

LWS - Large Main Shut Down - Standard Operating Instructions

Background

There are generally 3 reasons to shut down a water distribution or transmission main - to isolate a segment of main that is broken or leaking, to provide for maintenance or repair of valves or hydrants, to provide for a connection to or modification of the piping. For the purposes of these instructions, a large main is considered to be 12" (or 16") and larger.

Process

Scheduled Shutdown

When the purpose is to provide for maintenance or repair of valves or hydrants, or to provide for a connection to or modification of the piping, these efforts are to be planned in advance. For 12" and 16" mains, both the Water Distribution Manager and Water Production Manager should be notified two days in advance of the desired shut down by the Supervisor or Assistant Superintendent of the crew planning to do the shut down. For 20" and larger mains, and for 12" or 16" mains that are the primary connection to a pump station or a reservoir, both the Water Distribution Manager and Water Production Manager should be notified one week in advance of the desired shut down. These requirements should be discussed in advance at preconstruction meeting with the contractor and engineering staff.

The Water Production Manager will notify Ashland operators and Production Lincoln staff of the date and duration of outage. We have a general discussion of the impact to the system. Once we have a general idea of how the system will be impacted, the Lincoln staff reviews water main schematics to determine which valves will be used to isolate the facility. Plans of pump stations are also reviewed to determine if it is possible to by-pass the station and still move water to a desired location.

The water distribution model may also be used to determine expected flow conditions with specific facilities out of service. We then discuss the sequence in which these valves will be operated to minimize any pressure differentials to the mains and services in the immediate area. We review the procedures and sequences with the Operators so that they know what they may be seeing on the monitors in Ashland. When all agree, procedures and sequences are reduced to writing in the form of a work order so all have a copy. The work order is electronically accessible and filed when the work is completed.

Unscheduled Shutdown

When the purpose is to isolate a segment of main that is broken or leaking, the Supervisor or Assistant Superintendent of the crew planning to do the shut down first determine the urgency of the leak, and then should immediately let the water plant operator at the Ashland Treatment Plant (phone # 402.323.3860) know of the purpose,

the timing, location, and expected duration of the shutdown.

All Shutowns

Prior to the actual shutdown, Administrative staff (or telephone answering service on evenings and weekends) is notified of potential pressure issues which may be called in by customers. Construction and Service personnel are also notified of potential issues such as water main breaks, service complaints, low water pressures, etc. The Business Office is also notified as well as the Fire Department of possible false alarms on fire sprinklers systems.

12 to 24 hours in advance, all customers must be notified of the time and duration of the pending shutdown. Specific attention should be given to businesses, industries, and institutions requiring special attention.

During the actual shutdown, constant communication is maintained between the Maintenance staff and the Operational staff. Water Production will involve as many Maintenance staff as possible because in many instances these shutdowns have not occurred in the recent past, therefore limited knowledge exists of how the system will react.

In addition, constant communication is maintained between the Distribution staff and the Water Plant Operator to monitor the effects on water pressure, either too high or too low, so that the closing of valves can be curtailed or reversed if an unexpected pressure spike seems to be occurring. It is desirable that this communication occur through the city's radio system so that supervisory and administrative staff will be aware of difficulties encountered.

When the shutdown has been completed, a final check should be made with the Service, Construction and Administrative staff to determine if any problems have developed.

Crews that turn mains back on shall authorize all customers with backflow preventers to open their bypass valve to avoid RP backflow devices from dumping water. Service section staff will check the functioning of the backflow preventers on the next available work day.