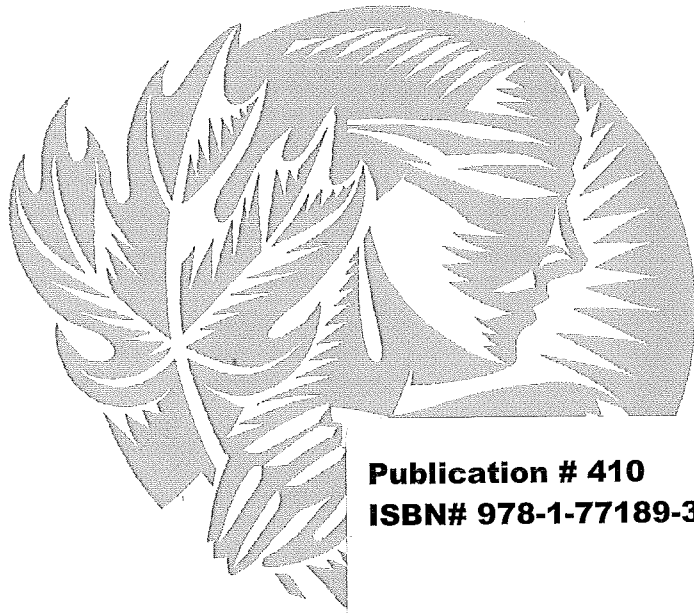


WALKERTON INQUIRY
PART I & II
CONSOLIDATED LIST OF RECOMMENDATIONS
ON BEHALF OF
CONCERNED WALKERTON CITIZENS (CWC)

Report #410



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CONSOLIDATED LIST OF RECOMMENDATIONS FROM CWC

INTRODUCTION

The following consists of a consolidation of all of the recommendations made by the Canadian Environmental Law Association, counsel to CWC, in the Walkerton Inquiry. CELA made a commitment to Walkerton Inquiry counsel that at the end of the process, such a consolidation would be prepared. Thus the following lists in turn the recommendations contained in the *Tragedy on Tap* paper prepared for Part II of the Inquiry; those contained in *Water Services in Ontario: For the Public, by the Public*, another paper prepared for Part II of the Inquiry; the Model Water Bill: An Act to Conserve Ontario Waters which was previously submitted to Part II of the Inquiry; the submissions made in written argument for Part I of the Inquiry; the Alternative Delivery Services paper prepared for Part II of the Inquiry; and finally, some of the additional recommendations made during oral submissions before the Commissioner in the Part II public hearings where the latter are not repetitive of the other submissions.

I. TRAGEDY ON TAP: WHY ONTARIO NEEDS A SAFE DRINKING WATER ACT

RECOMMENDATION 1: Ontario should, to the greatest possible extent, entrench drinking water provisions into a single, integrated statute, rather than in regulation or policy. This statute should contain a paramountcy clause that provides that in cases of conflict between drinking water provisions and any other general or special Act, the drinking water provisions shall prevail to the extent of the conflict.

RECOMMENDATION 2: Ontario should systematically review and, where necessary, revise provincial laws, regulations and policies to ensure that they are consistent with the overall provincial priority of protecting drinking water and its sources.

RECOMMENDATION 3: Ontario's drinking water statute should include provisions that:

- (a) establish appropriate judicial and political accountability mechanisms, such as provincial monitoring/reporting and judicial review opportunities;
- (b) specify that the statute binds the Crown;
- (c) establish a new "Drinking Water Commission" that reports to the Minister of Environment, and that has the statutory mandate to develop and oversee the delivery of Ontario's drinking water program by (among other things) setting and enforcing provincial standards which implement the multi-barrier approach; and
- (d) clearly delineate lines of authority, responsibility and communication requirements between Ministry staff, the Drinking Water Commission, municipal officials, public utilities, and medical officers of health.

RECOMMENDATION 4: Ontario's drinking water statute should apply to all public and private water treatment and distribution systems in the province. In addition, the statute should impose appropriate testing and sampling requirements in relation to private individual wells in order to detect and remedy unsafe drinking water.

RECOMMENDATION 5: Ontario's drinking water statute should entrench a substantive public right to clean and safe drinking water. The statute should further state that its purpose is to recognize, protect and enhance the public right to clean and safe drinking water.

RECOMMENDATION 6: Ontario's drinking water statute should include provisions that:

- (a) impose a mandatory duty upon the Drinking Water Commission (or Minister) to set and maintain drinking water standards;
- (b) impose a mandatory duty upon the Drinking Water Commission (or Minister) to periodically review the adequacy of existing standards, and to make such revisions to the standards as may be necessary to protect human health and safety;
- (c) specify that the primary objective of drinking water standards is to protect public health and safety of all Ontarians, including those who may be particularly vulnerable to waterborne illness or disease;
- (d) entrench the precautionary principle as a mandatory consideration when drinking water standards are being drafted, reviewed or revised;
- (e) establish legally binding mechanisms for meaningful public participation in drafting, reviewing or revising drinking water standards; and
- (f) impose a mandatory duty upon the Drinking Water Commission (or Minister) to identify and evaluate new and emerging contaminants for which no standards exist in Ontario.

RECOMMENDATION 7: Ontario's drinking water statute should contain provisions that:

- (a) establish a self-contained process for the Drinking Water Commission to approve (or reject) applications for waterworks that supply drinking water, and to ensure full public participation in the approvals process;
- (b) clarify and strengthen existing requirements regarding operator licencing and training; and
- (c) retain existing requirements regarding the mandatory use of accredited laboratories for drinking water sampling and analysis.

RECOMMENDATION 8: Ontario's drinking water statute should include provisions that:

- (a) entrench current testing, treatment, notification and corrective action requirements into law rather than regulation; and
- (b) define “groundwater under the influence of surface water”, and specify that surface water treatment requirements apply in such situations.

