



# Briefing Notes

**To:** John Braam, PEES  
**From:** Roland Welker, Water Engineering  
**Date:** May 28, 2012  
**Re:** **City Response to Lake Huron Pipeline Break**

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John B: Contained below are briefing notes which provide an overview of the events surrounding the Lake Huron water pipeline break on the morning of May 23, 2012. A more detailed report will be provided which provides an engineering analysis of the system response to the event, describes controls that the water utility can exert and opportunities for improvement. Coming out of this analysis, with a coordinated review of communication processes, staff will establish new policies which may be used in the event that another pipeline break should occur. Options that are available to staff include voluntary conservation measures, a mandatory ban on outside water use, and declaration of an emergency whereby large water using businesses would be shut-down. The selection of the most appropriate control measures would depend on the amount of water anticipated to be consumed within the City of London, speed of repair measures being undertaken by the Joint Boards and the need to preserve water in storage to fight fires or supply critical customers such as hospitals.

## Roles and Responsibilities

- Regional Water – coordinate repair of break and reinstatement of flow from Lake Huron and all municipal customer communications from the regional perspective
- Water Operations – manage reservoirs, pumping stations, coordinate with Regional Operations, assist in repair of pipeline, start wells in standby mode and undertake testing, respond to customers questions/complaints
- Water Engineering – technical support to Water Operations wrt managing system, coordinate communications (take lead role on behalf of the City), including lead role with ICI customers and directly involved City departments – Parks and Recreation, Facilities, Sewer Operations, Fire Department, Solid Waste, etc.
- Corporate Communications – issue media releases to approximately 120 contacts in nearly 70 news agencies, update City web-site and social media, provide advice on messaging for media interviews
- Emergency Management – provide coordination support and advice, standby in the event that situation develops into an emergency
- By-Law Enforcement – enforce mandatory ban
- Public Service – respond to telephone inquiries
- Fire Department – high visibility contact with residential customers to reinforce the need to conserve water supply for emergency purposes

## Water Consumption Reduction Activities

- Issue voluntary and mandatory public notification
- Issue directed voluntary and mandatory notifications to ICI sector and City departments (requested that employers advise their employees of the need for the conservation, both in the business and at home to ensure that businesses had adequate water supply to avoid shut-down)
- Undertake media interviews to stress importance of reductions
- Reduce operating pressure in high level areas of the City which could tolerate a 10 psi (69 kPa) reduction
- Cease pumping from Arva – to reduce system pressures and protect remaining volume in storage
- Provide enforcement of the mandatory ban through By-Law Enforcement staff and Fire Department staff.
- Throw raccoons on power lines supplying Arva Pumping Station.

Chronology (from City of London's perspective – times are approximate – a more detailed chronology will be provided by Regional Water staff)

Wednesday, May 23, 2012

1. Grand Bend operators noticed the pressure drop at 6:40 am.

2. Rick Grenier was the first City staff to receive notification. Brian Lima from Regional Water contacted him at approximately 6:45 am.
3. First notification of the pipeline failure into City Hall staff was at 7:21 am from Regional Water staff. Also received voicemail message from landowner at 7:05 am that there was a problem at 69510 Blackbush Line.
4. Regional Water, City staff and L82 contractor mobilized to site of break at approx 8 am. Isolate downstream valve and throttle upstream valve to maintain an adequate flow to keep the line clean.
5. LHPWSS requests water use restrictions (media release) at 8 am
6. City of London issues notifications and postings on website at 8:43 am
7. L82 contractor builds access roadway into site of break at 11 am, approx 700 metres from roadway
8. Set up pumps to start pumping water from the hole at 12:48 pm
9. Excavation by L82 begins at 3:30 pm
10. Removal of damaged pipe complete at 9:30 pm
11. Visual and electro-magnet inspection of pipe by Pure Technologies begins at 9:50 pm
12. City of London crew change at 11:30 pm

