

Case Study - Walkerton's Tragedy

TEACHERS: Read "'Population' and Water Source Protection" on page 80 of Peel Water Story book.

First read the background section individually. When you have read "The Case", re-read the background and highlight the information that will help you prepare a report and answer the questions. As a team, work to develop a report to present to the whole class.

Background

The situation in Walkerton, Ontario, in May 2000 is nothing less than a human tragedy. The outbreak of E.coli, which killed seven residents and left 2,300 people sick, was shocking and frightening for the people in the area. For six long months the town's 5,000 residents had to rely on bottled water and the treating of tap water with bleach, with many going to homes of friends and relatives in neighbouring communities to bathe.

Six months after the tragedy unfolded, the town still suffered under a "boil water advisory." Even after the water was declared safe to drink in December of 2000, many people still felt uncomfortable using what comes out of the tap. Their trust and belief in the water system is seriously eroded. The Walkerton tragedy is a serious reminder of what many Canadians take for granted - the value of clean and safe drinking water.

The background article that follows is not a fictional story made up to illustrate a point; these are the facts, as we know them to date, that are associated with the Walkerton tragedy. As you work through your assigned case questions, keep in mind that this case actually occurred here in Ontario, and that there may be students or teachers in your school who had friends or relatives in Walkerton who were personally affected by this terrible situation.

What Happened In Walkerton

Walkerton's water supply was found to be contaminated with E.coli. The contamination came after a heavy rain storm on May 12, 2000, which washed cattle manure into a town well, according to evidence submitted at a judicial inquiry examining what happened. The manure contaminated the water with the E.coli intestinal bacteria, which can cause severe illness and death, and a faulty chlorinating system in the well failed to kill the bacteria.

When people began getting sick, the local Medical Officer of Health issued a boil order advisory for the town's water on May 21, and tests two days later confirmed the presence of E.coli. By May 25, five people had died and hundreds were sick. Two more people died in the ensuing weeks as a result of their illness. The situation was made worse by the fact that the contamination went undetected, or at least unreported, for some time. The investigation into how this occurred is ongoing. The following article explains more about how manure can contaminate a well system.

[** Since the time that this lesson was made, the Walkerton Commission of Inquiry has concluded, the findings from which are available in The Walkerton Commission of Inquiry Reports, available at: <http://www.attorneygeneral.jus.gov.on.ca/english/about/pubs/walkerton/>].

Old wells putting water at risk

Unsealed and forgotten, they give contaminants a speedy route to groundwater

Sonia Verma and Devin Donovan, STAFF REPORTERS

Ontario's drinking water is threatened by more than 100,000 old wells that allow manure, chemicals and other surface contaminants to rapidly poison groundwater.

These wells – many just open holes with no covering or seal – were never plugged when their municipal or private owners abandoned them in favour of new wells. Since it costs up to \$10,000 to plug a well, many owners simply walk away – and the province has no way of knowing whether old wells are sealed unless they receive a complaint from the public.

“There are an unbelievable number of these old wells in Ontario. Years of neglect have turned the ground into Swiss cheese,” says Bill Davidson, a spokesperson for the Ontario Groundwater Association, which includes well drillers, engineers and scientists.

Water tapped by wells has slowly percolated into the ground over months or years. Sand, clay, and rock filter out contaminants, making the water safer to drink.

Old wells that haven't been properly sealed provide a tunnel for contaminated water to speed past this natural filtration system and contaminate the groundwater that supplies 2.8 million Ontario residents with drinking water. Groundwater can be contaminated in a minute or less in this way, experts say.

While the problem is province-wide, it also may explain how farm run-off quickly sank into the aquifers that feed two wells in Walkerton, where contamination of the town's drinking water with the bacteria E.coli O157:H7 last May caused seven deaths and made 2,300 people ill.

Walkerton's Wells 5 & 7 showed E.coli contamination for four years, and extremely high levels of the fecal bacteria in May.

Investigators have so far located 19 old wells that may have allowed farm run-off to contaminate groundwater, which in turn contaminated the town's newer wells. The 19 old wells have been plugged since the crisis in Walkerton.

Provincial officials admit unplugged wells are a problem, but have no idea exactly how many exist across Ontario.

The best guess comes from the groundwater association, which estimates that more than 100,000 of Ontario's approximately 750,000 wells are a threat to public safety because they were not properly plugged, a procedure involving the injection of cement or a clay called bentonite into the well shaft.

It is up to the well owner to report a well has been abandoned and sealed, says Warren Lusk, senior official in the Environment Ministry's Kingston office.

As of last year, the province had 26,152 wells reported abandoned. However, the province has no way of tracking how many wells fall out of use and are not reported unless a complaint is filed with the Ministry.

Lusk says he has received only three public complaints about improperly abandoned wells this year, and admits the Ministry is unsure of the scope of the problem and the estimate of 100,000 problem wells across the province.

“I couldn't (say) if it (the estimate of 100,000 wells) is correct or not. If they are out there, the onus is on the well owner to plug and seal them off,” Lusk says.

Wells are usually abandoned because the owner – town or landowner – has found a better source of water. Left unsealed, abandoned wells “may constitute a hazard to public health and safety,” states a 1999 Environment Ministry circular.

