

3745-83-02 Water distribution system disruption of service.**(A) Definitions for this rule.**

For the purpose of this rule, the following terms shall be defined as follows:

- (1) "Affected area" means the portion of a distribution system where the pressure of the system has dropped below twenty pounds per square inch (psig) at ground level.
- (2) "Contamination intrusion" includes, but is not limited to sewage, unintended chemical waste or other waste in the pit or pipe, or muddy water or other unintended material entering the pipe.
- (3) "Positive pressure" means any continuous outflow of water above zero psig at ground level from the pipe on each side of the break.
- (4) "Special purpose total coliform samples" or "special purpose samples," means those samples taken to determine whether disinfection practices are sufficient following a disruption of service event.
- (5) "Type 1" event means a controlled pipe repair where positive pressure is continuously maintained during the repair, and there are no signs of contamination intrusion.
- (6) "Type 2" event means a controlled repair of a distribution system component where positive pressure is maintained until a controlled shutdown of the affected area can be completed, and there are no signs of contamination intrusion.
- (7) "Type 3" event means a disruption of service or water line repair where there is one or more of the following: a loss of positive pressure at the repair site and localized depressurization adjacent to the repair; an uncontrolled shutdown; or there are signs of possible contamination intrusion.
- (8) "Type 4" event means a catastrophic failure with widespread depressurization in the system or actual contamination intrusion.
- (9) "Repair" means any incident that requires the installation of pipe which does not exceed one section of pipe or twenty feet when dealing with fusible pipe material.
- (10) "Replacement" means any incident that requires installation of pipe which exceeds one section of pipe or twenty feet when dealing with fusible pipe material.

(B) In the event a public water system is unable to maintain a minimum pressure of twenty psig at ground level at all points in the distribution system the incident shall be deemed a disruption of service. Non-transient non-community systems with a population less than one thousand people and all transient non-community systems shall immediately provide bottled water or an equivalent remedy as determined by the director or authorized representative until such time as pressure is returned and E. coli samples are negative. Non-transient non-community systems serving a population of at least one thousand people and all community water systems shall comply with the following:

(1) Monitoring.

During a water line repair or other incident, pressure upstream and downstream of the area shall be monitored and recorded to determine if a disruption of service has occurred and the extent of the affected area. Methods of monitoring can be in-line pressure monitors, hydrant pressure recorders, storage tank or tower water level, or any other method approved by the director. Public water systems which maintain functioning and accurate hydraulic models may utilize these models to identify affected

area from a line break in lieu of using pressure gauges, storage tank water levels, or pump station records. Public water systems that use a hydraulic model for a particular event shall ensure personnel knowledgeable in running the model are available during all times of the particular event to ensure timely use of the models. In the event a water system chooses not to monitor pressure in accordance with this rule, the system shall treat the event as a Type 3 event and follow the response requirements in paragraph (B)(4) of this rule.

- (2) Type 1 event response. During this type of event, a boil advisory, sampling for total coliform and notification to the Ohio EPA are not required if the following criteria are met:
- (a) The pit is excavated to below the area to be repaired.
 - (b) The water level in the pit is maintained below the area to be repaired.
 - (c) The line is disinfected in accordance with American water works association (AWWA) standard C651-14, section 4.11.3.1.
 - (d) The line is repaired under positive pressure.
 - (e) After completion of repair, test or verify disinfectant presence by either conducting a chlorine residual analysis or comparing a 0.5 milligrams per liter (mg/L) free chlorine standard to an appropriately sized sample with free chlorine reagent added.
 - (f) The public water system shall document activities and events during the repair on a form approved by the director to demonstrate the public water system followed the Type 1 event response as established in this rule.
 - (g) If the public water system does not complete the Type 1 event response in accordance with this rule, the incident is elevated to a Type 2 event and the public water system shall comply with the requirements of paragraph (B)(3) of this rule.
- (3) Type 2 event response. During this type of event, a boil advisory, sampling for total coliform and notification to the Ohio EPA are not required if the following criteria are met:
- (a) The pit is excavated to below the area to be repaired.
 - (b) The water level in the pit is maintained below the area to be repaired.
 - (c) Critical users, as established in the contingency plan in accordance with rule 3745-85-01 of the Administrative Code, within the affected area shall be notified, if applicable, in accordance with the system's contingency plan as soon as possible, but within twenty-four hours. Efforts should be made to notify critical users in advance of beginning the repair.

