

**TRANSPARENCY, REPORTING, AND  
ACCOUNTABILITY:  
A Comparative Overview Between Ontario and  
the United States of the Public's Right-to-Know About  
Drinking Water**

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## Table of Contents

1.	Executive Summary	3
2.	Introduction	5
	2.1 Purpose	5
	2.2 Methodology	5
3.	Background	7
	3.1 Citizens' Right-to-Know	7
	3.2 Right-to-Know and Drinking Water	7
4.	Drinking Water Information	9
	4.1 Ontario	9
	4.2 The United States	11
5.	Right-to-Know Tools	15
	5.1 Online Databases	15
	5.1.1 Ontario	15
	5.1.2 The United States	15
	5.2 Right-to-Know Reports	17
	5.2.1 Ontario Quarterly Reports	18
	5.2.2 U.S. Consumer Confidence Reports	19
	5.3 Emergency Public Notification	21
	5.3.1 Ontario	21
	5.3.2 The United States	22
6.	Conclusion	24
	References	26
	List of Acronyms	28
	Appendices	29
	Appendix A: Examples of Online Drinking Water Databases	
	Appendix B: Sample Water Quality Reports	
	Appendix C: Sample Templates of Boil Water Advisories and Drinking Water Advisories	

# **1. EXECUTIVE SUMMARY**

This study is a comparative overview of the current state of the public's right-to-know about the quality of drinking water in Ontario and the United States. Two main topics are explored: existing information on drinking water quality, and effective right-to-know tools. This study ultimately demonstrates the inadequacy of information collected on drinking water quality in Ontario, as well as the need for greater transparency and improved public reporting.

In Ontario, public water systems (PWS) – i.e. water works or distribution systems servicing the public – regularly monitor and collect information on drinking water quality. They must make sampling records readily available to the public and issue quarterly water quality reports that summarize their monitoring information. The Ministry of the Environment (MOE) uses a voluntary program – the Drinking Water Surveillance Program (DWSP) – to monitor long-term drinking water trends throughout the province. Ontario does not have a database for compliance with drinking water standards, but the public can access summaries of the DWSP findings on the MOE web site. The Ministry also posts online Adverse Water Quality Incident Reports for incidents involving *E. coli*, faecal coliform, or where a boil water advisory has been issued. Furthermore, Environment Canada collects general information about drinking water quality in the Municipal (Water) Use Database (MUD).

In the U.S., PWSs must issue water quality reports, also known as a consumer confidence reports, on a yearly basis, summarizing contaminants in the drinking water. State agencies systematically collect a variety of facts and figures for PWSs, such as sampling requirements, drinking water contaminants, violations, contact reports, enforcement actions, and other information. Federal government databases, such as the Safe Drinking Water Information System (SDWIS), the National Contaminant Occurrence Database (NCOD), and the Information Collection Rule (ICR) Treatment Study Database also house a tremendous amount of information on drinking water quality across the country.

Although information alone cannot improve the quality of drinking water, the three right-to-know tools discussed in this study – online databases, right-to-know reports, and emergency public notification - can help expose existing problems and potential threats, as well as provide the public with important information for protecting community health.

Online databases allow the public easy access to information, facilitating a shift away from the old top-down reporting approach. They can improve the quality of data, lead to more effective use of PWS and government staff time, and raise public expectations about drinking water quality. However, as this is a tool relatively new to the drinking water field, few jurisdictions have adopted it. In Ontario, neither PWSs nor the MOE have established online databases, and easy public access to Environment Canada's MUD is limited.

In the U.S., databases are accessible online for select jurisdictions, including Des Moines (Iowa), Oregon and Wisconsin. These databases provide the public with current – in some cases real-time – information on drinking water quality. The public can also query the U.S. EPA's NCOD on the Internet, and search the SDWIS and ICR Treatment Study databases.

RTK reports are an effective tool for educating the public about drinking water. The newly implemented *Drinking Water Protection Regulation* (DWPR) requires Ontario PWSs to issue quarterly water quality reports, but the Regulation includes vague requirements for the contents of these reports and methods of advertising their availability. A preliminary review of the first two rounds of quarterly reports reveals that important health information is frequently absent, summary tables of contaminants are not easily understood, and some reports include misleading blanket statements of safety.

In the U.S., PWSs are required to place an annual “consumer confidence report” directly into the hands of drinking water consumers according to specific delivery methods. The *Safe Drinking Water Act* (SDWA) Amendments of 1996 also clearly established content requirements for these reports, including information on source water quality, a summary table of detected contaminants, important health information, and warning statements for vulnerable populations.

The third RTK tool discussed in this study is emergency public notification, which is important for mitigating the effects of a serious health hazard. Emergency public notification in Ontario is divided into two parts. First, the local medical officer of health (LMOH) can issue advisories of contaminated water to the public, even though no act or regulation entrenches the responsibility for issuing boil water advisories or drinking water advisories in Ontario law. Second, a PWS must post a public notice if it fails to undertake the proper monitoring of microbiological parameters or corrective action for contamination.

In the U.S., the SDWA Amendments of 1996 established a three-tier public notification system according to the immediacy of the threat. PWSs are responsible for notifying the public according to specific timing, content, and delivery requirements. As a result, adverse health impacts from widespread contamination can be mitigated.

Entrenching these three right-to-know tools within Ontario drinking water regulations and policies is, therefore, essential for creating greater transparency and heightening public awareness concerning drinking water quality. Along with a more comprehensive body of information, these tools can provide Ontario communities with a complete and immediate picture of drinking water quality, and establish greater accountability among PWSs and government agencies alike.

