Oregon Drinking Water Services
Best Management Practices for
Cutting Into or Repairing Existing Water Mains

Repair Scenarios:

1. Make repair while maintaining positive pressure - *best*
2. Make repair without pressure using best management practices - *desirable*
3. Make repair without pressure without using best management practices - *least desirable*

1) Make repair while maintaining positive pressure:

Leaks or breaks repaired with clamping devices while mains remain full of water under positive pressure present little likelihood of contamination and require no additional precautions or practices.

2) When water mains must be partially or wholly dewatered to make repairs, the following practices apply:

Water mains that are completely depressurized in order to be cut into or to repair leaks or breaks are susceptible to contamination. Following all of the best management practices listed below provides public health protection when repairs must be made under these conditions:

Preparation for Repair:

- Throttle down main line valve(s) to reduce flow yet maintain positive pressure
- Isolate mainline by shutting off customer services at the meters
- Excavate below the main creating a sump and dewater
- Isolate mainline by shutting down mainline valve(s)
- Notify customers of outage when practical
- Notify customer service staff in case of customer calls

Repair Process:

- Treat exterior of exposed pipe with hypochlorite solution (account for control of residual chlorine in discharged water)
- Disinfect all repair items, piping and appurtenances per AWWA C651 Standard
- Conduct the repair with disinfected parts

Preparation for Cutting Into

- Isolate mainline by shutting off customer services at the meters
- Excavate below the main creating a sump and dewater
- Isolate mainline by shutting down mainline valve(s)
- Notify customers of outage when practical
- Notify customer service staff in case of customer calls

Cut In Process

- Initiate the cut in procedure by removing existing pipe and dewatering the remaining pipe
- Treat exterior of exposed pipe with hypochlorite solution (account for control of residual chlorine in discharged water)
- Disinfect all repair items, piping and appurtenances per AWWA C651 Standard
- Complete the cut in procedure with disinfected parts

Post Cutting Into and Repair Activities:

- Repressurize the main by opening mainline valve(s) and check for leaks
- Flush the line through a fire hydrant or blowoff. Flush in a direction to best clear the main of any debris / sediment and until air is gone and water flows clear.
- For water systems that apply and maintain a chlorine residual, check the chlorine residual at a point downstream of the main break. Residual should be consistent (not lower) with surrounding area.
- Collect a coliform bacteria sample per AWWA C651 Standard to provide a record of repair procedure effectiveness. Mark as a "special sample" and retain in utility records for 2 years.
- Restore all valves to their normal operating positions
- Open customer services and operate the outdoor hose bib to remove air and turbid water. If no outside bib is accessible, leave instructions for customer on flushing.
- If the post-repair coliform sample result shows the presence of coliforms, resample per coliform sampling procedures. If second sample results show presence of coliforms, contact state drinking water program to consult on corrective action.

3) Make repair without pressure without using best management practices:

Water mains that are completely depressurized in order to be cut into or to repair leaks or breaks are susceptible to contamination. When all the best management practices listed above can not be followed, additional measures to protect the health of affected customers are necessary:

- Notify affected customers to take personal protection action (do not use water, boil water, or use bottled water). Include media notice if affected area is extensive.
- Notify state drinking water program
- Conduct the repair and flush water main
- Flush customer services to remove air and turbid water.
- Collect a coliform bacteria sample to demonstrate water safety. Obtain coliform-absent result before proceeding.
- Notify users that water is safe to use

Oregon Health Authority

www.healthoregon.org/dwp

For a copy of the AWWA C651 Standard, contact OHA Drinking Water Services or the American Water Works Association.
Additional details can be found in Oregon Administrative Rule 333-061-0050(10)(c)&(d). Final 10/08/08