Water and Environmental Health in Ontario - How Far Have We Come Since Walkerton

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The Walkerton Tragedy

- The Town of Walkerton and communities far and wide and across Canada were reeling in the face of a tragedy in May 2000 in which 7 people died and thousands suffered severe illness from drinking the town’s tap water – and many still do.

- A complex series of events along with an almost complete failure of the oversight system for protecting drinking water in Ontario were to blame as Justice O’Connor laid out in the 2 volume Walkerton report released in 2001.
What had to be done in response

- Justice O’Connor’s 121 recommendations included were systemic and practical and espoused the Multi-Barrier approach to drinking water protection that CELA had advocated for the Concerned Walkerton Citizens, as did the Ontario water treatment and management industry associations.

- Fundamentally, lessons included to not take safe drinking water for granted, to undertake constant vigilance, to provide public transparency and education, and to constantly review and improve the system.
What had come before

- The recommendations were in contrast to an ethos at the time across many governments, (which we are seeing again now in many respects, to “avoid duplication”; “get rid of redundancy” and “streamline” environmental regulation”)

- Serious cut-backs in labs, the Ministry of Environment, curtailed resources at health units, privatization of labs without establishing reporting rules, lack of training and qualifications of operators, and lack of systemic oversight and enforcement when problems were found were faulted, among many other issues
State of understanding

- The shocking state of the poor understanding of how to protect drinking water was evidenced in testimony by the operators that they did not understand that there could be anything in groundwater to make people sick; (they thought that groundwater was always pure) and the even more shocking testimony by some of the MoE inspectors responsible for overseeing water systems, that they did not know there could be anything in groundwater that could result in deaths

- These mistakes led in part to the lack of treatment at the time, and to the leniency on the enforcement side over previous years
Robust system in place

- As a result, the successive governments moved to put into place all of the Walkerton recommendations, at least for municipal drinking water in Ontario
- A Safe Drinking Water Act was passed in 2002 – it converted drinking water guidelines into enforceable standards.
- A process of reviewing approvals of drinking water systems, more rigour in obtaining those approvals, and a more frequent inspection system were set up
Other Safe Drinking Water measures

- Labs testing drinking water had to be accredited, and use certified methods of testing
- Adverse results had to be reported – not only to the operator, but also Ministry of Environment and Health
- Operators could no longer be “grandfathered” out of training requirements
- Monitoring within the drinking water system was rigorously required for specified parameters
- Boil Water Advisories and Drinking Water Advisories now have a systemic approach
Ups and Downs

- Adjustments were required along the way – for example for Small Systems which are now inspected by Health Unit inspectors and must respond to requirements on a site-specific basis.

- The province passed the Nutrient Management Act in 2002 to deal with manure spreading and municipal bio-solids land application on soils within certain parameters – but the process was controversial and took years to establish the basic framework while many aspects remain inadequately controlled.
Science Advanced

- At the same time, great advances occurred in Ontario with a significant investment in agricultural best management practices research, and in obtaining advice on how best to approach protection of sources of drinking water.
- Activities that constitute threats to drinking water have been catalogued and assessed in 19 drinking water regions; vulnerability of aquifers has been mapped in those water sheds; pathways for contamination have been explored; and water budgets have advanced considerably to understand quantity threats.
- (The plans in the Burlington area can be viewed through the Hamilton and Halton Conservation Authorities.)
Source Water Protection

- A system of protecting sources of drinking water has been rolled out by way of the Clean Water Act; this approach is fundamental to the multi-barrier approach (constituting one-quarter of Justice O’Connor’s recommendations)

- Although it’s taking many years to establish, it is a fundamentally important platform for protecting drinking water especially since once Source Protection Plans are approved in 2012, they will be legally binding on the province in its decision making, and on municipalities, in theirs
What remains to be done

- Although our colleagues, such as environmental public interest lawyers, in other provinces, can only wish for a system like Ontario’s, we can’t take our system for granted; nor can we think that the job is done in this province.
- There are many drinking water sources which are not yet protected, and the potential for illness or tragedy remains in these places.
What remains to be done

- Non-municipal shared systems
- Small systems
- Untreated systems not adequately posted
- First Nations systems
- Private Wells and other private sources
- Standards that need up-dating to be health protective
- Ongoing issues that are tough to solve (such as lead in drinking water)
- Septage
- Small farms
Non-Municipal Systems

- This is one of the most significant current issues that remains.
- Examples include small towns and villages (which can range up to a few thousand people) with no treated municipal water system.
- Typically the residents will each have their own well and their own septic system (sometimes they have obtained sewers but not treated drinking water).
- Typically, many of these wells will be in close proximity to each other and dug or drilled into similar depths.
Non-Municipal Systems cont’d

- This means the wells may share aquifers – and thus a common source
- Contamination of that source can put many residents at risk at once
- There is often no treatment within the home for the water; and rarely do the householders test the water for anything but bacteria; and rarely more than once or twice per year if that
- As a result, there is no protection of source; no treatment; and no monitoring
Non-Municipal Systems cont’d

- Many of these individual wells may be poorly constructed or maintained, and there may be pathways for contaminants to get from the surface to the wells; there may also be other sources of contamination into the aquifer from the surface.

