

Investigative report:

1766 boil-water advisories

now in place across Canada

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More than 1760 provincial boil-water advisories are currently in effect in communities and neighbourhoods across Canada, prompting calls from national and municipal advocacy groups for a federal and provincial strategy to ensure safe drinking water for all Canadians.

Poor quality drinking water in Canada is often perceived as an issue primarily of concern to First Nations communities; as of Feb. 29, 2008 there were boil-water advisories in place in 93 First Nations (CMAJ 2008;178:984). These are not included, however, in the 1766 advisories now in place elsewhere in Canada (Box 1). CMAJ compiled provincial lists of small towns, cities and townships, and neighbourhoods, trailer parks and business establishments within larger communities where local health officials have instructed residents not to drink their water without first boiling it — or, in a few cases, not to drink or bathe in it at all.

Advisories are intended to be a precautionary measure in the public health tool kit, but given that some have been in place for at least 5 years, they are apparently being used as a band-aid substitute for treatment.

Ontario and British Columbia have the most boil-water advisories. A spokesman for the Ontario Ministry of Health and Long-Term Care says that 679 boil-water advisories have been issued since 2006 that, as far as the Ministry knows, remained in effect as of Mar. 19, 2008. Spokesman Dave Jensen cautioned, however, that public health units in Ontario do not always report all their advisories to the Ministry, nor do they always report when an advisory has been lifted. (A spokesperson for Ontario Health Minister George Smitherman directed CMAJ to Environment Minister John Gerretsen, who was not available for comment before online deadline).

In British Columbia, the Ministry of

Health documented 530 boil-water advisories as of Mar. 31, 2008, although the Interior Health Region's 352 boil-water advisories were only current as of Jan. 3, 2008, whereas the remaining 178 advisories were updated as of Mar. 27 or 31, 2008, depending on the region.

Newfoundland and Labrador lists 228 orders as of Apr. 1, 2008, with some communities having more than 1 boil-water advisory in effect.

Saskatchewan had 126 advisories as of Mar. 31, 2008. Of these, 53 were emergency boil-water orders, meaning a threat to human health has been identified. The province had another 73 precautionary drinking water advisories in place, meaning residents were advised to boil water because of the possibility problems exist with their water.

In Nova Scotia, 67 communities had boil-water advisories in effect as of Mar. 19, 2008, according to the Department of Environment and Labour.

Quebec reported 61 boil-water advisories as of Mar. 31, 2008, according to its Ministry website, which is regularly updated.

In Manitoba, there were 59 boil-water advisories or boil orders in place as of Mar. 14, 2008. Those advisories covered both public water systems, and private wells and septic field systems, according to Manitoba Water Stewardship's Office of Drinking Water.

New Brunswick reported only 2 boil-water advisories as of Feb. 22, 2008.

In Alberta, there were 13 boil-water advisories in effect as of Mar. 31, 2008, according to 5 of the province's 9 regional health units that provided figures to CMAJ.

There were no boil-water advisories reported in Prince Edward Island, Nunavut or the Yukon as of online deadline. One community in the Northwest Territories, Colville Lake, had a boil-water advisory in place because its new solar-powered treatment centre was not operating.

The 1766 boil-water advisories currently in place mean affected residents cannot rely on the safety of their drinking water. Affected communities ranged from portions of Bay Roberts, Newfoundland and Labrador, and Wallaceburg, Ontario, to the entire communities of Sullivan Bay, British Columbia, Victo-

ria Beach, Manitoba, and Tilley, Alberta.

"That's stunning," says Maude Barlow, chair of the Council of Canadians, and author of *Blue Covenant: The Global Water Crisis and the Coming Battle for the Right to Water* (McClelland & Stewart, 2007). "It's stunning in a country with what we have [that the] the state of our water is perilous."

The boil-water advisories are issued for reasons ranging from adverse taste to total coliform count or a breakdown in chlorination equipment.

The Council of Canadians and the Federation of Canadian Municipalities, whose members have direct responsibility for the water treatment plants and other municipal infrastructure that ensures clean water, are calling on the federal government to work with provinces and territories to develop a strategy framework that will make clean, safe water a priority across the country.

"We're in favour of upping the quality of water and ensuring that it meets a certain standard right across the country," says Gord Steeves, president of the Federation of Canadian Municipalities. "We're very concerned about the amounts of negative effluents going into water systems and finding their way into potable water systems as well."

Currently, there are no national drinking water quality standards. Each province has its own standards and regulations; the federal government shares

Box 1: Boil water advisories in Canada, by province

A CMAJ survey indicates that, as of Mar. 31, 2008, there were 1766 boil water advisories across Canada in small towns, cities and townships, or in neighbourhoods, trailer parks and business sites. The totals by province and territory:

British Columbia	530
Alberta	13
Saskatchewan	126
Manitoba	59
Ontario	679
Quebec	61
New Brunswick	2
Nova Scotia	67
Prince Edward Island	0
Newfoundland	228
Yukon	0
Northwest Territories	1
Nunavut	0

jurisdiction for water with the provinces and territories.