RECOMMENDATION 9: Ontario’s drinking water statute should expressly require public and private water treatment and distribution system owners and operators to:

- (a) avoid drinking water sources that will, or are likely to, result in hazards to public health and safety due to pollution from activities within the watershed or sub-watershed;
- (b) assess and periodically review the vulnerability of their sources of drinking water to current or future contamination or degradation, and publicly report upon the results of such assessments;
- (c) develop and implement appropriate source protection measures where necessary to safeguard public health and safety;
- (d) involve the public in developing source assessment programs and source protection measures that will be implemented to safeguard public health and safety; and

RECOMMENDATION 10: Ontario’s drinking water statute should amend existing laws (such as the *Planning Act*, *Municipal Act*, and/or *Conservation Authorities Act*) to ensure that municipal officials have sufficient legal tools to implement the measures specified in source protection programs.

RECOMMENDATION 11: Ontario’s drinking water statute should fully entrench “community right to know” principles, and in particular, should include provisions that require:

- (a) immediate public notice through appropriate means (e.g. news media, signs, internet, etc.) whenever:
 - (i) exceedances of prescribed standards or indicators of adverse water quality are detected including "presumptive" results;
 - (ii) treatment or testing equipment is inoperative or malfunctioning; or
 - (iii) required sampling and analysis is not being carried out;
- (b) preparation of comprehensive consumer confidence reports which are to be mailed to all consumers on an annual basis, and which address the following matters:
 - (i) source assessment/protection;
 - (ii) discussion of any regulated contaminants or unregulated substances detected in the raw or treated water;
 - (iii) discussion of any violations of contaminant limits or prescribed standards, and related public health concerns, particularly for vulnerable persons; and
 - (iv) discussion of the steps taken to address such violations, and measures proposed to prevent any future violations; and

- (c) require the Drinking Water Commission (or Minister) to establish and maintain an electronic drinking water registry that summarizes consumer confidence reports, discusses issues and trends arising from such reports, and otherwise serves as a public repository for significant drinking water information (e.g. approvals, prosecutions and orders, State of Drinking Water Reports, etc.).

RECOMMENDATION 12: Ontario's drinking water statute should contain provisions that require the Drinking Water Commission (or Minister) to:

- (a) prepare and file annual "State of Ontario's Drinking Water Reports" in the Legislative Assembly; and
- (b) establish and maintain provincial monitoring programs on drinking water matters, such as:
 - (i) quality and quantity of surface water and groundwater sources of drinking water;
 - (ii) sources of contamination of drinking water;
 - (iii) new or emerging pathogens and substances that may be present in drinking water and that may pose a threat to public health and safety in Ontario; and
 - (iv) compliance by water suppliers with parameter limits and other prescribed standards.

RECOMMENDATION 13: Ontario's drinking water statute should contain provisions that:

- (a) impose a positive duty on the Drinking Water Commission (or Minister) to enforce the provisions of the statute on a "zero tolerance" basis;
- (b) impose a positive duty on the Drinking Water Commission (or Minister) to develop (with full public input) a compliance manual to provide detailed direction regarding the investigation and enforcement of drinking water provisions under the statute;
- (c) establish a broad range of mandatory abatement tools, including administrative penalties, stop orders and emergency orders;
- (d) create a streamlined right for Ontarians to require (not just request) investigations of suspected contraventions of drinking water requirements;
- (e) create a "citizens' suit" mechanism that allows Ontarians to enforce drinking water requirements in civil court; and
- (f) create a new cause of action for persons who suffer loss, injury or damage as a result of a contravention of the statute or the regulations thereunder.

RECOMMENDATION 14: Ontario's drinking water statute should include:

- (a) broad, "strict liability" offences that prohibit:

- (i) owners/operators of public and private water treatment and distribution systems from providing users with drinking water that exceeds permitted contaminant levels or contravenes prescribed standards;
 - (ii) owners/operators of public and private water treatment and distribution systems from contravening the terms or conditions imposed under statutory approvals for such systems;
 - (iii) owners/operators of public and private water treatment and distribution systems from submitting false information or reports required by law;
 - (iv) owners/operators of public and private water treatment and distribution systems from failing to report threats to drinking water quality to the Minister and/or public health officials;
 - (v) any person from causing or permitting the release of contaminants into or near waterworks, drinking water sources, wells or well recharge areas, or attempting or threatening to do so;¹ or
 - (vi) any person from damaging, destroying, altering, or otherwise tampering with waterworks or wells, or attempting or threatening to do so; and
- (b) severe penalties for contraventions, including:
- (i) minimum fines for a first conviction;
 - (ii) maximum fines of not more than \$6 million for a first conviction;
 - (iii) significant higher fines for subsequent offences, or for offences where the health of any person has been impaired as a result of the contravention;
 - (iv) jail terms for serious offences, such as where the health of any person has been impaired as a result of the contravention;
 - (v) stripping of any profits or monetary benefits acquired or gained by the defendant through the contravention;
 - (vi) orders of prohibition, restitution, or restoration, including orders to provide an alternate drinking water supply; and
 - (vii) such further orders or conditions that are necessary to prevent further offences or to contribute to the rehabilitation of the defendant.

¹ For such an offence, it may be necessary to recognize a limited “statutory authority” defence for situations where, for example, a company is lawfully discharging contaminants into the environment in accordance with its certificate of approval.