## **2. INTRODUCTION**

Over the past ten years, drinking water in North America has received a significant amount of public attention. Tragedies in Milwaukee (1993) and Walkerton (2000), in particular, have fuelled concerns over the safety of drinking water among Americans and Canadians alike, and with good reason. A number of steps can be taken to better protect the public's health from contamination problems. One such step is ensuring the public's right-to-know about the quality of drinking water.

### **2.1 Purpose**

The purpose of this study is to compare public right-to-know initiatives concerning drinking water quality in Ontario with those of the United States. In providing an overview of the quality and accessibility of drinking water information in these jurisdictions, this study highlights a variety of effective right-to-know tools. Such tools can provide communities with a complete and immediate picture of their drinking water quality and alert them to existing or potential health threats from contaminated water.

This study is divided into two main sections:

- (1) an overview of information on drinking water quality in Ontario and select jurisdictions in the United States; and
- (2) an overview of three effective right-to-know tools and how they are currently used in Ontario and select jurisdictions in the United States.

### **2.2 Methodology**

Four different approaches to research were undertaken in this study:

1. *A Literature Review.* Few literary works were found on right-to-know as it pertains to drinking water. Searches were performed using a number of key words, such as "drinking water," "transparency," "information," "accessibility" and others, but articles found in academic journals pertained mostly to the accessibility of environmental information in general.
2. *An Extensive Internet Search.* This search yielded a tremendous amount of information from government and NGO web sites. As well, searching online proved very useful in determining the accessibility of drinking water information in the form of databases and reports.
3. *Meetings with U.S. NGOs and Government.* Two meetings were organized in Washington, D.C. The first was a round-table discussion with leading experts from

various national NGOs, including Natural Resources Defense Council, Clean Water Fund, Working Group on Community Right-to-Know, and Physicians for Social Responsibility. The second meeting was with the U.S. EPA Office of Ground Water and Drinking Water.

4. *Telephone Interviews.* Numerous telephone interviews were conducted with government officials from various agencies, as well as select water providers, in Canada and the U.S.

This study was then reviewed by professionals and NGOs in Canada and the United States.

### **3. BACKGROUND**

#### **3.1 Citizens' Right-to-Know**

In its broadest sense, 'right-to-know' (RTK) ensures a citizen's ability to access a variety of facts relating to environmental health, and public, worker, and consumer safety. It serves as a check on government, industry and other entities by using transparency to achieve greater accountability. Increasing the accessibility of high quality information raises public expectations of sound policy and practice in the public health and environmental protection fields.

Right-to-know began to gain momentum in the United States at the community level in the late 1970s and early 1980s. The first national RTK law in the U.S. was the *Emergency Planning and Community Right to Know Act* (1986), which pertained to toxic chemical emissions and accidents. The concept of RTK has since appeared in a number of other fields, including food safety, pesticides, and drinking water.

In Canada, the concept of RTK is reflected in federal statutes such as the *Hazardous Products Act* and the *Canadian Environmental Protection Act* (CEPA). The former contains the Workplace Hazardous Materials Information System, and the latter established the National Pollutant Release Inventory and CEPA Registry. At the provincial level, British Columbia and Ontario have also created environmental registries that have fostered greater public participation in the environmental decision-making process.

#### **3.2 Right-to-Know and Drinking Water**

Ensuring the public's right-to-know about the quality of its drinking water is essential to effectively mitigating health risks and establishing proactive barriers to contamination. The United States recognized the importance of RTK in the *Safe Drinking Water Act* (SDWA) Amendments of 1996, which established a number of RTK tools that keep the community informed, facilitate public participation in drinking water protection, and instil greater accountability among government agencies and public water providers. Ontario's *Drinking Water Protection Regulation* (DWPR) also includes some RTK tools that promote greater transparency.

Three types of RTK tools relevant to the Walkerton experience will be explored in this study:

- online databases;
- RTK reports; and
- emergency public notification.

Online databases create a portal for easy access to government information, enabling community members and researchers to tap a wealth of drinking water information. They allow individuals to break away from the old top-down public reporting approach, in which experts selectively tell

citizens only what they choose to. This easy access to information can also lead to improved data quality, as the accuracy of data collected by government can be readily verified. As a result, important governmental decisions which pertain to human health, such as regulating new contaminants or requiring new treatment techniques, will be based on accurate information. Moreover, online databases can free government officers from having to query databases for public requests for information.

RTK water quality reports can be a particularly effective and low-cost tool for providing communities with a comprehensive understanding of their drinking water systems. These reports allow drinking water providers to educate the public by providing a wide variety of relevant details, including summaries of detected contaminants, educational statements for the immunocompromised, health information for violations of standards, and a description of drinking water sources and their susceptibility to contamination. RTK reports generally do not impose a significant financial burden on drinking water providers, as producing the reports typically does not require additional monitoring or information collection.

The third RTK tool discussed in this study is emergency public notification, which enables authorities and public water systems to respond quickly to drinking water problems. Notifying the affected community according to a clearly established protocol, including the timing, methods, and contents of the notification, protects human health from the potentially harmful effects of contamination. This public notification mechanism is particularly important for severe health threats. The tragedies in Milwaukee, Wisconsin (1993), in which more than 100 people died and more 400,000 fell ill from a cryptosporidium outbreak, and Walkerton, Ontario (2000), in which seven people died and more than 2,000 fell ill from *E. coli* contaminated drinking water, clearly demonstrate the need for entrenching this RTK tool in drinking water policy.



## 4. DRINKING WATER INFORMATION

Accurate and detailed information is essential to responsible decision making. Without it, compliance, trends, or treatment techniques cannot be properly evaluated, thus increasing the difficulty of determining appropriate standards for protecting public health. This chapter provides an overview of existing information on drinking water quality in Ontario and the United States, and outlines public access to this information. Online databases and water quality reports are discussed in detail in the following chapter, “Right-to-Know Tools.”