- Often there are nearby industrial or agricultural activities or fuel storage, or pesticide storage, or application of fertilizers or nutrients on land so there may be other threats which could impact the source.
Non-Municipal Systems cont’d

- Examples in my County include the towns of Burford, Scotland, and Oakland; there are many examples across Ontario
- There is provision in the Clean Water Act to declare such a community of drinking water systems to be a system for the purposes of that legislation – if that was done, the “system” – i.e. the community – would have to be assessed as to the drinking water threats it potentially faces, the level of severity of those threats, and if “significant”, to have measures included in the Source Protection Plan in 2012 to deal with them
Non-Municipal Systems cont’d

- However, as of this point, almost no source protection plan committees have “elevated” such communities for the purposes of the Clean Water Act – thus they remain unprotected by the provisions of that Act.

- There are two reasons I have heard – one is that the source protection plan committees feel they have enough on their plates to get the first plans in place for the municipal systems; and the other is uncertainty as to who would pay for the assessment costs and potential mitigation costs.
Small Systems

- When the Safe Drinking Water Act monitoring and treatment regulations were initially issued, they applied equally to small systems.
- This included for example rural hall kitchens, camps, gas stations and rural restaurants.
- Many of the owners, operators, or community groups felt they could not meet the requirements and would have to close.
- CELA suggested that an interim regulation apply, which was done and gave a posting option for untreated water.
Small Systems cont’d

- Thereafter work was done to develop a new system that would be more suitable to the scale, but still safe.
- In the end the systems were shifted to Ministry of Health oversight through the Health Units.
- They are inspected by local health inspectors (like food inspections).
- If there are issues of source or quality, the inspectors can require particular action or treatment based on protocols.
Small Systems

- At CELA we agree with this approach, but would suggest that as it is relatively new, it is an area that should be audited and reviewed as to effectiveness.
- In meantime, as consumers of small systems, such as rural schools, parents sending kids to camps etc., people can request copies of the drinking water test results.
- If water is unsafe, an alternative supply must be provided until it is addressed.
Untreated Systems in Public locations

- The main issue with untreated systems is to ensure that they are consistently and adequately posted as not fit for drinking water.
- It is important not to disturb these signs and not to consume this water.
- If you are considering drinking this water after boiling, you must consider whether there is any potential for chemical or other contamination which would not be treated by boiling – this requires knowledge of source and surrounding uses or potential spills.
First Nations Systems

- While progress is being made on First Nations’ water systems, there is a long long way to go.
- Many First Nations systems are not covered by Ontario’s Clean Water Act – for those that could be, there is an opt-in option and most have not yet opted in.
- Many First Nations are outside of Ontario’s source protection planning regions.
- The federal government’s First Nations water programs have done little in respect of source water protection.
First Nations Systems cont’d

- Many systems are still under Boil Water or Drinking Water Advisories; many still don’t have adequate treatment systems; many still don’t have adequate coverage by qualified operators, and back-up personnel available
- The number one issue for First Nations drinking water is resources to properly maintain and operate, or upgrade
- Bill S-11 was introduced by Federal Government but is widely opposed in its current form, in part as a result of explicit provision to interfere with aboriginal and treaty rights
First Nations Drinking Water cont’d

- Other issues with Bill S-11 include lack of resources; lack of a vision as to how the system would work; and draconian powers to impose solutions on First Nation Communities by yet to be identified entities
- On the other hand, progress is slowly continuing with assessments, treatment upgrades, the circuit rider training program and other initiatives and the annual federal funding is slowly making progress
- Ontario has provided support through Walkerton Clean Water Centre training, emergency assistance, and operational help in some cases
Private Wells and Other Private Sources

- Surprisingly, many people do not appreciate the potential risks of their own private wells or other private sources such as lake-based, springs, or cisterns.
- The risks can be managed in most cases and family health protected.
- First and foremost is the potential for bacteriological contamination.
- This could be from septic systems on the same or nearby property, or from other pathogen sources, including wildlife and agriculture.
Private Wells

- The quality and safety of private wells is not regulated in Ontario – people are responsible for their own wells.
- The only regulation is for the drilling of the wells (or for later work in remediating or altering the wells) – in that case the driller has rules regarding how to drill the well, case it, test and disinfect the water before turning it over to the home-owner.
- Most health units offer free bacteriological testing to well owners.
- Bacteriological testing should be done at least seasonally, preferably after a major rain event.
Private Wells

- A useful advance would be the collation of the private wells testing results into a data base to allow the local Medical Officer of Health to notice trends or to issue a rural Boil Water Advisory in case of pathogen issues on a regional basis.
- More frequent testing by homeowners would greatly improve the ability of the MOH to assess issues.
- Much greater resources are needed for homeowner education on private wells issues, risks, and how to maintain their wells.
Private Wells cont’d

