

Public Water Supply Guidance for Responding to Freezing Conditions

At the Treatment Plant:

Water plant that is completely down due to loss of power or frozen or broken water lines within the plant:

Prior to startup procedures:

- 1) Contact plumbers, electricians and contractors that can make repairs ahead of time.
- 2) Contact nearby water suppliers for assistance if you don't have the necessary equipment or resources for making repairs (e.g., tractors, etc.).
- 3) Look for evidence of leaks at the plant(s).
- 4) Remove ice from well and pressure tank pressure relief valves.
- 5) Remove ice from any pressure relief valves (e.g., hydropneumatics tanks).
- 6) Ensure air/water lines on pressure sustaining, altitude valves and compressor lines are free from ice.
- 7) Make sure that heaters in the chlorine or chemical rooms are working properly. The rooms should be appropriately warmed ahead of plant startup. Cold temperatures will significantly reduce the poundage of gas chlorine that can be fed.
- 8) Lower the pressure leaving the plant(s) to reduce water hammer in the distribution system. Be sure to maintain system pressures of 35 psi, if possible, but never below 20 psi.
- 9) Shut off distribution valve(s) at the plant(s) and fill plant storage facilities.

Water plant that has pressure to most of the system with isolated areas of water leaks:

- 1) Contact plumbers, electricians and contractors that can make repairs ahead of time.
- 2) Contact nearby water suppliers for assistance if you don't have the necessary equipment or resources for making repairs (e.g., tractors, etc.).
- 3) Remove ice from well and pressure tank pressure relief valves.
- 4) Remove ice from any pressure relief valves (e.g., hydropneumatics tanks).

- 5) Ensure air/water lines on pressure sustaining, altitude valves and compressor lines are free from ice.
- 6) Make sure that heaters in the chlorine or chemical rooms are working properly. The rooms should be appropriately warmed ahead of plant startup. Cold temperatures will significantly reduce the poundage of gas chlorine that can be fed.
- 7) Lower the pressure leaving the plant(s) to reduce water hammer in the distribution system. Be sure to maintain system pressures of 35 psi, if possible, but never below 20 psi.
- 8) Fill plant storage facilities.

In the Distribution System:

Leaks are minor and plant can keep up with demand:

- 1) Use fire hydrants or pressure relief valves to relieve pressure that has built up. In the interest of conserving water, the hydrants should only be opened long enough to expel air. Caveat: fire hydrants must be slowly opened to prevent water hammer.
- 2) Isolate areas of the system with leaks, if valving is available.
- 3) Using flush valves or fire hydrants, slowly push water out to the distribution system in a manner such is used with unidirectional flushing. Flush enough to relieve air from the distribution lines working out to the far reaches of the system.

Rapidly draining tanks due to system-wide leaks (If your plant cannot keep up with system demand):

- 1) Isolate each of the pressure sources to protect them from continued draining.
 - a. Water plants
 - b. Pump stations with ground storage tanks
 - c. Pressure tanks
 - d. Elevated storage tanks
- 2) Repair water mains.
- 3) If you have an emergency interconnection with another public water system contact them to see if they can meet your demand shortfall.
- 4) Shut off the individual water services to the buildings.
 - a. Start with small sections of the distribution system nearest the pressure sources. Working outward from each pressure source, open sections of the distribution system once all the services are shut off.

- 5) Coordinate with local plumbers and customers.
 - a. Inform them of the strategy and sequence of opening the distribution system.
 - b. As individual buildings are cleared of any leaks or leaks have been repaired, the water service can be reopened.

Communication Recommendations:

- 1) Keep customers updated using the media outlet(s) that are available. Let them know to:
 - a. Conserve water (emergency water rationing plans)
 - b. Boil water if you've not been able to maintain pressure. Please be sure to use the guidance for issuing a Boil Water Notice (BWN).
 - c. Not leave faucets open (waiting for water to flow), especially if your operational facilities can't keep up and storage facilities cannot be filled.
- 2) Organize your response efforts by establishing the following groups:
 - a. Triage
 - b. Logistics/Operations
 - c. Communications

Note: If you have a shortage of staff to form these groups, consider reaching out to local volunteers from the community or local water systems.