### 4.1 Ontario

#### *Municipal Level*

Under the *Drinking Water Protection Regulation* (DWPR), Ontario public water systems (PWS) – i.e. water works or distribution systems servicing the public – are required to sample and analyze drinking water on a regular basis. The DWPR further requires PWSs to collect and maintain for five years the following information:

- a copy of every report on the analysis of water samples given to the PWS from an accredited laboratory;
- a copy of every report or record made of the analysis of water samples conducted by the PWS for aluminum, chloramine, chlorine residual, fluoride, or turbidity;
- a copy of every approval and every order or direction under the *Ontario Water Resources Act* that applies to the PWS and is still in effect; and
- a copy of every quarterly water quality report, which includes a summary of the analytical results and notices to the Ministry of the Environment (MOE) or local Medical Officer of Health.

PWSs must make all such reports or records dating back two years readily accessible to the public for no charge either at their offices or the offices of the municipality. Some quarterly reports are accessible on the Internet.

Certificates of approval, which may include information on variances and exemptions for sampling requirements, can be accessed with a *Freedom of Information Act* request.

#### *Provincial Level*

About 15 years ago, the MOE developed a monitoring program to determine long-term trends in drinking water quality throughout the province. The Drinking Water Surveillance Program (DWSP) is a *voluntary* program intended to assist the MOE in monitoring contaminant levels, identifying new contaminants, supporting the development of standards, and assessing treatment techniques. However, it does not collect or monitor information on the compliance of PWSs with the DWPR.

The Drinking Water Surveillance Program currently includes 175 water works, covering more than 88% of Ontario's population served by municipal water (MOE, September 2000). New water works are added regularly and prioritized according to population serviced, geographical location, risk of contamination, and availability of analytical services (MOE, December 2000, 12).

Samples of raw, treated, and distributed water are collected by water works staff two to six times per year, depending on the source water and geographical location (ibid.). DWSP conducts analytical tests for more than 200 chemical parameters – 83% of which are for organic parameters<sup>1</sup> (ibid., 14). Tests for microbiological parameters were discontinued in June of 1996 due to the intensive sampling conducted by PWSs (ibid., 16).

The MOE currently issues DWSP reports every two years. An executive summary for each PWS can be accessed online at the MOE web-site.<sup>2</sup> Site-specific reports for PWSs monitored by DWSP are available at the MOE's Public Information Centre in Toronto.

The MOE also collects Adverse Water Quality Incident (AWQI) Reports. An "adverse water quality incident" is an umbrella term defined by the Ministry as any unusual test result obtained from municipal or private water supplies, as well as from surface water sources (MOE, February 2001). That is, these incidents show that water quality standards have been exceeded on at least one occasion. Each AWQI Report includes information on:

- the name and type of the water source;
- the population served;
- the owner and operator of the PWS;
- the date that both the MOE and the MOH were notified and by whom;
- the dates of samples taken and by whom;
- why the sampling was initiated;
- the sampling and resampling results;
- the role of the MOE; and
- the resolution of the incident.

AWQI Reports have been posted on the MOE web site since July 2000, and are listed chronologically over a period of approximately eight months. If the matter is unresolved, subsequent reports outlining new developments in the incident are also posted on the web site. However, since June 2000, the Ministry only posts AWQI Reports for incidents involving E. coli, faecal coliform, or where a boil water advisory or order has been issued. AWQI Reports, therefore, no longer include incidents of chemical or radiological contamination of drinking water. Moreover, the MOE does not publish an annual report summarizing AWQIs, nor can the public access archived AWQI Reports on the MOE web site.

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<sup>1</sup> Organic parameters include chloromatics, chlorophenols, disinfection by-products, N-nitrosodimethylamine, pesticides, polychlorinated biphenyls, polycyclic aromatic hydrocarbons, and volatiles.

<sup>2</sup> The MOE web site is <http://www.ene.gov.on.ca>. The most recent DWSP results can be found at <http://www.ene.gov.on.ca/envision/dwsp9899/dwsp.htm#Surveillance>.

### *The Federal Municipal (Water) Use Database*

General information about drinking water is collected by Environment Canada as part of their survey on water use, treatment, wastewater, and pricing in the Municipal (Water) Use Database (MUD). The MUD includes limited compliance information for municipal water systems, such as water quality and quantity problems within the last 10 years, and the number of water use restriction days and boil water days for the most recent year that data is available (1998). MUD provides information on water systems used by more than 22.8 million Canadians (Environment Canada, 6). Information for MUD is collected from a municipal survey conducted by Environment Canada, as well as a series of telephone interviews (*ibid.*, pp. 1-2). The data is updated every two to three years. However, MUD does not provide information for municipalities with a population of less than 1,000, nor does it provide information for First Nation reserves.

Users can access a summary of the database and search the MUD surveys online at the Environment Canada Freshwater web site.<sup>3</sup> At the present time, online querying<sup>4</sup> capabilities are limited, but a copy of the database can be sent to individuals upon request. Environment Canada is currently developing a new graphical and analytical overlay to extend access and querying capabilities.

## **4.2 The United States**

### *Local Level*

Although information collected at the local level varies from one jurisdiction to another, PWSs must regularly monitor, collect, and report on information for regulated contaminants. Some States, such as California, require PWSs to collect additional information on a number of unregulated contaminants, such as MTBE<sup>5</sup> and hexavalent Chromium. PWSs are also required to issue annual water quality reports, called consumer confidence reports, summarizing compliance with State and federal standards. Many PWSs post these reports on their web sites.

