Best Management Practices
For
Water Main Breaks and Repairs

ATTACHMENT C

1. **Interruption of Service**

Whenever possible, repair work shall be performed without interruption of service. If an interruption is necessary, the repair plan shall include considerations to minimize the length of time for the outage. These considerations include measures to assure all equipment and supplies to effectuate the repair are available at the site to expedite the repair once service is interrupted.

2. **Pipe Conditions**

If pipe cannot be repaired under pressure by use of a repair clamp, the pipe should not be completely depressurized until the pipe is exposed and the pit meets the conditions described in 8 below. After the pipe is unpressurized, a continuous outflow of water from the pipe on each side of the repair should be maintained during the repair process to eliminate the potential for the introduction of contaminants, and to facilitate ongoing flushing action. Precautionary boil water notices shall be issued when these conditions cannot be maintained.

3. **Magnitude of Area Impacted**

Consideration shall be given to the relative size of the area impacted not only with regard to geographic size but also to the number of customers affected. A broken water main encompassing a small area, and a limited number of customers still could have negative consequences on the health of those affected. It is thus important that precautionary measures are undertaken by the water utility.

4. **Potential Hazards**

A survey of potential hazards in the vicinity of the work area shall be completed. Potential sources of contamination such as septic systems or underground storage tanks may be cause to issue a precautionary boil water notice regardless of safeguards implemented at the work site. Due consideration should be given to this potential on a case-by-case basis.

Service connections within the area of consideration should also be surveyed. Any connection without the proper type of backflow prevention device, and, or the presence of multi-story buildings shall be factored into the decision-making relative to potential for contamination.

5. **Flushing**

Whenever possible, unidirectional or bi-directional flushing towards the work site should be done before, during, and subsequent to a water main break or repair activity.

As a measure of flushing effectiveness, chlorine residuals shall be evaluated in the immediate and surrounding areas around the repair site. Flushing should be continued until system residuals are resumed and stabilized within the water distribution system, to achieve the minimum required disinfectant residual throughout the system.

6. **Isolation of Area**

In an effort to localize drops in service pressure, minimize impacts to service, and reduce opportunities for contamination, valves should be closed or throttled as needed to isolate the repair area as much as possible. The length of pipe(s) with a reduction in pressure or less than full pipe conditions should be minimized.

7. **Service Connections**

Consideration to backflow and the presence of multi-story buildings should be given in order to reduce the potential for the water main to have contaminants introduced, thus it may be prudent to valve off applicable service connections in the area impacted.

8. **Pit Considerations**

Standing surface, ground, or potable water in the pit of a water main break should not be allowed to remain during periods of unpressurized pipe conditions, less than full pipe flow, or whenever flow is not being maintained. Portable dewatering pumps shall be utilized to keep the hole dewatered below the pipe inverts during all repair activities. Additionally, soil should be excavated to a minimum depth of 12 inches below the pipe inverts. Precautionary boil water notices shall be issued when these conditions cannot be maintained.

9. **Disinfection and Bacteriological Testing**

All repair items, piping, and appurtenances shall be properly disinfected or swabbed in accordance with Rule 62-555.340, F.A.C., and AWWA Standard C651.

As a record of procedural BMP effectiveness, a minimum of one bacteriological sample should be collected on either side of the repair area for two consecutive days. In the case of precautionary boil water notices, they may be lifted after receipt of one day of satisfactory analytical results. However, if the analytical results are positive, two consecutive days of satisfactory water quality analyses are required prior to rescinding the boil water notice. The utility shall coordinate this activity with the local FDEP and/or DOH representatives.

10. **Type of Event**

Unplanned repair or outages have an inherently higher risk of potentially impacting public health than planned or "controlled" events. Hence, this should be duly weighted into decisions regarding issuance of precautionary boil water notices. As such, coordination between the DEP or DOH/CHD office and the affected utility is important to determine the necessity for the issuance of a precautionary boil water notice. It is important that the actions of the affected utility comply with Rule 62-555.340, F.A.C.