

### **Section 384.103 Finding**

To: Bill Stowe, CEO and General Manager

Project: Filter Building Water Service Line Replacement

Potable water is delivered to the Filter Building at the Fleur Drive Treatment Plant through two water service lines, one entering the east end of the building and another entering the west end of the building. These two service lines provide water supply to critical water treatment processes located within the Filter Building including lime slaking, alum feed, soda ash feed, and lime slurry feed, in addition to providing domestic water for the building. The two service lines are interconnected inside the building but the system is not designed to deliver, nor is it capable of delivering, all of the necessary water supply through only one of the connections.

On Friday, January 8, 2016 a leak was discovered in the 6-inch water service which enters the west end of the building. The service line break is located under the ring levee which protects the Fleur Drive Treatment Plant from flooding. The break is near the center of the levee, approximately 20-feet below the surface of the levee at that point. The broken service line was easily isolated but, unfortunately, the second service line was not able to provide the water required to feed all of the process in the building. Specifically, water pressure in the lime slurry feed facility dropped to an unacceptable level. Temporary water service had to be provided to this facility from a fire hydrant using a fire hose which is now exposed to our current single digit temperatures. Additionally, isolating the broken service line leaves the critical facilities within the filter building with only one source of water supply.

This is not the first time this service line has experienced a break leaving portions of the filter building without adequate water supply and causing damage to the protective levee which surrounds the plant. This service line was constructed using cast iron pipe installed in the 1950's. Our vast experience with cast iron pipe of this vintage, and specifically with this service line makes it clear that repairing this break is not the appropriate course of action. The Filter Building West Service Line must be replaced.

Engineering staff has worked with Iowa Trenchless to evaluate a number of options for replacing the service line including directional drilling, pipe bursting, and grouted casing. Directional drilling is not a viable option due to the oversized bore hole required. Pipe bursting presents challenges due to the potential for fittings in the pipeline which may be difficult to break. Grouted casing is the selected option and can be implemented within two weeks.