Although PWSs are not legally required to make sampling records readily available to the public, most do (Lynn Thorp, March 16, 2001). Some PWSs allow public access to databases containing this information on the Internet.

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<sup>3</sup> The MUD survey and database can be found at <http://www.ec.gc.ca/water/index.htm>.

<sup>4</sup> A query allows the user to search a database with the ability to include or exclude variables.

<sup>5</sup> Methyl Tertiary Butyl Ether.

### *State Level*

Except Wyoming and the District of Columbia,<sup>6</sup> states are responsible for enforcing drinking water laws and collecting information on drinking water quality. As with PWSs, the type of information collected by states varies greatly. Nonetheless, most collect information on:

- the source(s) of drinking water;
- the area served by the public water system;
- violations of state and national drinking water standards;
- follow-up action, including enforcement, intended to return the system to compliance after violations; and
- inspections.

Furthermore, under the SDWA Amendments of 1996, states are required to issue an annual summary compliance report that includes violations of:

- the maximum contaminant level standard of primary drinking water;
- treatment techniques;
- variances and exemptions; and
- significant monitoring requirements.

States are also required to make publicly available a full report of all violations, indicating the names of the systems with the violations. These reports are typically posted on the web sites of the state agency responsible for drinking water (NJ DEP, 2).

### *Federal Level*

The EPA Office of Ground Water and Drinking Water collects a variety of information on drinking water quality. Three databases, in particular, house a great deal of information:

- the Safe Drinking Water Information System;
- the National Contaminant Occurrence Database; and
- the Information Collection Rule Treatment Study Database.

#### **A. The Safe Drinking Water Information System (SDWIS)**

Since the mid-1980s, the U.S. EPA has been using the SDWIS as its national regulatory compliance database. The SDWIS includes information on PWS violations of state or EPA drinking water standards, as well as some unregulated contaminants. It assists the U.S. EPA in understanding the implementation status of different water rules and helps the agency determine when additional action is necessary to safeguard drinking water (U.S. EPA, December 2000). The SDWIS uses information submitted by states to the EPA on a quarterly basis. Summaries of

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<sup>6</sup> The U.S. EPA is responsible for drinking water enforcement in these jurisdictions.

the SDWIS information for each PWS are posted online on the Envirofacts web site.<sup>7</sup> More detailed database information can be obtained through *Freedom of Information Act* requests.

However, the quality of the SDWIS data is often questionable. Technical problems, such as incompatible state and federal database systems, have resulted in an absence of data for some states. Clerical errors in transferring data from the state to the federal system, as well as inadequate reporting by states of many apparent PWS violations, have also resulted in inaccurate data. A recent EPA audit of 1,800 PWSs revealed that states were reporting only 55% of their apparent maximum contaminant level violations to the EPA (U.S. EPA, April 2000, 4).

As a result of these problems, the EPA began exploring possibilities for a new information management strategy in February 2001. The EPA is also working with states to develop software that is compatible with the SDWIS.

#### B. The National Contaminant Occurrence Database (NCOD)

As required under the SDWA Amendments of 1996, the EPA established the NCOD to track contaminants in drinking water across the country. The NCOD provides monitoring data on regulated and unregulated contaminants (microbial and chemical) detected in raw, treated, and distributed water. It assists the EPA in identifying contaminants for future regulation, in re-examining existing water regulations, and in developing new ones. The public can access the NCOD on the Envirofacts web site.<sup>8</sup>

Despite the tremendous potential of the NCOD, the database has a number of limitations. Its patchwork approach to data collection has resulted in problems with data quantity, such as the absence of information for some states. The quality of the PWS data is also questionable, as it is obtained primarily from the SDWIS. Moreover, the ambient water quality information for river basins, which is obtained from the U.S. Geological Survey National Water Information System, is currently limited to information from 1991 to 1998. And contaminant occurrence information is included for detects at all sampling locations (i.e. raw water, entry point, and distribution system). Thus, the contaminant occurrence information is not indicative of whether a contaminant is found at the tap (U.S. EPA, February 2001).

#### C. The Information Collection Rule (ICR) Treatment Study Database

The U.S. EPA also uses the ICR Treatment Study Database to assess potential health problems created by disinfectant by-products (DBP) and pathogens in drinking water, and to assess the severity and extent of these occurrences in order to make regulatory and public health decisions. The data was collected over an 18-month period (July 1997 to December 1998) as part of a national research project to support the development of national drinking water standards. However, the data has some limitations due to the difficulty in accurately estimating the number of protozoan cysts without testing large quantities of water, which is not always feasible, and the

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<sup>7</sup> [http://www.epa.gov/enviro/html/sdwis/sdwis\\_query.html](http://www.epa.gov/enviro/html/sdwis/sdwis_query.html)

<sup>8</sup> [http://www.epa.gov/enviro/index\\_java.html](http://www.epa.gov/enviro/index_java.html)

inability to determine whether microbes are alive and able to cause illness (U.S. EPA, March 2001).

Nonetheless, the public can retrieve state and national information on microbials and disinfection by-products on the Envirofacts web site. Results are presented both numerically and graphically. As well, a CD-ROM copy of the database can be ordered from the EPA.

## **5. RIGHT-TO-KNOW TOOLS**

By itself, information cannot improve the quality of drinking water. However, certain tools can help expose existing problems or potential threats, as well as provide the public with important information for protecting community health. Online databases, right-to-know reports, and emergency public notification are three such tools that can provide consumers with a complete and immediate understanding of the quality of their drinking water.

