



**PUBLIC INTEREST
COMMISSIONER**

**A report of the Public Interest Commissioner
in the matter of a disclosure under the
*Public Interest Disclosure
(Whistleblower Protection) Act***

Case: #PIC-16-03549

Allegations concerning Alberta Health Services
and the Department of Environment and Parks

March 16, 2017



Generic language is used in this report to protect the identity of the parties involved.

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Andre Corbould
Deputy Minister
Alberta Environment and Parks
9915 - 108 Street NW, Floor 10
Edmonton, AB T5K 2G8

Dear Deputy Minister Corbould:

I am pleased to provide my report, “Allegations concerning Alberta Health Services and the Department of Environment and Parks” as required by section 22 of the *Public Interest Disclosure (Whistleblower Protection) Act*.

A handwritten signature in blue ink, appearing to read "Peter Hourihan".

Peter Hourihan, B.Admin, LL.B
Public Interest Commissioner

Edmonton, Alberta
March 16, 2017



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Dr. Verna Yiu
President and Chief Executive Officer
Alberta Health Services
10030 - 107 Street NW, Floor 14
Edmonton, AB T5J 3E4

Dear Dr. Yiu:

I am pleased to provide my report, “Allegations concerning Alberta Health Services and the Department of Environment and Parks,” as required by section 22 of the *Public Interest Disclosure (Whistleblower Protection) Act*.

A handwritten signature in blue ink, appearing to read "Peter Hourihan".

Peter Hourihan, B.Admin, LL.B
Public Interest Commissioner

Edmonton, Alberta
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Foreword

An effective public service depends on the commitment of everyone who works in it to maintain the highest possible standards of honesty, openness and accountability. The *Public Interest Disclosure (Whistleblower Protection) Act* (the Act) creates a confidential avenue for public servants to speak out about wrongdoings or make complaints of reprisal. Employees of public entities can choose to report internally or, in limited circumstances, directly to the Public Interest Commissioner (the Commissioner). Whether the matter is investigated by the public entity or the Commissioner, Albertans expect the investigation will be thorough, objective and complete. Whistleblowers have the same expectation, and must have confidence their concerns will not be met with reprisal. Management needs to ensure this and should embrace whistleblowing as an opportunity to make positive change.

Mandate

The Act came into force June 2013, and facilitates the disclosure and investigation of wrongdoing or reprisals occurring in government departments, offices of the Legislature and public entities (including provincial agencies, boards and commissions, post-secondary academic institutions, school boards, charter schools, accredited private schools that receive grants and public sector health entities).

The Commissioner is an independent Officer of the Legislature, who reports to the Legislative Assembly as a whole. The purpose of an investigation by the Commissioner is to bring the wrongdoing to the attention of the affected department, public entity or office of the Legislature and to recommend corrective measures. This promotes confidence in the administration of the department, public entity or office of the Legislature and encourages whistleblowers to come forward without fear of reprisal. Our larger aim is to promote a culture in the public sector where employees and managers share a common goal of reporting, investigating and changing practices to prevent or remedy wrongdoings.

The Act stipulates the Commissioner must prepare a report on completion of an investigation which sets out the findings, reasons for those findings and any recommendations considered appropriate respecting the disclosure and the wrongdoing. This report fulfills that requirement.



The Allegation

On September 14, 2016, a disclosure of wrongdoing was received relating to the depressurization of a municipality's water distribution system over a four-day period in summer 2016.

The whistleblower alleged a boil water advisory, implemented following two water main ruptures, was rescinded without adequate flushing of the water distribution system. The disclosure suggested the proper flushing protocol for a water distribution system, following a depressurization, is to flush or “turnover” three volumes of water through the system, as described by the American Water Works Association (AWWA).¹ The allegations suggest this omission could have left contaminants in the water distribution system, thus creating a substantial and specific danger to the life, health and safety of individuals.

Overview

Alberta Health Services (AHS) is the provincial health authority responsible for notifying the public of immediate threats of waterborne disease during an infrastructure failure, in accordance with the *Public Health Act*. The Department of Environment and Parks (the department) is responsible for licensing, regulation, and monitoring of public water distribution systems in accordance with the *Environmental Protection and Enhancement Act*. During a water main break, the department provides advice to system operators to ensure the system is returned to the appropriate level of compliance.