RECOMMENDATION #15: Ontario's drinking water statute should establish a mandatory duty upon the Drinking Water Commission (or Minister) to:

(a) undertake and fund research programs such as:

- (i) identification, treatment and prevention of adverse public health effects from drinking water contaminants;
- (ii) quality and quantity of water available to public and private water suppliers in Ontario;
- (iii) current and future sources of drinking water contaminants, including unregulated substances;
- (iv) controlling or avoiding the effects of intensive farming on sources of drinking water;
- (v) identifying and protecting Ontarians who may be at special risk of waterborne disease;
- (vi) watershed management and source protection measures; and
- (vii) water conservation; and

(b) establish and fund programs that provide technical and financial assistance to owners/operators of public or private water treatment and distribution systems in order to:

- (i) install, construct or upgrade equipment in the waterworks (or related infrastructure) in order to meet drinking water standards;
- (ii) implement water conservation plans or programs;
- (iii) undertake source assessment/protection programs; and
- (iv) employee training;

RECOMMENDATION 16: Ontario's drinking water statute should require the establishment of a public advisory committee to research and report upon drinking water matters to the Drinking Water Commission (or Minister).

II. WATER SERVICES IN ONTARIO – FOR THE PUBLIC, BY THE PUBLIC

RECOMMENDATION 1: Water systems should remain in public ownership and public-private partnerships that involve financing or management contracts should not be pursued.

RECOMMENDATION 2: The Provincial Government should stop its plans to facilitate and actively promote the privatization of water systems. The Provincial Government should:

- repeal the provision in *The Savings and Restructuring Act* that eliminated the need for municipalities to hold public referendums on proposals to dissolve public utilities;
- remove its instructions to the SuperBuild Corporation to look at privatization options for water and sewage treatment plants; and

- not pass the section in Bill 46, *An Act Respecting the Accountability of Public Sector Organizations* that would require each public sector organization to each year look at how it might deliver its services through the private sector.

RECOMMENDATION 3: Municipalities should investigate improving service quality and efficiency by working together through regional or county government, through other municipal co-operative arrangements, or by relying on OCWA's hub system.

RECOMMENDATION 4: The Ontario Clean Water Agency (OCWA) should be retained as a provincial crown corporation. Its role should be enhanced to become a centre of excellence to assist municipalities, especially small ones, in the building, and operation of water and wastewater treatment plants in ways that will help them achieve self-sufficiency and improve service.

It could also play a partnership role with the waterworks industry in providing information on state of the art facilities and best practices to municipal operators. In addition, OCWA should be available to step in if another water emergency occurs, as it did in Walkerton.

RECOMMENDATION 5: Municipalities should adopt life cycle costing systems to include in the current rate structure the long-term costs of infrastructure replacement and upgrading programs.

RECOMMENDATION 6: The province and municipalities should work together to ease the transition to life cycle costing and increasing block rate or flat rate pricing. Two mechanisms should be used:

- Phase rate increases in so that water prices do not increase dramatically in any one year, e.g., by putting a cap on how much prices can increase in a year;
- Provide provincial and federal grants or low interest loans on an interim basis to ease the transition. In the long run, municipal water systems should become self-supporting and should not be reliant on grants or low cost loans from the provincial or federal governments.

RECOMMENDATION 7: Municipalities should adopt an increasing (inverted) block rate system or a flat rate system for pricing water. Municipalities should assess mechanisms to ensure that all can afford water and adopt the appropriate mechanisms.

III. DRINKING WATER PROTECTION IN ONTARIO: A COMPARISON OF DIRECT AND ALTERNATIVE DELIVERY MODELS

We have included a copy of this publication as it contains many useful recommendations.

IV. FINAL ARGUMENT – PART 1A AND B

II.A. PATHOGENS INTO THE AQUIFER

RECOMMENDATIONS 1:

- Imposing controls over density of application of manure,
- Tracking applications of manure and biosolids – for example by way of a publicly accessible data base and requiring oversight and enforcement by the Ministry of Environment,
- Imposing and enforcing extra controls in farming communities on municipal well siting, monitoring, treatment and contingency plans,
- Requiring source surveys and assessments, and
- Requiring source protection measures.

II. B. CONTAMINATED WELLS AND TREATMENT FAILURE

RECOMMENDATION 2: That MOE formulate criteria for assessing whether groundwater supplying a water works is subject to the influence of surface water. The MOE should ascertain the number of wells in Ontario that meet such criteria. In the event that the criteria are met, MOE should assess whether filtration is required for the water works, and should ensure that conditions are imposed in the Certificate of Approval to monitor for chlorine residuals and turbidity levels.

RECOMMENDATION 3: The MOE Approval Branch should be required to undertake a review of all Certificate of Approvals for water works and ensure that there are specific conditions relating to:

- i. Maintaining specified chlorine residual before the first consumer and within the distribution system;
- ii. Requiring monitoring and monitoring of specified parameters in the raw and treated water, including descriptions of the location and frequency for monitoring;
- iii. Ensuring the appropriate operation and maintenance of the waterworks;
- iv. Requiring owners to ensure protection of the source of the water supply;
- v. Providing that operators are certified under Regulation 435/93;

- vi. Developing a contingency plan and procedures and ensure that all necessary equipment is available to deal with any process upset or emergencies;
- vii. Imposing notification and reporting requirements as stipulated under the Ontario Drinking Water Standards

RECOMMENDATION 4: All municipal supplies should be re-assessed periodically as to their sources and catchment areas, and as to potential contamination of same, including assessment of whether a source considered to be groundwater is under the influence of surface water. The definition of the latter term should extend to include not only the immediate influence of surface water (in minutes or hours to days) but also indirect influence of surface water (in weeks to months), as well as sporadic or intermittent influence of surface water. The latter question must be answered based on a sufficient time frame for monitoring for such influence to encompass seasonal variation and extreme events.

II.D. OVERSIGHT OF DRINKING WATER QUALITY

RECOMMENDATION 5: Health units' mandatory program delivery for safe drinking water should include proactive responsibility to monitor and review laboratory test results of drinking water samples in the communities within the health unit. Monitoring should include proactive review of all results, adverse and non-adverse to determine trends and frequency of adverse results, as well as occasional taking of samples as an audit practice, and the resources of the health units should be sufficient to allow for this.

