

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

This guidance addresses main breaks on page 1 and depressurizations on the following page.

Water Main Break Classification at Waterworks with Permanent Chlorination.			
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)	No Boil Water Advisory (BWA)	Notify customers in the vicinity of the problem or BWA ⁴ . Determine BWA based on depressurization extent and potential presence of contamination ¹	Notify customers in the vicinity, if possible. Issue BWA – Contact ODW ^{4,5}
Disinfect repair parts, conduct repairs	Disinfect repair parts, conduct repairs	Disinfect repair parts, conduct repairs	Disinfect repair parts, conduct repairs
Check residual disinfectant level in distribution system	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)
No bacteriological sample	Check residual disinfectant level in distribution system and ensure it is adequate	Check residual disinfectant level in distribution system and ensure it is adequate	Check residual disinfectant level in distribution system and ensure it is adequate
	Collect one bacteriological sample downstream ^{2,3}	Instruct customers to flush premise plumbing upon return to service	Instruct customers to flush premise plumbing upon return to service
		If no BWA - Collect two bacteriological samples bracketing the site ^{2,3} (If BWA issued use type 4 procedures)	Collect at least two sets of bacteriological samples 16 hours apart ^{2,3}
			Lift BWA with concurrence from ODW

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Notes for water main breaks:

1. *The waterworks should consider the following factors when deciding whether a BWA is necessary: sanitary conditions of repair trench, timeliness of the repair, adherence to AWWA disinfection procedures, disinfectant residual levels after repairs are completed, water clarity after flushing, and the extent of the depressurization area. If the waterworks cannot flush or disinfect the entire depressurization area, then they should consider a precautionary boil water advisory or additional bacteriological testing.*
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. *If any bacteriological sample is positive for E. coli, then the waterworks should immediately issue a BWA, perform flushing in the area, ensure adequate disinfectant residual levels in the area and collect additional samples until two satisfactory samples collected 16 hours apart are received.*
4. *If the waterworks issues a BWA, then it should immediately notify the field office representative for additional guidance.*
5. *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.*

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 informed and updated, especially 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 also 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.