### **5.1 Online Databases**

A recent review of best management practices for the MOE characterized the importance of easily accessible information:

“The availability and accessibility of comprehensive environmental information is a cornerstone of effective environmental management and an integral part of an environmental Knowledge Management strategy” (Executive Resources Group, 135).

Enabling individuals to access databases on the Internet is an effective way of providing the public with a wealth of readily available information on drinking water. Online databases can have many practical benefits, such as improved data quality, more effective use of government staff time (e.g. fewer public requests for information), and higher public expectations of drinking water quality. However, this tool is still on the cutting edge in the drinking water field, and is used only in a few jurisdictions. Appendix A includes some examples from the online databases discussed below.

#### **5.1.1 Ontario**

Neither PWSs nor the MOE allow the public to query their drinking water databases on the Internet. The survey results for Environment Canada’s Municipal (Water) Use Database can be searched on the Environment Canada Freshwater web site. However, the public cannot readily query the database on the Internet.

#### **5.1.2 United States**

##### *Local Level*

The Des Moines Water Works (DMWW) in Iowa has been working with the EPA’s Environmental Monitoring for Public Access and Community Tracking (EMPACT) division to develop a progressive drinking water monitoring and reporting system. The DMWW EMPACT project currently provides interactive, real-time information to the public concerning testing results of treated water, as well as source water quality. The data can be accessed on the DMWW

web site,<sup>9</sup> which enables users to search the database for detected contaminants (regulated and unregulated) in treated water, dating back to March 1994, and in source water back to June 1999. Most results are both listed by date and plotted on a graph over time.

By the end of 2001, the web page will feature information on the impact of urban runoff on the DMWW source water. In particular, it will focus on the microbial and chemical influences of the main urban creeks in the watershed on the DMWW's source waters.

Approximately US\$200,000 has been spent to develop the Des Moines EMPACT project (L.D. McCullen, 2001).

### *State Level*

While online databases for PWSs are useful, the data is limited to a small population and geographical area. A state online database, on the other hand, is of interest to a much larger audience, as it includes information on hundreds of PWSs. Oregon and Wisconsin have been particularly conscientious about making quality data readily accessible to the public on the Internet.

Oregon's "Safe Water System (SWS) Online"<sup>10</sup> is a pilot project that provides live data - i.e. the most recent data available<sup>11</sup> - on PWSs in the state. Although users cannot query the database, SWS Online does enable the public to easily access information for one PWS at a time according to pre-established searches for:

- basic system information, such as population served, contact information, number of connections, and sources of water used;
- coliform and chemical detects, as well as latest chemical results (whether detects or not);
- contact reports, i.e. summaries of any contact between the Division of Health and the PWS;
- enforcement actions and public notices issued by the PWS;
- Surface Water Treatment Rule, i.e. summaries of the system's treatment of surface water; and
- violations, including the period the violation occurred and the rule that was broken.

The Oregon Health Division spent approximately 20 hours developing this web tool for its existing database, as well as an additional one to two hours per week over the past three years on revisions, maintenance, and corrections. About 100 separate users visit the site each day (Patrick Meyers, 2001).

In Wisconsin, the Department of Natural Resources (DNR) allows the public to easily access information on drinking water through the online Drinking Water System (DWS) database.

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<sup>9</sup> <http://www.dmww.com/>

<sup>10</sup> The URL for SWS Online is <http://159.121.24.16>

<sup>11</sup> Most data is entered on the day it is received by the Oregon Health Division.



Although the web site is not as user friendly as Oregon's SWS online, the DWS database enables the public to perform queries that access a tremendous amount of information, such as:

- PWS information, including contacts, source water, consumer confidence reports (annual water quality reports), inspections, violations, sampling requirements, treatment processes, imports of water from other systems, exports of water to other systems, and a variety of other types of information;
- contaminants in drinking water, including detects, sample source (distribution system, entry point, or well) and sample type (such as compliance, investigation, or raw water);
- well construction data, including constructor, well depth, the facility for which the well is constructed, sealant method, pumping level, capacity, distances to nearest objects, drillhole dimensions, geological information, and other information; and
- high capacity well data, including driller, operator, normal pumpage, pump capacity, use of multiple aquifers, well depth, type of rock, and other information.

The information dates back to 1960 and is updated by the Wisconsin DNR within 24 hours of receiving new information. GIS mapping features will be added shortly to the DWS to provide additional information and to enhance existing data with graphics, which is intended to increase the appeal of the DWS database for a broader audience (Marjorie Damgaard, 2001).

### *Federal Level*

The National Contaminant Occurrence Database (NCOD), which is discussed in the previous chapter, can be easily searched on the EPA's Envirofacts web site. The NCOD "Public Right-to-Know Query" enables users to search the database for contaminant occurrence information for PWSs, and for ambient source water quality. Queries can be done for local, state, and national information.

## **5.2 Right-to-Know Reports**

Regular public reporting in the form of right-to-know (RTK) reports is a valuable tool that helps the public understand the basic facts about drinking water. RTK reports provide important information that enables consumers to make informed and intelligent decisions about the health and safety of their families. The contents of the report can alert individuals and their doctors to a possible cause of illness, as well as mobilize concerned citizens to eliminate sources of pollution threatening drinking water sources. RTK reports can also assist PWSs by publicly demonstrating the need for upgrading facility systems and infrastructure.<sup>12</sup> However, RTK reports can only be effective if the public is aware of their existence. Examples of these reports are included in Appendix B.

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<sup>12</sup> For further discussion on this topic, refer to Pollution Probe's study "The Management and Financing of Drinking Water Systems: Sustainable Asset Management."