RECOMMENDATION 6: The roles and responsibilities of each agency to maintain, contribute to and review a data-base of each municipalities drinking water sample results must be specified, and should include oversight by health units from the public health perspective in particular.

RECOMMENDATION 7: Health units should be required to occasionally audit (take their own samples) of municipal supplies in their geographic area and should be provided with sufficient resources to add this task to their safe drinking water programs.

RECOMMENDATION 8: The important oversight responsibility of health units must be restored and reinforced in terms of their public health expertise as to safe drinking water. "Safety nets" must be restored in terms of receipt of all data and information, and health units must be required to actively review and make judgments on the adequacy of that information and as to implications for public water safety in their communities. Further recommendations in terms of health units' communications with other responsible agencies, and in terms of public health responsibility in education of operators and others involved in the drinking water system are discussed later in this argument.

RECOMMENDATION 9: Health units should immediately disclose to the public all outbreak investigations so that the public is aware of symptoms to watch for; specific cautions as to treatment; and can provide information to the health unit in their investigation. Such advice should be considered integral to the health unit's role in prevention of further spread of illness. Even (and perhaps especially) if the outbreak puts certain sub-populations or vulnerable groups at greater risk than healthy adults, community notification should be provided.

II.E. LABORATORY TESTING AND NOTIFICATION (ACCREDITATION & PRIVATIZATION)

RECOMMENDATION 10: All private laboratories should be under a legal duty to immediately report adverse water test results to both the Ministry of the Environment and the local medical health officer. This recommendation is essentially consistent with Regulation 459/00 promulgated in August of 2000.

RECOMMENDATIONS 11:

- Consideration should be given for the development of a laboratory best practice to adopt the presumptive results approach. Consideration could also be given as to whether this mechanism could be incorporated into the current regulatory framework.
- Notification procedures must be mandatory and consistent across Ontario. Early notification procedures should be pursued and both operators and oversight agencies must be trained to respond to the early notification. Labs must be required to give adverse results to the operator, the MoE office and the health unit office.
- Furthermore, laboratories should be required to report presumptive positive results from presence/absence tests to the operator, MOE and health unit as soon as such results are observed. Although the MOE environmental officers did not act upon presumptive reports, there remains a tangible benefit to the procedure. The evidence points to the fact that false positives are rare.

RECOMMENDATIONS 12:

- To ensure that there is a comprehensive regime for laboratories that test drinking water, two options present themselves. Laboratories could be required to attain the accreditations and certifications that are now available or those should be developed under the existing regime. Another option is to adopt a licensing regime where labs, whether public or private, must be licenced and as such, must meet set criteria to both attain and maintain the licence. Some agency would be vested with the authority to administer this program. This basic model is derived from the medical laboratory system.
- It is submitted that a comprehensive licensing regime, parallel to that of the medical laboratory system is both needed and preferable. The rules of the field would be clearer and more consistent.
- While no specific licensing regime is being recommended, the model of the clinical labs legislation is working well and should be the starting place for consideration of the needs of environmental laboratories conducting drinking water microbiological testing. Consultation among the stakeholders would be the first step once a decision is made to pursue this option.

II.F. OUTBREAK DETECTION

RECOMMENDATION 13: There must be systematic improvements to public health surveillance and outbreak detection; there will not always be the opportunity for one physician to notice such connections and outbreak detection cannot be left to such contingencies. There are likely many outbreaks and lower levels of illness from pathogens in water that are missed by the public health system. Without Dr. Hallett's intervention, especially with the long weekend intervening, it may have been several days before the fact of an out-break came to the attention of the health unit, with an even greater delay in investigation the outbreak causes and in

ordering a boil water advisory. In a large community, it is even more difficult to detect a water-borne disease outbreak.

RECOMMENDATION 14: In addition to the recommendations about access to a data base, proactive review of water system records and clarification of oversight responsibility for routine sampling results made elsewhere in this argument, CWC adds the submission that in an outbreak investigation for any illness for which there is a possibility of transmission by water (treated or untreated), the health unit automatically review the records of the relevant water system/s as one of the initial tasks to be conducted in the very earliest stages of an investigation. This information will assist in providing additional leads and possible focus of an investigation, and may assist in preventing water from being ruled out as a possibility or downplayed too early in the investigation.

RECOMMENDATION 15: Sampling should be done by the health unit itself, at many points in a community, immediately upon commencement of any outbreak investigation, even where food is a primary suspected source.

RECOMMENDATION 16: In investigating an outbreak that may be waterborne, health unit staff should immediately obtain copies of the most recent bacteriological results for the supply, as well as review other recent records and a data base of results for that community.

RECOMMENDATION 17: Health unit inspectors should be equipped at all times with the necessary equipment and supplies for monitoring chlorine residuals and taking independent samples of municipal drinking water supplies.

RECOMMENDATION 18: Health units should consider issuing a boil water advisory immediately in a case where it is investigating an outbreak in a community for an illness that may be transmitted by drinking water (treated or untreated) whenever the immediate and initial information shows a broad community outbreak, separate ages impacted (such as young and elderly), and possible connection to the geographical area served by a drinking water system. Health units should not await confirmation of the source nor even probability of the source because of the very large numbers of people in the community constantly exposed to drinking water. A precautionary boil water advisory should be issued based on even a possibility that it is the drinking water.

RECOMMENDATION 19: In communications with the public, in addition to publicizing the fact that an outbreak is being investigated, health unit staff should advise as to the sources that are being investigated, and should not advise that boiling of water is not necessary unless and until contaminated drinking water has been definitively ruled out as a source based on verified and reliable evidence obtained by the health unit.