If the public water system does not have a contingency plan, the system shall notify customers who have a critical need of water as soon as possible, but within twenty-four hours.
 - (d) A controlled shutdown of the affected area is performed.
 - (e) The line is disinfected in accordance with AWWA standard C651-14 section 4.11.3.2.
 - (f) In affected areas that are known or are likely to contain lead service lines, public water systems shall follow the applicable notification requirements of paragraph (B)(6) of this rule.

- (g) The water line is repaired.
 - (h) The water line flushed in accordance with AWWA standard C651-14 section 4.11.3.2.
 - (i) After repair, test or verify disinfectant presence by either conducting a chlorine residual analysis or comparing a 0.5 mg/L free chlorine standard to an appropriately sized sample with free chlorine reagent added.
 - (j) The public water system shall document activities and events on a form approved by the director during the repair to demonstrate that the public water system followed the Type 2 event response as established in this rule.
 - (k) If the public water system does not complete the Type 2 event response in accordance with this rule, the incident is elevated to a Type 3 event and the system shall comply with the requirements of paragraph (B)(4) of this rule.
- (4) Type 3 event response. A public water system shall comply with the following:
- (a) Activate the notification procedures in the public water system's contingency plan.
 - (b) If the disruption affects greater than ten per cent of a public water system's customers or greater than one hundred service connections, whichever is least, the public water system shall notify the appropriate Ohio EPA district representative or the Ohio EPA's environmental response hotline in accordance with rule 3745-85-01 of the Administrative Code as soon as possible, but within twenty-four hours. During this type of response, the public water system shall ensure that they speak with a person. The use of email or voicemail will not satisfy this notification requirement.
 - (c) Document possible contamination.
 - (d) Issue a precautionary boil advisory or water use advisory to all potentially affected consumers as soon as possible but no later than twenty-four hours after the event.
 - (e) In affected areas that are known or are likely to contain lead service lines, public water systems shall follow the applicable notification requirements of paragraph (B)(6) of this rule.
 - (f) Disinfect, repair, and flush in accordance with AWWA standard C651-14 section 4.11.3.3.
 - (g) Test for chlorine residual and comply with the minimum chlorine residual established in paragraph (C)(1) of rule 3745-83-01 of the Administrative Code and the maximum residual disinfectant level (MRDL) established in paragraph (C) of rule 3745-81-10 of the Administrative Code.
 - (h) After repairs are made, pressure has been restored to twenty psig or above and the chlorine residual is within acceptable limits, the public water system shall collect special purpose total coliform samples at locations representative of the affected area in accordance with table 1 of this rule.
 - (i) If any special purpose sample is total coliform positive, consult with Ohio EPA and continue sampling until total coliform is not detected in representative samples.
 - (ii) If no special purpose samples are positive for E. coli, the boil advisory may be lifted.
 - (iii) If any special purpose sample is positive for E. coli, the event is to be considered an acute risk to human health and the boil advisory shall remain in effect until the public water system meets the requirements for removing the boil advisory established in rule 3745-81-32 of the

Administrative Code.