The Ministry used to have a team of well inspectors who received complaints directly and enforced the well-plugging rule. Over the past decade, the unit has been reduced from about 5 inspectors to just 1.

Environmental officers such as Lusk have taken over the responsibility of addressing complaints about problem wells, but critics say their time is spread too thin to tackle the problem effectively.

Retired inspector Cliff Faulkner says the wells present an “enormous” threat to public safety. “If you poke a hole in your skin and don't cover it, it becomes infected. It's the same with wells. When you don't cover them properly, they become susceptible to contamination and can infect an entire aquifer,” says Faulkner, who worked for the Environment Ministry for 33 years.

Well inspectors used to assess the construction and safety of new and problem wells. During these routine field inspections, they would often discover abandoned wells. Well owners were told how to fix the problem, a field order was issued, and the inspector would follow up.

“Now that the inspectors are gone, nobody knows how bad the situation really is,” says Faulkner, who lobbied ministry officials for tougher rules and enforcement before he retired. “There was no response.”

The groundwater association has also put forward proposals for more enforcement – most recently in 1997 – but also received no response from the Ministry.

Many association members are well drillers who encounter the problem every day. They say that if the Ministry does not enforce the well-plugging rule, well owners will do nothing.

[ARTICLE CONTINUED ON PAGE 3]

Drillers interviewed by The Star told stories of finding unused wells covered by manure piles or filled with garbage, and even some with dead animals lying at the bottom.

“Some people are given a price to properly plug a well, they say that’s too much and they decide to just leave it because they know nobody will check,” said Terry Marquardt, president of the Groundwater Association.

Plugging a well can be costly – between \$1,000 and \$10,000. The Ontario Water Resources Act provides penalties for offences that lead to the contamination of groundwater, including not plugging a well. Fines range from \$100,000 for an individual to \$1 million for a town or corporation. However, with no enforcement, the regulation has no power, drillers say.

The problem is not confined to Ontario. Across Canada and in the U.S., governments are becoming more aware of the issue.

The solution is to pinpoint old wells and seal them. Doing this in Ontario is complicated because the Environment Ministry’s well database does not accurately record where old wells are. There are few records of the location of wells built or abandoned before the early 1990s because the information wasn’t legally required.

With few ministry staff devoted to wells, the Ministry can barely enter data for the 15,000 new wells that are built each year – leaving no time to assess the number of old wells that need plugging.

Provincial auditor Erik Peters reported in 1996 that, of the 200,000 wells built since 1984, records for only 30,000 had been entered into the database. The Ministry has recently brought its data entry up to date, but many of the records do not give the exact location of wells.

Lusk says the Ministry is working on updating the regulations governing well plugging.

[END OF ARTICLE]

The Cost of Cleaning Up Walkerton’s Water

Walkerton’s water situation is not only a human tragedy; it has other implications that may have a lasting effect on the town’s financial well-being in the long term. While it is true that the cost of protecting water resources can be high, the cost of prevention cannot be compared to the cost of a cure.

To date, the cost of fixing the water system in Walkerton appears to add up to a whopping \$11 million. There’s still no agreement on who will pay this huge bill. In addition to this sum, there is the cost of leasing the state-of-the-art treatment equipment, expected to cost about \$2 million more. Residents, already reeling from the effects of the tragedy and from the concerns about the safety of their water, are now worried about being stuck with the bill for remediation and clean up. If they end up paying the costs through sharply higher property taxes and water rates, that financial burden will hinder the town’s recovery and make it harder to attract new residents and businesses, they said.

Brockton Mayor David Thomson said in an interview that he was surprised by the \$11 million figure, but he said residents have little to worry about and should “trust the people that are in charge.” Provincial officials have so far refused to offer any guarantees about how much the province will pay, saying that they cannot be committed to paying anything until they see a final bill. The focus of the Province up to this point they say, has been get the clean water in the system, get the system fixed.

The government says it’s waiting to see how much of the tab will be picked up by the municipality, the local public utilities commission, and their insurance companies.

To date, the province has given the town about \$6 million – but much of that has been in the form of loans. It has also said it will look at grant applications from the municipality.



The kitchen sink

Don't Use – This Walkerton kitchen has a sign on the sink that should make us all stop and think about the impact of unsafe water. Imagine how your life would change if the water we all take for granted was suddenly unsafe to use.

The Case

As a team, discuss the Walkerton tragedy as it is outlined. For your own interest, you may also search for additional information in local news reports and in the archives of any newspaper.

As a group, work to develop a report for the other students in the class that offers them some background information about what happened in Walkerton. Be sure to explain how the water got contaminated.

Then, present your responses to the following questions:

- In your opinion, who should be held accountable for the water contamination in the Walkerton situation and why do you feel this way?
- How do you think this tragedy has affected the area to this point, and what future effects may be felt by the residents?
- What do you feel could be done to ensure that this sort of tragedy never happens in Ontario again?

Copyright, Regional Municipality of Waterloo, 2001.

Contents of this publication may be photocopied provided the source is acknowledged on every page by including the following: *Peel Water Story, Environment, Transportation and Planning Services Department, the Region of Peel.*

Not to be adapted or reprinted without written permission of the Environment, Transportation and Planning Services Department of the Regional Municipality of Peel.
Address: 10 Peel Centre Drive, Brampton, Ontario L6T 4B9