II.G. MEDICAL TREATMENT

RECOMMENDATIONS 20: The Walkerton Hospital should prepare an emergency plan to specifically address an outbreak of E.coli. The emergency plan should be prepared in consultation with the Public Health Unit, the Ministry of Health, the Ministry of Environment and the Town of Brockton and include the following:

- guidelines for admission of patients if an E.coli outbreak is suspected;

- protocols for ensuring that information is shared expeditiously and accurately between the hospital and outside agencies such as the Public Health Unit;
- protocols on ensuring for referral of patients to other hospitals if required;
- protocols on how the hospital would handle phone calls from the public regarding the outbreak;
- protocols about how to ensure the public and pharmacies are given timely and accurate information on the method of treatment; and
- protocols on housekeeping, obtaining alternative water supply, and disinfection procedures and posting of notices within the hospital.

PART III – SYSTEM FINDINGS AND RECOMMENDATIONS

III.A – MULTI-BARRIER PROTECTION OF DRINKING WATER

RECOMMENDATION 21: Multi-barrier drinking water protection must include a robust emphasis on at least five elements of the system: source protection, water treatment, distribution, monitoring and response to adverse monitoring results. Furthermore, this system and all of the elements within it must be able to withstand "upsets" to the system.

RECOMMENDATION 22: Ontario must map its aquifers and water tables and monitor water levels extensively. Ontario must analyze recharge and discharge conditions for aquifers. Ontario must create reports on the data thus acquired, which must be made publicly available and accessible. Ontario must manage its groundwater and must cease issuing water taking permits without this information.

RECOMMENDATIONS 23:

- The best quality source for a municipal drinking water supply that can be found should be obtained. Then a watershed protection plan should be imposed.
- All municipalities relying on groundwater should be required to define the source of their supply wells' water; all municipalities should be required to evaluate land use within that area and to initiate land use controls to protect that source.
- The zone around a well from where the water is coming to the well should be investigated and mapped. One approach to doing so is to develop a wellhead protection area. In any event, the zone of contribution should be identified, that is the area in which water entering the groundwater system vertically downwards will end up in the well. Zones of transport should also be identified (each contour indicating the time for the water from that zone to be transported to the well).
- Land use controls should be imposed within zones of contribution to protect the water source for the well. In doing so, appropriate margins of error must be allowed to account for the fact that they system

is dynamic. As additional wells are contemplated or pumped and affect the mapped well, the zones of contribution and transport time must be re-evaluated, and as necessary, land use controls modified.

- There should be a provincial source protection policy. This should include overall water management goals and objectives. Source protection should be given priority in land use planning legislation. The overall provincial source protection policy should be implemented in legislation.
- There is a need for the province, municipalities and conservation authorities to have effective legal tools, and requirements to establish and implement source protection measures according to the risks in that watershed or aquifer catchment area. Municipal and provincial tools to deal with source protection vis-a-vis risks from agriculture, cattle and farming should be established. Broader source impacts – for example from development; interference with wetland function and others, must be integrated into the approach.
- The source of municipal drinking water, once established, should be periodically reviewed. Pre-existing and new risks should be evaluated with appropriate changes to the monitoring requirements or practices; to treatment and to other aspects of a multi-barrier protection approach in place for the system.

RECOMMENDATIONS 24:

- All municipal supply systems, both ground and surface water, must be required to monitor flow, chlorine residuals or other disinfection parameters, and turbidity.
- All municipal supply systems must monitor for pathogens in both the raw and treated water; and the latter at geographically diverse points around the distribution system.

RECOMMENDATION 25: Smaller systems should be required to monitor more frequently so as to minimize the time during which pathogens may be present in the system and consumed by people before they are detected.

RECOMMENDATION 26: Includes the need for mandatory monitoring, not only for indicator organisms that might indicate the presence of pathogens, and chlorine or other disinfectant residuals, but also for turbidity and other indicators of surface water influence of ground water sources. Examples of such indicators include spore formers, conductivity, pH variances and disinfectant residuals.

RECOMMENDATION 27: The ODWO recommendation to subject 25% of drinking water samples to the heterotrophic plate count test was developed to give the operator and oversight agencies some indication of the cleanliness of the drinking water system. This monitoring should continue.

RECOMMENDATION 28: Methods to increase the speed of detection of pathogens, as well as the precise type of pathogens should be pursued; Ontario should provide research funding to assist with development of more rapid and more precise detection methods. Tests that provide faster results must be developed.

RECOMMENDATION 29: Continuing assessment and re-assessment of bacteriological drinking water risks and new and more reliable methods of pathogen detection must be constantly evaluated and incorporated into provincial drinking water regulation. Monitoring requirements in the province did not (and do not) require testing for actual pathogens. There are many reasons for this, including the time required for such testing

results; the cost of such tests; and the very small statistical probability of finding pathogens in small, relatively infrequent volumes of drinking water, even when they are present. However, the lack of monitoring for actual pathogens in drinking water (such as actual pathogenic bacteria; viruses and parasites) and in source water means that the risk from such pathogens may not be understood by operators or by policy makers. Accordingly, along with the lack of transmission of scientific research and new information about known and emerging pathogens, treatment protocols and other protective measures may not be perceived as necessary. The result is a system that is perceived as relatively static – i.e. the risks are assumed to be known and contained with the existing system or with the particular water works system.

RECOMMENDATION 30: Re-sampling procedures should be made more stringent so that it is ensured that the re-sampling occurs immediately and is at a minimum taken from the same location as the adverse sample that was observed. “Re-sampling” by waiting for the following week’s routine sampling is not acceptable.

RECOMMENDATION 31: Include developing faster responses to indicators of groundwater influenced by surface water. Multi-barrier treatment systems should be imposed even for groundwater systems.

RECOMMENDATION 32: Municipalities should utilize multiple disinfection methods to ensure the maximum safety of the water from dangerous microorganisms. A combination of treatments could include chlorine, ultraviolet radiation, ozone, and various filtration systems.