- (iv) A public water system shall consult with Ohio EPA to withdraw a water use advisory.
 - (i) During the event, document activities and events on a form approved by the director, to demonstrate the Type 3 event response was followed. The form shall be submitted to the district office in which the system is located within forty-eight hours or next business day, whichever is later, of the disruption of service being corrected.
 - (j) If the Type 3 event is no longer localized to the area adjacent to the repair, the incident is elevated to a Type 4 event and the public water system shall comply with the requirements of paragraph (B)(5) of this rule.
- (5) Type 4 event response. A public water system shall comply with the following criteria during this type of event:
- (a) Activate the notification process in the public water system's contingency plan.
 - (b) If the disruption affects greater than ten per cent of a public water system's customers or greater than one hundred service connections, whichever is least, the public water system shall notify the appropriate Ohio EPA district representative or the Ohio EPA's environmental response hotline in accordance with rule 3745-85-01 of the Administrative Code as soon as possible, but within twenty-four hours. During this type of response, the public water system shall ensure that they speak with a person. The use of email or voicemail will not satisfy this notification requirement.
 - (c) Document actual contamination.
 - (d) After consultation with Ohio EPA, issue a boil advisory or water use advisory to all customers in the affected area as soon as possible but no later than twenty-four hours after the disruption of service.
 - (e) In affected areas that are known or are likely to contain lead service lines, public water systems shall follow the applicable notification requirements of paragraph (B)(6) of this rule.
 - (f) Disinfect, repair, and flush in accordance with AWWA standard C651-14 section 4.11.3.3.
 - (g) Test for chlorine residual and comply with the minimum chlorine residual established in paragraph (C)(1) of rule 3745-83-01 of the Administrative Code and the MRDL established in paragraph (C) of rule 3745-81-10 of the Administrative Code.
 - (h) After repairs are made, pressure has been restored to twenty psig or above, and the chlorine residual is within acceptable limits, the public water system shall collect special purpose total coliform samples at locations representative of the affected area, in accordance with table 1 of this rule.
 - (i) If any special purpose samples are total coliform positive, consult with Ohio EPA and continue sampling until total coliform is not detected in representative samples.
 - (ii) If no special purpose samples are positive for E. coli, the boil advisory may be lifted.
 - (iii) If any special purpose sample is positive for E. coli, the event is to be considered an acute risk to human health and the boil advisory shall remain in effect until the public water system meets the requirements for removing the boil advisory established in rule 3745-81-32 of the Administrative Code.

- (iv) A public water system shall consult with Ohio EPA to withdraw a water use advisory.
- (i) During the event, document activities and events on a form approved by the director, to demonstrate the Type 4 event response was followed. The form shall be submitted to the district office in which the system is located within forty-eight hours or next business day, whichever is later, of the disruption of service being corrected.

Table 1

Service Connections Affected	Minimum Number of Total Coliform Samples Required
0 - 15	1
16 - 1,000	2
1,001 - 2,000	4
2,001 - 3,000	6
3,001 - 4,000	8
4,001 - 5,000	10
5,001 - 6,000	12
6,001 - 7,000	14
7,001 - 8,000	16
8,001 - 9,000	18
9,001 - 10,000 *	20

*After ten thousand service connections, an additional two samples shall be added for every one thousand service connections up to the maximum one hundred samples. Public water systems that have multiple treatment plants may use a proportional sampling method if established in the contingency plan or in the initial distribution system evaluation.

- (6) In affected areas that are known or likely to contain lead service lines, that experience a disruption of service event, public water systems shall provide public notification as follows:
- (a) In areas where repairs are conducted in Type 2, 3 and 4 events, the public water system shall provide a notice acceptable to the director.
- (b) In areas where replacement is conducted, the public water system shall comply with provisions contained in rule 3745-81-84 of the Administrative Code.

[Comment: "AWWA Standard C651-14, Disinfecting Water Mains," effective date Feb. 1, 2015. This rule incorporates this standard or specification by reference. A copy may be obtained from "AWWA Bookstore 6666 W. Quincy Avenue, Denver, CO 80235," (303) 794-7711, www.awwa.org. This standard is available for review at "Ohio EPA, Lazarus Government Center, 50 West Town Street, Suite 700, Columbus, OH 43215."]

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