Municipalities are not jurisdictional under the *Public Interest Disclosure (Whistleblower Protection) Act* (the Act). The department and AHS, however, are entities which fall under the jurisdiction of the Act. Therefore, the investigation sought to determine whether the action or inaction of the department or AHS in responding to the municipal water main rupture created a substantial and specific danger to the life, health or safety of individuals – a wrongdoing as defined in the Act.

The investigation included the analysis of applicable legislation, documents and industry publications relating to the repair and disinfection of water mains after depressurization events. This included the examination of AWWA C651-14: The Water Main Disinfection Standard (AWWA C651-14), and identifying industry best practices and established standards relative to Alberta's requirements for potable water quality.

Incident records and other documents specific to this event, including the applicable policy and procedures, were provided by the department, AHS and the municipality. Seven people, including witnesses and subject matter

¹ The AWWA is a non-profit, scientific and educational association dedicated to managing and treating water. It publishes standards that provide guidance on practices for water utility management and operations.



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experts from the department, AHS, the municipality and Health Canada were interviewed. This significantly advanced our understanding of the facts and requirements in water main depressurization situations.

Finding

The actions of the department and AHS in response to the water main break did not create a danger to the life, health or safety of individuals. The public was not put at risk after the boil water advisory was lifted and the response by all parties was appropriate. Therefore, I do not support a finding of wrongdoing as defined in the Act.

Facts of the Investigation

The water main break

The municipality experienced a ruptured water main. Contractors installing a new sewer line punctured an existing water main. The municipality's Public Works department was unable to immediately locate the appropriate shut off valves to isolate the damaged section of the water main and begin repairs. A decision was made to depressurize the entire water distribution system to expedite the repairs.

Requirements for water line disinfection following depressurization

Depressurization may create the potential for public health risks, including microbiological contamination, chemical contamination, ground water intrusion, and back-siphoning of non-potable water from various sources. These risks are managed by expediting the repair of infrastructure, restoring pressure to the system, flushing the system with clean potable water and testing the supply for bacteriological quality. Intensive flushing is thought to be effective in removing water with non-bacteriological contaminants by replacing the supply with water of a known clean source. The underlying premise of this practise is that the greater the volume of potable water moved through the water distribution system, the greater the chance of successful diffusion/displacement of any contaminants.

There are no universally applied procedures for flushing water distribution systems. Each depressurization event is considered unique and flushing protocols vary depending on the situation; however, the intent is to ensure the regulated potable water quality is achieved.

AWWA C651-14 addresses the process of returning a water main to service after flushing in section 4.11.3.2:

The water main may then be returned to service after flushing to scour the pipe and obtain *three volumes of water turnover* [emphasis added]. The flushed water should run visually clear,



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have a measurable chlorine residual if the system operates with a residual, and be checked with bacteriological testing. The pipeline may be returned to service prior to obtaining bacteriological results.

The *Environmental Protection and Enhancement Act* and the *Potable Water Regulation* identify the Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems (Standards and Guidelines) as the document setting water quality objectives for disinfection of water mains in a public water distribution system. Section 1.9.4.1, concerning the flushing of a water system, states:

For existing water mains that are repaired, the line must be flushed until chlorine residual and turbidity levels are within normal operating ranges (average turbidity < 2.0 NTU and total chlorine residual > 0.1 mg/L), before putting the main back into service. Samples must be collected at the same time to determine the bacteriological quality of the water. The existing main may be returned to service prior to the completion of bacteriological testing in order to minimize the time customers are without water.

Unlike AWWA C651-14, the Standards and Guidelines do not stipulate the required water volume which must be flushed after depressurization; however, the Standards and Guidelines are the legislated standard in Alberta required to be followed by the department. AWWA C651-14 is a standards of practise document and does not supersede the Standards and Guidelines.

AWWA C651-14 and the Standards and Guidelines are, however, consistent in the following requirements when returning a water main to service:

- Drinking water is to be visually clear;
- There is measurable chlorine residual;
- Bacteriological testing is required; and
- The water main may be returned to service prior to obtaining bacteriological results.

The boil water advisory

An Executive Officer of AHS may issue a boil water order if in their opinion a condition presents a potential public health concern and immediate intervention is required to safeguard the public. Through established communication pathways, AHS's Medical Officer of Health may issue a boil water advisory, for similar purposes, to be disseminated widely amongst the public. Consultation with the department and the owner/operator of the water distribution system may occur as required.