RECOMMENDATION 33: In considering disinfection methods, municipalities should maximize the safety of drinking water, both at source and through the distribution system, and both from short-term acute pathogen risks and from long-term risks such as carcinogenic trihalomethanes formed from the interaction of chlorine and organic matter in the water.

RECOMMENDATION 34: Ontario should invest significantly in water treatment research and in identifying new pathogen risks.

RECOMMENDATION 35: A precautionary approach to the drinking water system must be institutionalized so that all of those exercising their roles consider what is the safest course of action to protect community health, especially in the case of uncertainty. The culture should be shifted away from one of waiting for “proven” or “confirmed” evidence of risk, to one of taking a protective or precautionary approach. The discussion in this section provides only a few examples of the differences that might result from such a shift.

RECOMMENDATION 36: New distribution systems should be designed to include water quality considerations and existing distribution systems should be reviewed and retro-fitted to take account of water quality considerations such as water age management.

RECOMMENDATION 37: Dead ends in a distribution system should be eliminated so that there is flow throughout all aspects of the system at all times.

RECOMMENDATION 38: Ontario's regulations and standards and water works operators practices must be stringent to ensure that municipalities monitor pressure throughout the distribution system to rapidly detect loss of pressure or breaks, monitor water tables near water mains, actively hunt for and eliminate cross-connections,

rapidly repair breaks with appropriate safeguards, and scrupulously follow standards for new main construction and disinfection.

RECOMMENDATION 39: Procedures to eliminate biofilm (such as ensuring no dead ends, regular flushing and regular swabbing) should be developed and mandated to be conducted by every water works distribution system operator.

RECOMMENDATIONS 40: Supply well standards must include the following, and all municipal supply wells should be re-examined to ensure they comply with these standards within a specified period of time:

- Well casings must protrude well above ground level
- Ground slope must be maintained away from the well head
- Annular spacing between the well casing and underlying bedrock formation must be completely filled with sealing material
- Well casing should extend as far into the underlying bedrock formation as possible; normally a grouted casing to at least 6 metres; much more may be necessary according to the characteristics of the rock
- Well head must extend above the base of the pit, normally at least 30 centimetres
- A sanitary well seal must be maintained on top of the well
- All joints or pipework entering through the side of the well pit must be sealed with an effective waterproof seal.

RECOMMENDATION 41: Groundwater supply wells under the potential influence of surface water should be required to have automatic chlorine residual analyzers, along with automatic alarms and operator notification procedures.

III.C. MoE INSPECTIONS

RECOMMENDATIONS 42:

- The Drinking Water Protection Regulation should specify a minimum frequency of inspection for municipal water treatment plants as well as small water treatment serving the public such as trailer parks and motels. The MoE should ensure that it supplements its inspection programme with a number of unannounced inspections of municipal water works as well as small water treatment plants.
- The MoE should ensure that all inspection reports, expert reports, application for certificates of approval and any other relevant documents relating to a municipal treatment plants or a small water treatment plant are stored in a central registry accessible to MoE staff in the District and Regional Offices and by Approvals Branch in Toronto. MoE inspectors should be required to familiarise themselves with these documents prior to undertaking inspections.

- MoE inspectors should receive training on conducting inspections of municipal water treatment plants as needed and should be familiar with the legislative requirements pertaining to water treatment plants.
- MoE inspectors should be required to specify target dates for any non-compliance matters and should promptly follow up promptly to ensure compliance as opposed to waiting for the next inspection cycle.

III.D. MOE ENFORCEMENT

RECOMMENDATIONS 43: MoE should ensure that its enforcement approach of environmental legislation and regulations is based on the principles, of independence, timeliness, consistency, effectiveness, and transparency. Specifically,

- MoE should ensure that enforcement staff has appropriate resources to undertake enforcement, including access to scientific and technical expertise;
- MoE should ensure regular training programmes are provided to enforcement staff;
- MoE should set performance objectives and methods of evaluating effectiveness to ensure the effectiveness of its enforcement activities and to set priorities; and.
- MoE should provide detailed reports to the public on its enforcement activity in order to ensure accountability in this area. These should be modelled the annual "Offences Against the Environment" reports the last of which was released in 1994.

III.E. CONTINGENCY PLANS AND REMEDIATION PLANS; EMERGENCY RESPONSE, CONTINGENCY PLANNING AND NOTIFICATION

RECOMMENDATIONS 44:

- Immediate and stringent re-sampling, detection of the cause of the adverse result, alterations to the treatment system, flushing water mains to distribute disinfection throughout the system, and shutting off the source/s should all be pursued in case of adverse water sample detection. Boil Water Advisories should be considered in accordance with provincial guidelines.
- Boil Water Advisories should be guided by a more comprehensive and precautionary policy. As a general principle, Dr. McQuigge agreed that it is desirable to issue a Boil Water Advisory as soon as possible, even if it is precautionary.

RECOMMENDATIONS 45:

- Every community should have in place a means to ensure that residents can be notified of emergencies such as BWAs. Notification should include notification to radio stations, TV, print media, and where possible the use of handbills, loudspeakers and signage in certain areas.

- Provincial boil water guidelines, such as the draft "Protocol for the Issuance of a Boil Water or a Drinking Water Advisory" should continue to be developed to ensure that such measures are standardized.

RECOMMENDATION 46: Further to the previous recommendation, in developing protocols for BWA, there needs to be a process whereby the BWA can be communicated with sufficient urgency and direction. The media should be made aware of the BWA protocols or guidelines through awareness and education programs.

RECOMMENDATIONS 47:

- It is recommended in the notification procedures recommended above, institutions should be given a special status in that they should be directly notified and notified in a timely manner.
- Further, each institution should have their own contingency plans in place for events such as the contamination of water.

