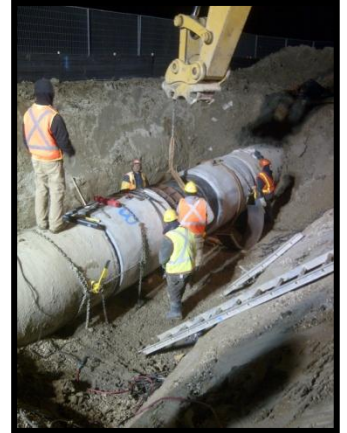


Case Study: Huron Pipeline Repair – January 2013

Background

In late 2012, the London Regional Water Supply, working with [Pure Technologies](#), completed a condition assessment of the primary transmission water pipeline. This pipeline travels 47 kms from the water treatment plant located near Grand Bend on Lake Huron to the Arva terminal reservoir just outside of London. Using Smart Ball® leak detection and the Pipe Diver® electro-magnetic inspection technologies, Pure Technologies discovered that several pieces of 122-cm (1724KpA) concrete pressure pipe were showing signs of structural weakness and would need immediate replacement.



Critical Issue

As operator of the Lake Huron facility, OCWA immediately modified operations to limit main line water pressure until replacement of the distressed pipes could be completed. We also recognized that about 500,000 residents would be relying on stored reservoir water during the pipeline repair. With no means of replenishing the reservoirs during the servicing, OCWA and municipal staff realized the project demanded a tight timeline. This situation would require a co-operative effort from the staff at the Elgin Area Primary Water Supply System to supply resources and to increase their plant production levels to compensate for the decrease in supply from the Huron facility.

Project Process

Given the necessity of tight timelines, most of this work was completed in darkness. Less than two weeks after first discovering the distressed pipe pieces, the repair operation began at 4 a.m. on Wednesday, January 9. The first step involved OCWA operational staff dewatering and de-chlorinating approximately 6 km of watermain at a single location. To make matters even more complicated, the pipeline traverses cross country through private property and farmland in which access would be required.

Working around the clock and using all-terrain vehicles along the pipeline route, the operational scope of this project included:

- operation of several main line isolation valves (2400 turns)
- operation of main line drain valves
- de-chlorinating 6 km of 122-cm water main
- evacuation of entrapped air upon return to service

Additional operational measures included “bumping” the High Lift pumps at the Lake Huron facility to maintain pressure in the lower half of the system against closed main line valves. This proved to be a difficult task, given that the distribution system and facilities were not designed for this operational situation of supplying an intermittent and low volume of water.



Construction activities included:

- replacement of two 122-cm pipe pieces at two different locations
- replacement of a 30-cm branch outlet valve
- replacement of a 12-cm drain valve
- the removal of a 61-cm access hatch for additional inspection work

Outcome

Due to the project being completed safely and in a timely manner, there were no major impacts to water quality and supply. The removal and replacement of the damaged pipe at both locations was completed, pressure tested, leak tested, and returned to service by 12:45 a.m. on Thursday, January 10. By Noon, water resumed flowing into the London reservoir at Arva. The Municipalities of Bluewater, South Huron, Lambton Shores, Lucan Biddulph, North Middlesex, Middlesex Centre, Strathroy-Caradoc and the City of London continued their access to high quality drinking water. “This replacement created difficult and challenging operational circumstances,” said Terry Bender, General Manager, OCWA, Lake Huron and Elgin Primary Water Supply Systems, “however as the operating authority, OCWA is proud to have been able to assist in the completion of this project in a timely manner, ensuring the return of clean and safe drinking water for the communities served.”

sales@ocwa.com

GTA: 416-775-0576

Toll free: 1-855-358-1488