### 5.2.1 Ontario Quarterly Reports

Prior to the introduction of the DWPR in August 2000, public reporting by Ontario drinking water providers on contaminants in drinking water was undertaken by some PWSs in their annual reports. Some reports included elaborate tables summarizing all testing results, whereas others included no information aside from general statements about water quality.

Section 12 of the DWPR requires all PWSs distributing to more than five households, or more than 50,000 litres of water each year, to make publicly available, free of charge, quarterly reports on the quality of the drinking water. The Regulation requires that these reports include:

- a description of the water system and its operations;
- information on the source of the drinking water;
- a summary of analytical tests results taken during the quarter; and
- a description of the measures taken by the PWS to comply with the DWPR.

The MOE provides guidelines for the specific contents of the reports.

The DWPR further requires PWSs to submit their quarterly reports to the MOE within 30 days after the end of each quarter. All the affected PWSs must make the report available to the public in a “reasonably convenient” location, such as the office of the owner or the municipality, and take “effective steps” to inform the public about the availability of the report. Facilities that serve more than 10,000 consumers are also required to post the report on the Internet.<sup>13</sup>

The first round of reports, which were submitted to the MOE at the end of October, reflected a high level of compliance. The MOE reported that 35 PWSs, or approximately 6%, failed to submit the quarterly report within the required 30-day period (MOE, November 2000). However, the MOE has provided no indication as to the extent of compliance with the aforementioned general content requirements.

Despite many notable efforts, a preliminary review of the quarterly reports of larger Ontario cities reveals that many reports fail to provide consumers with a complete picture of their drinking water. Due to the vague content requirements, PWSs are required to include neither violations of sampling, testing, or treatment requirements, nor variances or exemptions from provincial standards. Moreover, important information is frequently absent from these reports, including health language for violations of standards, warnings for vulnerable populations, and opportunities for community involvement. Summary tables are often not easily understood, as they either are cluttered with information about non-detects or do not clearly identify violations. And some reports include misleading blanket statements of safety. That is, although treated water may meet Ontario standards, this does not mean that the water is safe for everyone, such as the immuno-compromised.

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<sup>13</sup> Approximately 12% of the PWSs in Ontario service more than 10,000 consumers, accounting for about 90% of Ontarians receiving water from PWSs (MOE, A Summary Report 1993-1997).

Furthermore, the Ontario standards have some weaknesses, including:

- absence of testing and monitoring requirements for some important contaminants, including infectious parasites and many pesticides;
- outdated standards for some parameters, such as trichloroethylene; and
- consideration of treatment costs and available technology, in addition to health impacts, when setting standards.

Blanket statements of safety are, therefore, misleading and quickly deter the public from reading the report, particularly when they are prominently displayed. Focus groups in the U.S. confirm such an effect on readers of right-to-know reports (Clean Water Fund et al., 5).

### **5.2.2 U.S. Consumer Confidence Reports**

Consumer confidence reports (CCRs) are the centrepiece of the RTK provisions in the SDWA Amendments of 1996. Since 1999, PWSs have been required to put an annual water quality report into the hands of the consumer. The Amendments established a clear baseline regarding the contents of the CCR and the methods for distributing the reports. Similar to the Ontario experience, compliance is high, with most PWSs releasing a CCR by the required date.

Each report helps to provide consumers with a complete understanding of the quality of the drinking water. At a minimum, CCRs must include:

- identification of the source of the drinking water;
- a brief summary of the susceptibility of the drinking water source, based on source water assessments;
- how to get a copy of the source water assessment;
- a summary table that includes information on the range of any regulated contaminant found in the drinking water supply,<sup>14</sup> the EPA health related goal for comparison, and the known or likely source of contamination;
- compliance with other drinking-water related rules, such as monitoring and testing;
- an explanation of the significance of the results;
- corrective action taken by the water works in the case of a rule violation;
- the potential health effects of any detected contaminant regulated by the EPA;
- educational statements for vulnerable populations on avoiding cryptosporidium, as well as information about nitrate or lead in areas where these contaminants are detected at levels greater than 50% of the EPA standard; and
- contact information for additional sources of information, including the PWS and the EPA's Safe Drinking Water Hotline.

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<sup>14</sup> Information on some unregulated contaminants, such as cryptosporidium and radon, must also be included.

Some states, such as California and New Jersey, require more stringent content requirements for vulnerable population warnings, translation requirements, and notices for opportunities for public involvement.

In addition to stipulating the contents of the report, the *National Primary Drinking Water Regulations*<sup>15</sup> (NPDWR) require PWSs to mail or otherwise deliver a copy the CCR to each consumer, as well as the primacy agency, by July 1 of each year. PWSs must also make a “good faith” effort to reach consumers who do not receive water bills. For PWSs that serve fewer than 10,000 individuals, a state governor may waive the mailing requirement. In this case the PWS must:

- publish the CCR in local papers servicing the area in which the system is located;
- inform consumers (either in newspapers or by other means approved by the primacy agency) that the report will not be mailed; and
- make the CCR available to the public upon request.

As of September 1999, the governors of nine states had granted mailing waivers (ibid., 11). Some states, such as New Jersey, have revoked the governors authority to issue mailing waivers.

Furthermore, PWSs servicing 100,000 or more persons must post their CCRs on the Internet. The benefits of putting these reports online are numerous, including improving accessibility for consumers who do not receive water bills, and assisting health-care providers in diagnosing patients that drink from more than one water distribution system.

However, many CCRs are not posted online, as many PWSs do not have the capacity to run their own web sites. The EPA Envirofacts web page allows users to link to many electronically-available CCRs, and many states have developed similar link pages. However, no online clearinghouse of CCRs exists.