Thursday, May 24, 2012

13. City of London crew begins installing repair pieces of pipe at 1:00 am – heavy lifting by L82
14. City of London crew completes installation at 3:00 am
15. Dielco begins to weld closure piece at 3:30 am and completes pipe at 8:30 am
16. Pipeline being refilled and flushing to drain from 2:25 pm to 5:15 pm
17. Intermediate booster pumping station at McGillivray begins to fill at 6:30 pm
18. Flow begins to enter Arva Reservoir at approx 9 pm.
19. Reservoirs in London reach critically low levels at 9 pm as a result of high evening water demand
20. Reservoirs beginning to recover after evening peak demand period

Friday May 25, 2012

21. Calculations at 6 am indicated that it would take at least 48 hours to refill reservoirs at anticipated consumption rates, once peak demand came on-line again. If peak demands were higher than anticipated as experienced the night before, duration could be upwards of 3 days.
22. In consultation with Water Operations staff and Communications staff and designate to Acting Executive Director, it was decided to issue Mandatory Ban on Outside Water Use to be implemented at 8 am and revoked when reservoirs returned to normal levels.
23. Elgin WTP filter is shut-down at approx 8 pm because of an instrument failure and all flow to London from the Elgin system is stopped.

Saturday, May 26, 2012

24. Elgin WTP filter comes back on-line at approx 10 am and flow to London resumes
25. Water Operations staff and Acting Executive Director and City Engineer determine that ban can be lifted later in the afternoon assuming operations remain stable at both plants (there is a concern that extending ban could result in a significantly larger peak demand when the ban is lifted)
26. Mandatory ban is lifted at 6 pm.
27. Elgin flows are suspended, as reservoirs approach normal operating range approx 8 pm

Sunday, May 27, 2012

28. Arva pumping station goes out on power failure at approx 1:30 am and is restored at 6 am. Arva reservoir fills to near capacity as flow from Lake Huron continues
29. Elgin flow is brought on-line during Arva power failure and shut-off once power is restored. Springbank levels drop a small amount to augment Elgin flow, but can easily handle low night time demand

### Challenges in Water Supply

- Springbank Reservoir No. 2 out for emergency repairs
- Arva Cell No. 1 out for cleaning – fortunately was put back into service shortly after break following receipt of “negative” bacteriological tests
- Elgin Water Treatment Plant (WTP) - one filter out of 4 being re-built and an instrument failure resulted in second filter being shut-down for several hours Friday night and Saturday morning
- A power failure at Arva Pumping Station Sunday early morning
- Periodic backwashing of filters throughout the event, especially at Elgin WTP where filters exceeded design capacity and loading rates were high
- London at the end of both of pipelines, so other user demands were satisfied first, attempts to isolate other communities whose reservoirs had recovered did not provide additional flow to London

### Peak Water Usage from May 23<sup>rd</sup> to May 26<sup>th</sup>

- May 23 Wednesday (before break) – morning peak was 200 ML/d
- Evening Peak was 150 ML/d
- May 24 Thursday - morning peak was 145 ML/d
- Evening Peak was 170-180 ML/d
- May 25 Friday- morning peak was 200 ML/d – mandatory ban issued at 8 am following morning peak
- Evening Peak was 175 ML/d
- May 26 Saturday- morning peak was 180 ML/d
- Evening Peak was 170 ML/d (ban lifted at 6 pm)
- May 27 Sunday- morning peak was 200 ML/d
- Evening Peak was 165 ML/d

Staff intend to undertake a more thorough analysis in an effort to draw conclusions from these data.

The communication effort was complicated by the fact that the pipeline was reported as being repaired in the afternoon of Thursday May 24<sup>th</sup> (Update #4 at 1:00 pm), and it was identified that flow of water into London would not resume for several hours and Londoners were requested to continue conserving. Londoners and media outlets may have only “consumed” the first part of the message.

One-on-One Contacts – see Matt Feldberg’s Summary

Final Media Advisory May 26, 2012 at 6 pm, identifying major parties responsible for restoring service.

Regards, Roland

Copies (electronically)

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