RECOMMENDATION 48: Boil Water Advisories should be clear and comprehensive and contain the essential information necessary for public protection.

RECOMMENDATION 49: Municipalities like Brockton should ensure that it has an Emergency Plan that could be activated in water contamination situations. This should include provisions for broad and effective communication measures to assist the Medical Officer of Health in the notification of Boil Water Advisories.

RECOMMENDATION 50: Municipalities, in their emergency or contingency plans, should include measures to ensure that alternative drinking water supplies are sufficient. Provisions should also be included that would ensure those supplies are accessible.

RECOMMENDATION 51: PUCs should be required to develop and maintain a contingency or emergency plan. Not only must contingency plans in accordance with the Chlorination Bulletin be made mandatory, but they must be confirmed by PUC commissioners and the MOE inspectors that the plan is in place. A zero-tolerance approach with respect to the failure to have a plan must be adopted by the MoE (see the enforcement section below). Water works and local municipal staff, as well as local health unit staff must be trained as to the content of the contingency plan, its implementation, and a copy of the plan must be stored in a minimum of appropriate locations in the municipality.

PART IV. OVER-ARCHING FINDINGS AND RECOMMENDATIONS BY TOPIC

IV.A. INTER-AGENCY COMMUNICATION AND DATA-SHARING

RECOMMENDATION 52: A readily accessible data base of all lab sample results for a water works should be maintained by the laboratory and / or works operator, and accessible by MoE, health unit, labs, operator and general public, for a period of a rolling 10 years at a time.

RECOMMENDATIONS 53:

- In addition to the adverse result reporting that the August 2000 standard requires, all results should be reported on a data base accessible to the PUC, the health unit, the MoE and the public. The PUC, the

health unit and the MoE should have defined specific responsibilities to review the data base at regular intervals; not only when adverse results are reported, to evaluate the condition of the system and to note early warning signs of risks. The data base should include turbidity results and chlorine residuals as well as E. coliform and E. colilab samples to assist with such evaluation.

- Regular communication between PUC staff and health unit staff should be established, with specific agenda items, including discussion of the monitoring results shown on the data base, discussion of new and emerging drinking water health risks and treatment options, discussions of particular concerns such as the infrastructure system condition and equipment robustness, review of contingency response plans in case of early indications of deteriorating water or surface water influence, and periodic review of emergency response plans, among other items. The availability of health unit staff as a resource to PUC staff for health issues should be reinforced.

RECOMMENDATION 54: Systematic and regular communication between water works operators and MoE abatement staff must be established. Water works operators must be trained to regard MoE staff as a resource.

RECOMMENDATIONS 55:

- Again, regular communication between local MoE staff and local health unit staff, with systematic agendas directed at review and assurance of safe drinking water systems in the communities under their jurisdiction must be established. Furthermore, problems that appear at the local level that may be province wide should be communicated forthwith to the provincial levels of the Public Health Branch and the Ministry of the Environment by the local agencies. (For example, such communication could have occurred when Mr. Gray in Barrie received a letter of concern about non-notification from private labs from the Simcoe County health unit.)
- Clarification of roles and responsibilities in a legal framework, such as a Safe Drinking Water Act would greatly enhance the understanding of the need for inter-agency communication and the types of information that must be exchanged.

RECOMMENDATION 56: The Public Health Branch has not historically targeted water works operators for education or information dissemination. For example, regarding the cryptosporidiosis / giardia Boil Water Advisory guidelines, Dr D’Cunha agreed that public health information regarding water should be disseminated to operators and MoE abatement staff “by somebody”. For health based information in particular, he later agreed that the public health branch would (or should) be the lead. This has not happened historically, but this role should be assumed by this branch of the Ministry of the environment.

RECOMMENDATION 57: The provincial level responsibilities for drinking water in public health and in environment, among others, should be coordinated by way of establishment of a single entity or person responsible within the government for drinking water. For example, a Drinking Water Commission within the Ministry of the Environment, reporting directly to the Minister has been recommended by CWC and CELA in the paper done for Part II of this Inquiry, *Tragedy on Tap: The Need for A Safe Drinking Water Act*.

RECOMMENDATION 58: The labs serving particular water works should be included in regular communications between the water works, health unit and ministry of environment staff so that in conducting

the microbiological sampling for a particular water works, they are aware of historical and current issues and trends and can initiate responses or even initiate investigations based on their microbiological expertise.

IV.B. COMMUNICATION WITH THE PUBLIC AND PUBLIC'S RIGHT TO KNOW

RECOMMENDATION 59: The MoE should commit to providing Ontarians with a comprehensive annual report on the state of Ontario's environment. In the longer term, the state of the environment reporting functions should be assigned to an independent third party, such as the Office of the Environmental Commissioner of Ontario, in order to maintain the independence and impartiality with regard to this activity. The MoE should also commit to providing Ontarians with detailed annual reports on the Ministry's enforcement activities in order to ensure accountability in these areas. The report should be modeled on the annual "Offenses Against the Environment" reports the last of which was released in 1994.

RECOMMENDATIONS 60: Ontario's drinking water statute should fully entrench "community right to know" principles, and in particular, should include provisions that require:

- (a) immediate public notice through appropriate means (e.g. news media, signs, internet, etc.) whenever:
 - (i) exceedances of prescribed standards or indicators of adverse water quality are detected including "presumptive" results;
 - (ii) treatment or testing equipment is inoperative or malfunctioning; or
 - (iii) required sampling and analysis is not being carried out;

- (b) preparation of comprehensive consumer confidence reports which are to be mailed to all consumers on an annual basis, and which address the following matters:
 - (i) source assessment/protection;
 - (ii) discussion of any regulated contaminants or unregulated substances detected in the raw or treated water;
 - (iii) discussion of any violations of contaminant limits or prescribed standards, and related public health concerns, particularly for vulnerable persons; and
 - (iv) discussion of the steps taken to address such violations, and measures proposed to prevent any future violations; and

- (c) require the Drinking Water Commission (or Minister) to establish and maintain an electronic drinking water registry that summarizes consumer confidence reports, discusses issues and trends arising from such reports, and otherwise serves as a public repository for significant drinking water information (e.g. approvals, prosecutions and orders, State of Drinking Water Reports, etc.).