A recent paper in the U.S. published by the Campaign for Safe and Affordable Drinking graded 430 CCRs from 20 states and the District of Columbia. Their findings were:

- 11% As;
- 23% Bs;
- 24% Cs;
- 11% Ds; and
- 33% Fs.

The most common problems included unqualified assurances of safety, obscure or missing vulnerable populations warnings, and missing regulatory requirements (Clean Water Fund et al., p. 1).

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<sup>15</sup> The NPDWRs are the accompanying regulations to the SDWA Amendments of 1996.

### 5.3 Emergency Public Notification

Emergency public notification is another RTK tool that is effective for responding to pressing health threats posed by drinking water contamination. Walkerton is a critical example: had the public been notified immediately about the health threat from water contamination, illness and death may have been averted. An effective public notice informs the public about the type of contaminant in the drinking water, its possible health effects, and the steps that must be taken by citizens to avoid illness. Some examples are included in Appendix C. Moreover, establishing a timeframe for immediate public notification is an effective means of developing accountability and responsibility for drinking water quality.

#### 5.3.1 Ontario

In Ontario, the responsibility for notifying the public about violations of drinking water standards is divided between the local medical officer of health (LMOH) and the PWS. The LMOH typically notifies the public of violations of Ontario's microbiological, chemical, and radiological standards with boil water advisories or drinking water advisories. Although the DWPR establishes a clear protocol for laboratories to notify government agencies,<sup>16</sup> it does not entrench the LMOH's responsibility to notify the public in the case of a drinking water emergency.

Section 13 of the *Health Protection and Promotion Act* allows the LMOH to issue an *order*, such as a boil water order, if "the requirements specified in the order are necessary in order to decrease the effect of or eliminate the health hazard." However, a boil water order can be directed only at an individual or an establishment (e.g. health care facilities, restaurants, or gas stations), not at a community as a whole (Charles LeBer, 2001). Thus, no Ontario statute or regulation clearly assigns responsibility to any government agency for public notification of acute or chronic health threats from violations of drinking water parameters.

A protocol for issuing boil water advisories for giardia and cryptosporidium, entitled "Protocol for the Investigation and Control of *Cryptosporidium* and *Giardia* Waterborne Outbreaks," was established in 1997. It states:

If implemented promptly, [a boil water advisory] could reduce the risk of potentially serious diarrhoeal illness . . . It is therefore vital to ensure that the public, affected clients, and the local media are informed with ongoing, up-to-date information on the reason for the advisory, status of the outbreak, investigative efforts, and corrective measures (MOH, 1997, 20-21).

The protocol thus highlights the importance of the public's right-to-know about drinking water contamination, as well as two fundamental components of emergency public notification: timing and content of the notice. However, Ontario has yet to develop a similar protocol or guideline for

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<sup>16</sup> Laboratories must verbally notify the MOE and the LMOH immediately of any violation and follow up the verbal notification in writing within 24 hours.

boil water advisories or drinking water advisories in general. Despite the absence of such guidance from the government, Ontario LMOHs do regularly issue boil water advisories – including more than 250 from June 2000 to March 2001 (Charles LeBer, 2001).

The second component of Ontario's two-fold approach to public notification of health threats posed by drinking water places responsibilities upon the PWS. The DWPR requires PWSs to post public notices when they fail to comply with sampling, analysis, or corrective action requirements for microbiological parameters.<sup>17</sup> The Regulation further requires that the notice be posted in a "prominent location" where it is likely to be viewed by the public. However, the DWPR does not require that the public be notified within a specific timeframe, nor does it require public notification when PWSs fail to comply with sampling, analysis, or corrective action requirements for chemical or radiological parameters.

### **5.3.2 The United States**

In the U.S., owners and operators of PWSs bear the responsibility of reporting to the public on violations of maximum contaminant levels, as well as violations of testing, monitoring, and corrective action requirements. Consumers must be notified if:

- a contaminant exceeds the standard set by the EPA or state drinking water agency;
- a waterborne disease outbreak or any other situation poses a risk to human health;
- the water system fails to fulfil its testing requirements; or
- the system has a variance or exemption from the regulations.

The SDWA Amendments of 1996 and accompanying regulations clearly specify the form, manner, frequency and content of these public notices. They further divide notification requirements into a three tier system according to the immediacy of the health threat posed to consumers.

For Tier 1 notices, the owner of a PWS is required to notify the public within 24 hours of confirmation of a standards violation, or for the failure to retest for a contaminant. These notices are required for violations of standards for total coliform (when *E. coli* or faecal coliform are present in the distribution system), nitrate, nitrite, total nitrate and nitrite, turbidity, and chlorine dioxide. A Tier 1 notice is also triggered if the water distribution system fails to retest for the aforementioned contaminants after the initial violation is detected, if there is a waterborne disease or emergency, or any other problems exist which may threaten public health after short-term exposure.

Tier 2 notices require public notification within 30 days of violations of all other standards not identified in Tier 1, for failure to comply with variance and exemption conditions, and for monitoring and testing procedure violations (when deemed necessary by the primacy agency).

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<sup>17</sup> Specifically, *E. coli*, faecal coliform, total coliform, and heterotrophic plate count.

Tier 3 notices are required within one year of all other monitoring or testing procedure violations not required under Tier 1 or Tier 2 notices, for operation under a variance and exemption, and for special public notices.

Furthermore, the SDWA Amendments of 1996 and the accompanying regulations clearly specify the content of the information to be included in public notices. Specifically, notices for all three tiers must provide a clear and understandable explanation of:

- the violation or situation, including the contaminant of concern;
- when the violation or situation occurred;
- any potential adverse health effects from the drinking water, using standard language provided by the EPA;
- the population at risk, including particularly vulnerable sub-populations;
- whether alternative water supplies should be used;
- what action consumers should take, including when they should seek medical help;
- corrective action taken by the public water system;
- when the public water system expects to return to compliance or resolve the situation;
- a contact name, business address, and phone number as a source of additional information; and
- a statement encouraging notice recipients to distribute the notice to others, where applicable, using standard language provided by the EPA.

