ODW GUIDANCE ON MAIN BREAK TYPES AND RESPONSES + SYSTEM DEPRESSURIZATION/BWA

This guidance addresses main breaks for waterworks that do not have chlorination equipment and depressurizations for those systems.

Water Main Break Classification at Waterworks with no Secondary Disinfectant (Groundwater systems without permanent chlorination equipment)			
Type 1 Break	**Type 2 Break**	**Type 3 Break**	**Type 4 Break**
Positive pressure maintained during break	Positive pressure maintained during break	Loss of pressure at break site/possible local depressurization adjacent to the break	Loss of pressure at break site/widespread depressurization in the system
Pressure maintained during repair	Pressure maintained until controlled shutdown	Partial or uncontrolled shutdown; isolated quickly[1]	Catastrophic event/ failure; widespread unmanageable pressure loss
No signs of contamination intrusion	No signs of contamination intrusion	Possible contamination intrusion[1]	Possible/actual contamination intrusion
Procedures	**Procedures**	**Procedures**	**Procedures**
Excavate to below break	Excavate to below break	Excavate to below break	Catastrophic failure response
Maintain pit water level below break	Maintain pit water level below break	Maintain pit water level below break / Document possible contamination	Document possible contamination
No Boil Water Advisory (BWA)	Boil Water Advisory[1] (BWA) – Contact ODW -May be limited to area of depressurization and downstream of break	Notify customers in the vicinity. Issue Boil Water Advisory – Contact ODW[1]	Notify customers in the vicinity, if possible. Issue Boil Water Advisory – Contact ODW[1]
Disinfect repair parts, conduct repairs	Disinfect repair parts, conduct repairs, shock chlorinate the system[4]	Disinfect repair parts, conduct repairs, shock chlorinate the system[4]	Disinfect repair parts, conduct repairs, shock chlorinate the system[4]
Conduct low velocity flush (flush 3 pipe volumes)	Conduct low velocity flush (flush 3 pipe volumes)	Conduct scour flush (3 ft/sec for 3 pipe volumes)	Conduct scour flush (3 ft/sec for 3 pipe volumes)
Confirm residual	Confirm adequate residual disinfectant level in distribution system	Confirm adequate residual disinfectant level in distribution system	Confirm adequate residual disinfectant level in distribution system
No bacteriological sample	Collect one set of bacteriological samples downstream[2]	Instruct customers to flush premise plumbing upon return to service	Instruct customers to flush premise plumbing upon return to service

Water Main Break Classification at Waterworks with no Secondary Disinfectant (Groundwater systems without permanent chlorination equipment)			
Type 1 Break	**Type 2 Break**	**Type 3 Break**	**Type 4 Break**
	Lift BWA with concurrence from ODW	Collect at least two sets of bacteriological samples 16 hours apart[2,3]	Collect at least two sets of bacteriological samples 16 hours apart[2,3]
		Lift BWA with concurrence from ODW	Lift BWA with concurrence from ODW

Notes for water main breaks:

1. *Groundwater waterworks with no secondary disinfectant residual that lose pressure must notify their ODW field office for instructions and issue a Boil Water Notice (BWN). In consultation with the field office, the BWN may be limited to the area downstream of the break and the area that lost pressure.*
2. *If any bacteriological sample is positive for total coliform, then the waterworks should collect additional samples until they receive two consecutive satisfactory samples collected 16 hours apart. Additional disinfection or flushing may be necessary. If the system did not have a BWA issued, then these results alone will not require the issuance of one.*
3. *For situations that do not conform to the above guidelines or if the waterworks is unsure how to proceed then contact your field office representative for guidance.*
4. *Consult with your field office representative to determine how best to shock chlorinate the system. Chlorine may be introduced into the system at a ground level storage tank or well(s). A residual disinfectant level of at least 1.0 mg/l must be achieved.*

General

For every repair situation, the waterworks must follow AWWA disinfection and bacteriological testing procedures to ensure successful completion of repairs and restoration of water service. It is important for waterworks to keep consumers updated when repairs require a significant amount of time to complete. In cases when a boil water advisory (BWA) is necessary, communication will involve the ODW, the waterworks, and impacted consumers, along with any other waterworks that have a regular or emergency interconnection.

Uncontrolled distribution system depressurization not due to a water main break

Cases in which the distribution system pressure decreases below 20 psi without a water main break must be reported to ODW in accordance with 12 VAC5-590-570 B 1 and may require issuance of a precautionary Boil Water Advisory. Please contact your ODW Field Office.

This could occur due to decreased water level in an atmospheric storage tank, complete emptying of a storage tank, mechanical pump failure, pump failure due to power outage, WTP failure due to mechanical or power failure, pressure reducing valve failure, fire suppression demand exceeding hydraulic capacity, etc.