit Tech Tips

Creating Flood Resilience

For the security and safety of homes and families that are affected by Public Drinking Water Systems, planning is key.

Designing for resiliency saves money in the long term. Many of the choices are not high cost and yet they will help preserve the legacy of the land for children and grandchildren to come.

Source water



Wells:

- Sandbag around all wells.
- Include a portable generator inside the sand bagged area for critical wells.
- Stockpile fire hoses or above-ground pipe in case of washouts.



Surface Water Intakes:

- Shut intake for short-duration floods.
- For longer duration floods, protect from silting-in or physical damage.
- Sandbag around intake buildings
- Include a portable generator in the sandbagged area.
- Stockpile a pump in case intake is damaged.
- Due to the level of contamination in flood water, be prepared to issue a "Do Not Drink" order even if pressure can be maintained.



Water Treatment Plant:

- Sandbag around the water treatment plant if it is in the flood plain.
- Test the portable or permanent generator and stockpile excess fuel.
- Stockpile all treatment chemicals - especially coagulants and disinfectants.
- Acquire coagulation dosage pumps for dosing high levels of coagulant.
- Map out all roads to the plant within 100 miles in case roads are washed out.
- Position operators on both sides of river crossings. Ensure the most experienced operator is on the same side of the river as the water plant.
- Top off all finished-water reservoirs.
- Issue mandatory water restrictions.



Creating Flood Resilience in the Distribution System

Finished water storage tanks:

- Fill the tank and maintain it at full throughout the flooding to maintain maximum positive pressure.
- Find all valves on the effluent line within a several-block area around the tank. Clearly mark their location using at least two methods (physical and GPS).
- Exercise and test all valves to ensure they can be quickly turned off. This will prevent water in the tank from draining because of a washout or main break.
- Include a portable generator to maintain telemetry and tank communication
- Position operators so they can shut down the tank if needed.



Pressure pump stations:

- Identify all pump stations that are critical to filling storage tanks.
- Include a portable generator at critical pressure pump stations.
- Sandbag around all booster pump stations that are subject to flooding
- Include a portable generator inside the sandbagged area.
- Ensure all pumps are operational. Stockpile spare parts and pumps.



Distribution System Pipes and valves :

- Find all valves and clearly mark their location using at least two methods (physical and GPS).
- Exercise and test critical valves especially on both sides of river crossings and tanks.
- Make sure sandbagging does not bury access to valves.
- Be able to monitor pressure on both sides of river crossings so that if a washout occurs you can quickly shut off the valve and maintain pressure in the rest of the system.
- Position operators on both sides of the river.
- Issue instructions to homes in the flood path on how to protect drinking water faucets.
- Stockpile fire hoses or above-ground pipe in case of washouts.



Most importantly—If a flood happens:

Stay in constant communication with your State flood coordinator and WARN contacts to update your status and advise them of your needs.