Moreover, if a large proportion<sup>18</sup> of the population served by the PWS does not speak English, partially multilingual notices must be provided (U.S. EPA, June 2000, 12).

The SDWA Amendments of 1996 further stipulate different methods in which this information must be communicated. PWSs must select at least one method from a short list specified in the NPDWR.<sup>19</sup> This approach establishes a baseline level of performance that is simple to understand and implement. Although the delivery requirements for notices differ according to each tier, the NPDWR accords the PWS some flexibility in the manner of public notification. Moreover, the NPDWR establishes an enforceable performance standard, requiring the PWS to provide additional notices under all tiers by any other method appropriate to reach individuals not reached by the initial method selected.

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<sup>18</sup> If the agency responsible for drinking water enforcement does not define “large proportion,” the public water system is granted the authority to decide. However, the US EPA suggests a guideline of 10% of the population or 1,000 people, whichever is less (US EPA 2000, p.13).

<sup>19</sup> For Tier 1, specified delivery methods include broadcast media (radio or television) or hand delivery or posting. For Tiers 2 and 3, specified delivery methods for community water systems include mail or hand delivery, whereas specified delivery methods for non-community water systems for Tiers 2 and 3 notices include posting, hand delivery, or mail. Primacy agencies also may approve other methods for notification under all tiers.

## 6. CONCLUSION

In comparison to select jurisdictions in the United States, an Ontarians right-to-know about the quality of their drinking water is limited. Although the Ontario government took a significant step forward by incorporating the concept of right-to-know into the *Drinking Water Protection Regulation*, transparency and public reporting is still inadequate for a number of reasons.

First, the Ontario government collects less drinking water information than its American counterparts. Although the Drinking Water Surveillance Program is useful for identifying trends and treatment techniques, it is limited by its voluntary nature. Establishing a provincial data resource that includes information such as contaminant detections, violations, inspections, and corrective actions is essential to the proper management Ontario's drinking water. The absence of compliance and occurrence databases thus creates a gaping whole in the web of information collected by the province.

Second, public access to information is limited, as citizens cannot query the Drinking Water Surveillance Program database or search a number of government reports and records. The leading jurisdictions in drinking water system transparency in the U.S., on the other hand, allow the public to query databases for the most current information available. As a result, the quality of information can improve and problems with existing data collection methods can be readily identified. Moreover, online databases facilitate a shift away from top-down reporting and help to raise public expectations concerning the quality of drinking water.

Third, without more specific regulations, the tremendous potential of Ontario's quarterly drinking water reports will go unfulfilled. These water quality reports are an effective tool for increasing public awareness about health threats associated with drinking water, and highlighting the need for upgrading facility systems and infrastructure. However, the vague content requirements outlined in the Ontario regulations have resulted in reports that do not provide communities with a comprehensive understanding of their drinking water. Moreover, the absence of specific requirements for advertising the availability of the reports limits public awareness of their existence. In contrast, U.S. legislation and regulations require PWSs to place these reports directly into the hands of their consumers. They must also meet specific content requirements, resulting in informative reports that include important health information and warnings for vulnerable populations.

And fourth, Ontario's emergency public notification requirement is wholly inadequate. The responsibilities of the local medical officers of health to issue boil water or drinking water advisories is not legally binding, nor has the government developed general guidelines or protocols for these advisories. Moreover, the responsibility of PWSs to notify the public of failures to meet monitoring and corrective action requirements is limited to microbiological parameters, and does not include timing requirements. PWSs in the U.S., on the other hand, bear the sole responsibility for notifying the public of violations of drinking water standards. American drinking water legislation and regulations stipulate clear timing, content, and delivery



requirements for public notices. As a result, widespread adverse health effects from contaminated water can be mitigated effectively.

Right-to-know tools by themselves cannot ensure clean drinking water. However, greater transparency and heightened public awareness can be achieved by entrenching the three tools discussed in this study – online databases, right-to-know reports, and emergency public notification – in Ontario drinking water laws. The government must now take this next step forward in order to improve the overall quality of drinking water, and mitigate the potential threats to the health of Ontario communities.

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## LIST OF ACRONYMS

AWQI – adverse water quality incident  
CCR – consumer confidence report  
CEPA – *Canadian Environmental Protection Act*  
DBP – disinfection by-products  
DMWW – Des Moines Water Works  
DNR – Department of Natural Resources  
DWPR – *Drinking Water Protection Regulation*  
DWS – Drinking Water System  
DWSP – Drinking Water Surveillance Program  
EMPACT – Environmental Monitoring for Public Access and Community Tracking  
ICR – Information Collection Rule  
LMOH – local medical officer of health  
MOE – Ministry of Environment  
MUD – Municipal (Water) Use Database  
NCOD – National Contaminant Occurrence Database  
NGO – non-governmental organization  
NPDWR – *National Primary Drinking Water Regulation*  
PWS – public water systems  
RTK – right-to-know  
SDWA – *Safe Drinking Water Act*  
SDWIS – Safe Drinking Water Information System  
SWS- Safe Water System  
U.S. EPA – United States Environmental Protection Agency

## **APPENDICES**

### **Content List**

Appendix A	Examples of Online Drinking Water Databases
Appendix B	Sample Water Quality Reports
Appendix C	Sample Templates of Boil Water Advisories and Drinking Water Advisories