There is no legislation defining a boil water advisory or the process for issuing an advisory in the event of a water main break. Boil water advisories are not enforceable; rather, they are precautionary notices to the public warning of the potential for disease-causing microorganisms that may be present in drinking water. Boil water advisories are meant to be a temporary measure while the issue causing the problem is corrected. Boil water orders are issued



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under the authority of the *Public Health Act* and, as the case requires, may specify that a water distribution system owner notify the public, conduct proper testing and address the general underlying deficiencies.

Following the initial water main break, the municipality posted a boil water advisory on its web page, contacted local businesses and health care facilities advising of an impending shut down of the water system, and published its notification through various media. This was done without consultation with the department and AHS.

AHS received initial notification of the water main break and the pending depressurization and implementation of a boil water advisory by the municipality shortly before depressurization was to occur on the day of water main break. AHS did not make a determination that any microbiological contamination had occurred that would require a boil water order. In situations like this and as a precautionary measure, AHS would normally issue a boil water advisory. Observing that the municipality had already issued a boil water advisory, AHS chose to support the municipality's advisory with similar messaging on its web page.

Flushing of the water main system

The municipality completed repairs of the broken water main at approximately 12 a.m. the day following the water main break (Day 2). The water distribution system was then re-pressurized and the municipality flushed the damaged water main until satisfied the water coming out of the repaired main was clear, had adequate chlorine residual, and suitable bacteriological samples were obtained for analysis by the provincial lab, as required by the Standards and Guidelines.

Starting mid-morning on Day 2, the municipality conducted a general turnover flush of the remainder of the water distribution system to remove any water held in the system during the depressurization, and to reduce the risk if any contaminants entered the system during the depressurization. This included flushing all high points in the water system and areas around the hospital. This was a precautionary measure and there was no indication any contaminants had entered the system.

In the early evening of Day 2, a second water main break occurred about 2.5 meters from the initial break. The municipality immediately isolated the break, resulting in a shut down and depressurization of a smaller portion of the water system. Repairs were made, and the isolated section was flushed and returned to service. The municipality did not see the necessity of restarting the general turnover flush as they were able to isolate the second break from the overall water system and continued with the general turnover flush on Day 3 and Day 4.

The municipality obtained the required turbidity and chlorine levels during the general turnover flush. Bacteriological samples taken on Days 2, 3 and 4 were absent for total coliforms and E.coli. This met the standard outlined in the Code of Practice. The amount of water used to flush the water system during either of the two breaks is not known. The Standards and Guidelines do not stipulate the volume of water required during a turnover flush.



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The rescinding of the boil water advisory

On Day 4, a post-incident conference call was held between the department, AHS and the municipality where the following items were confirmed:

- Repairs were made;
- Flushing had been completed of the water mains in proximity to the breaches;
- A general turnover flush of the municipal water distribution system had occurred;
- Turbidity/chlorine levels were reported as normal;
- Bacteriological samples for Day 2 processed by the provincial lab had no total coliforms/E.coli;
- Bacteriological samples for Day 3 were submitted and not yet processed by the provincial lab; and
- The municipality continued to flush areas that included dead ends and loops where water movement was not continuous.

Although the bacteriological samples of Day 3 had not been returned, the group collectively established that all necessary steps had been taken or were being undertaken. It was agreed the boil water advisory could be rescinded and that it would be revisited if any unusual results were received from sample tests.

Conclusion

The requirements set out in the Standards and Guidelines for flushing of water mains after depressurization were followed. This achieved the required water quality objectives and effectively mitigated risks to the public. There is no requirement to test for any other contaminants except as required by the Standards and Guidelines, section 1.10.3.3.c Physical Parameters, Organic & Inorganic Chemicals and Pesticides, which is once every three years.

As a microbiological contamination was not detected, AHS did not issue a boil water order pursuant to the *Public Health Act*. The advisory issued by the municipality and supported by AHS was a precautionary measure. The boil water advisory was rescinded once it was determined the necessary steps had been taken.

I do not believe there was an act or omission by AHS or the department that would have caused a danger to the life, health or safety of individuals during this event; therefore, I do not find wrongdoing occurred.