- Often the major regional threat to private wells is the septic system on the property or those in the area.
- In some cases the Drinking Water Stewardship Fund has provided funding to help with upgrading of septic systems, but normally where there is municipal water at issue.
- Other municipal by-laws (for re-inspection and upgrades) and incentive programs should be targeted in the most at-risk areas.
Other private sources

- All surface water sources must be assumed to be contaminated with pathogens
- All surface water sources must at a minimum be boiled, or other suitable treatment utilized
- Not all pathogens respond equally to all types of treatment, so it is important to get advice on the best approach for the source water and its likely risks
- Other contaminants can include oil, fertilizers, pesticides and other chemicals from boating, yard work, maintenance and much else
Standards that Need Up-dating

- One of the new safeguards introduced after Walkerton was the formation of the Ontario Drinking Water Advisory Committee (ODWAC)
- This is a valuable committee that independently assesses current and emerging issues, undertakes review and study by experts, often consults the public, and gives advice to the Minister of the Environment, independent of the MoE staff
- ODWAC’s reports can be viewed on its website at www.odwac.gov.on.ca
Standards cont’d

- Ontario therefore has a valuable system of reviewing proposed changes to standards, or suggesting new ones, in addition to those that may come forward from the federal Guidelines process conducted by the CCME (Canadian Council of Ministers of the Environment)
Standards cont’d

- Current outstanding standards include:
  - A new standard for Tritium in drinking water (a radio-nuclide)
    - ODWAC recommended in 2009 moving to 20 bq/L annual standard rather than 7000 bq/L
  - A new standard for Arsenic in drinking water
    - ODWAC recommended in 2006 .01 mg/L rather than the current .025 mg/L (the federal guideline is .01 mg/L)
      - (Household test kits are available and point of entry or point of use treatment devices are available as well)
Lead in Drinking Water

- This is a two-part problem:
  - the home-owner side of the equation if the home is older and has lead service pipes from the street to the house; or even if newer and has high-lead containing fixtures including many “high-end” decorative fixtures
  - The municipal side of the equation if the water treatment process has resulted in changes to water acidity leading to the potential for lead sources in or en route to the home to leach into the drinking water
A number of steps were taken in respect of this issue, including a sampling regulation; rules regarding dealing with corrosion and treatment issues in the water system; a regulation for testing by schools and day-cares; and for a time, a program to assist low income families with purchasing on tap filters.

Many municipalities have had programs to assist homeowners with lead service line replacement.

Awareness of the issue is often still low, and prioritizing the work by the home-owner is an issue.
Lead in drinking water

- In most communities, homeowners can have their water tested for lead without charge; if not the samples can be taken to commercial labs.
- If lead is an issue, apart from removing the source of the lead (service lines, fixtures, old solder on old cisterns etc.), filters that are certified for lead filtration should be installed on tap and/or used in a jug system for all drinking water including food preparation.
- Flushing is not necessarily sufficient to deal with the problem, which was the big shock when this arose as a province-wide problem in Ontario in 2007 (but daily flushing is required in older schools under the regulations).
Septage

- Spreading of septage – treated or un-treated human waste – remains an issue in Ontario.
- Some areas have sufficient treatment plant capacity that septage is taken to those plants.
- But in many areas, it is still taken and spread on agricultural land as a “nutrient” – and there are greater health risks with un-treated septage than with animal manure.
- Ontario has been working on pilots and research on other treatment options such as reed beds, lagoons, geomembranes and alkaline stabilization.
Septage Land Application

- If septage is untreated, the MoE must issue a site specific Waste Disposal Site Certificate of Approval.
- If septage is treated, under new rules as of this January, 2011, it is covered by the requirement to have a Non-Agricultural Source Material Plan approved by OMAFRA and prepared by a “certified person” under the Nutrient Management Act.
Small Farms

- The Nutrient Management Act was passed in 2002, intended to address both drinking water and environmental issues from land application of animal waste and sewage biosolids, among other things.
- It was controversial and took some years to proceed with the regulatory approach.
- In the end there are specific operations more likely to be subject to the Act: commercial operators like pulp and paper biosolids; sewage biosolid applicators; and large livestock farms.
Small Farms cont’d

- Large farms are defined according to the type of livestock and numbers of animals; include for example dairy and beef cattle; hog operations; poultry operations; sheep and other operations
- The province did not apply the same regulatory framework to small farms and instead presumed that they would be covered if they were in Well Head Protection Area Zones under the Clean Water Act
- As that Act is still in the threats assessment phase, and just moving on to developing plans, this is not the case yet
Small Farms cont’d

- While livestock operations, as well as other nutrient sources like biosolids are captured in the source protection threats assessment process, what is not yet clear is what measures will be required and whether they will be relatively consistent across the province.
- Since risk to drinking water is not a size-dependant issue, but rather a pathway issue; and since other aspects of water contamination from nutrients are cumulative (like nitrates in drinking water), CELA would like to see the NMA extended to all size farms.
Further Resources

- See the CELA website at www.cela.ca
- The Waterhole website at www.waterhole.ca
- The PollutionWatch website at www.pollutionwatch.org
- The Canadian Partnership for Children’s Health and the Environment website at www.healthyenvironmentforkids.ca