“We haven’t updated our national Water Act since the 1970s,” says Barlow, who would like to see a federal/provincial water framework that not only implements national standards, but also protects watersheds and specifically outlaws bulk water exports.

“We do not take care of our water. We need legislative and regulatory protection. We want really strict legislation — some of it provincial — around treatment of water,” Barlow adds.

The problem for British Columbia is that there are more than 3500 water systems in the province, most of which deliver surface water and are untreated, so are vulnerable to potential contamination, says Dr. Perry Kendall, British Columbia’s provincial health officer. “Our boil-water advisories have gone up over the past 3 or 4 years because of greater attention to monitoring and greater attention to risk and probably an application of the turbidity guidelines,” he says.

Turbidity refers to cloudiness in water, which can be caused by suspended solids that can interfere with disinfection, so may be an indication of potential problems.

The problem with smaller systems, which exist in many provinces, is that they may not be managed by qualified people, says Kendall. The issue also comes down to cost. If a system is not part of a municipal infrastructure, many people are loath to pay to improve treatment.

British Columbia sees water as a provincial jurisdiction and so does not support federal standards, Kendall says, but would “love more federal infrastructure cost-sharing” without the application of national standards. He believes national and provincial standards often fall towards the lowest common denominator, and would not be flexible enough to handle one-time issues such as the heavy rainfall that had everyone in Metro Vancouver boiling their water in the fall of 2007. Although Vancouver water had high turbidity for weeks, health officials knew that was caused by fine clay particles, so was safe to drink — but it wouldn’t have met a standard, Kendall says.

Still, he acknowledges the boil-wa-

ter advisories indicate a significant public health issue.

“People should definitely be concerned,” he says. “If people really want to have water that poses negligible risk, that a reasonably informed person would be happy to drink, they need to be prepared to pay more through their tax system. They need to be conserving water in many areas and they need to be investing hundreds of millions of dollars in infrastructure, in filtration plants, in ultraviolet monitoring systems.”

Josee Milville-Dechene is the editor of *The Water Chronicles* (www.water.ca), a self-described independent online media organization that monitors water quality in Canada. The site maintains a map and updates boil-water advisories and Do Not Consume” orders from across Canada daily, as the provinces and territories release figures. (CMAJ collected its figures independently.)

“Everybody in Canada seems to think we don’t have issues with water, and we do, and they’re growing,” says Milville-Dechene. “What we’re trying to do is get people aware of the issues.”

The provinces and territories vary in how up-to-date their figures on water quality are, and on how readily they make them available to the public, she says. Alberta does not publish its figures online, for example, while British Columbia, Saskatchewan, and Newfoundland and Labrador do, but provide different levels of detail about the causes for the boil-water advisories or Do Not Consume orders.

“Every different province has a different way of reporting the boil-water advisories, different words, different criteria,” she says.

Every year, an estimated 90 people die and another 90 000 people become ill from drinking contaminated water in Canada, says Barlow, citing statistics she gathered from the Sierra Legal Defence Fund. About 90 billion litres of raw sewage are dumped into the Great Lakes annually and several large cities, including Montréal, Quebec and Victoria, British Columbia dump untreated sewage or effluents into large bodies of water that supply other communities with drinking water.

In 2005, the most recent year for

which statistics are available, the Public Health Agency of Canada reported 571 cases of *cryptosporidiosis* and 4046 cases of *giardiasis*. The Canadian Public Health Association declined to comment for this article.

For municipalities, which are on the front lines of any water crisis, the repercussions of the health issues that poor quality or contaminated water can cause can be overwhelming, says Steeves. He cites the *Escherichia coli* H0157 contamination in Walkerton, Ontario, that killed 7 people and made an estimated 2000 ill in May 2000, and the *cryptosporidium parvum* crisis that made between 6000 and 7000 people ill after the parasite contaminated the drinking water in North Battleford, Saskatchewan in April 2001.

“It is absolutely apocalyptic for a community to go through what a place like Walkerton, Ontario went through,” says Steeves. In addition to the health consequences, “the economic ramifications are so great, proportionately, that they are almost impossible to measure.”

While municipalities support and recognize that much of the responsibility for correcting the infrastructure deficiencies that jeopardize the provision of clean water in communities, they cannot pay the approximately \$31 billion it will collectively cost to upgrade water and wastewater treatment infrastructure across the country, Steeves says.

“We require federal and provincial funding to support any new standards or any augmentation of the infrastructure,” he says.

The issue of water quality is high on the municipal agenda, says Steeves, and bleeds into many areas of provincial and federal jurisdiction. Vancouver, British Columbia for example, attributes approximately 30 000 hospital visits a year to gastrointestinal illness, including those from water-borne causes, says Steeves, with Montréal, Quebec citing water-borne issues as being responsible for about a third of all the gastrointestinal complaints in their hospitals.

Clean water “is pretty fundamental,” adds Steeves. — Laura Eggertson, Ottawa

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