IV.C. FINANCING AND GOVERNANCE OF WATER WORKS

RECOMMENDATION 61: Municipalities should be required to charge rates sufficient to ensure adequate maintenance and updating of the drinking water system and adequate protection of the quality of the supply.

RECOMMENDATIONS 62:

- Water works operators must prepare orientation manuals, and keep them current, for their commissioners or municipal decision-makers. The manuals should include copies of applicable legislation, regulations, standards, best practices documents, information about water borne pathogens and other water borne health risks, information about the water works systems under their jurisdiction, standing agendas and other necessary documents for those persons to understand their responsibilities.
- Water works commissioners or municipal decision-makers must be mandated to attend a minimum number of hours of continuing education per year on topics approved by regulation, including an emphasis on water borne health risks and water works best practices, as well as legislative and regulatory requirements.
- Water works commissioner or municipal decision-makers should receive all OWWA mailings and packages during their tenure on the water works commission or board.

RECOMMENDATIONS 63:

- PUC, municipal decision-makers, and water works operators should be required to review water quality and bacteriological test results on a routine basis.
- Water works operators should be required to retain fax and mail copies of lab results, and to maintain a log of all lab sample results received by telephone, fax or mail, indicating date, lab, sample results and action taken.
- Both the original lab sample results and the log should be available for viewing by the public at any time during business hours of a water works operator, for at least a two year period prior to the current date.

IV.D. TRAINING (Including Risks to Water Systems from Pathogens, Including New and Emerging Pathogens)

RECOMMENDATION 64: Private labs undertaking municipal water testing should ensure there is adequate training and capacity for its staff. Moreover, there should be continual training on matters pertaining to new strains of pathogens and other contaminants that could possibly be found in drinking water.

RECOMMENDATION 65: The MOE should develop and maintain both introductory and advanced courses for environmental officers pertaining to communal drinking water systems. There should be emphasis with respect to existing, and new and emerging, treatment technologies, best practices and new and emerging threats to drinking water supplies. In particular, information pertaining to public health risks emanating from pathogens must be updated frequently and all such staff must undergo frequent periodic training to ensure the

dissemination of such information. Such training must include the limits of particular methods and new information about effectiveness of various treatment methods.

RECOMMENDATION 66: The MOE should require environmental officers undertake advanced training courses on drinking water.

RECOMMENDATION 67: There is a positive duty on the MOE to ensure that sufficient resources are devoted to training of environmental officers and staff generally.

RECOMMENDATION 68: A full needs assessment for training should be undertaken for MOE staff with a clear component be directed to drinking water.

RECOMMENDATIONS 69:

- It is recommended that a training program be developed that would require compulsory education on grandfather operators, eg, a specific number of hours of MOE approved training [some proposal in August of 2000 called for 36 hours of it]
- Programs should also be developed for PUC commissioners and municipal decision-makers.

RECOMMENDATIONS 70:

- It is imperative that operators applying for renewals are properly trained. The training requirements should clearly defined and include a number of core elements. In particular, operating training course should be developed and maintained both at the introductory and advanced levels for communal drinking water systems operators. There should be emphasis with respect to existing, and new and emerging, treatment technologies, best practices and new and emerging threats to drinking water supplies. Information pertaining to public health risks emanating from pathogens must be updated frequently and all operators must undergo frequent periodic training to ensure the dissemination of such information. Such training must include the limits of particular methods and new information about effectiveness of various treatment methods.
- Further, operators should be required to take better training and an understanding of the reasons for monitoring, disinfection, treatment and of what it is that they are monitoring, as well as the circumstances which can affect the results.

RECOMMENDATION 71: The MOE must develop training programs that are financially accessible to both large and small operators. It must also provide sufficient oversight to non-MOE training programs to ensure that they are sufficient and appropriate.

RECOMMENDATION 72: The MOE should either develop a core in-house training program or negotiate such a regime with OCWA. While the private sector can have a role in such training, it must be under the close cooperation of the MOE. The MOE must develop the core curriculum.

RECOMMENDATION 73: All participants in the drinking water systems, from operating staff to staff at oversight agencies must be trained as to the available knowledge and information about risks of pathogens in drinking water to human health. This information must be updated frequently and all such staff must undergo

frequent periodic training to ensure the dissemination of such information. Such training must include the limits of particular treatment methods and new information about the effectiveness of various treatment methods.

IV. E. IMPLEMENTATION OF A SAFETY CULTURE APPROACH

RECOMMENDATION 74: All of the agencies involved in delivering or over-seeing public drinking water must implement a safety culture. In particular, agencies with oversight responsibility must understand their role as independent scrutineer of the system and the information they are provided; must seek to verify information; must understand their role to be for public health and safety; and must not replace their responsibilities as oversight agencies with the trust that they may feel entitled to hold in other public agencies. Notwithstanding such trust, each agency must exercise their role and subject the systems to scrutiny accordingly. As the Walkerton tragedy demonstrates, mistakes can occur in a system, not because any individual or agency wants to provide bad water, but because those involved may not understand the risks and the safeguards and their responsibilities therein. The other agencies are part of ensuring that even when that is the case, safe drinking water will still be provided because of the multiple barriers, the safety net approach, and a culture of seeking verification of important information upon which decisions and judgments are made.

IV.F. LEGISLATIVE AMENDMENTS OR REGULATORY REQUIREMENTS

RECOMMENDATION 75: The Ontario Drinking Water Objectives, Chlorination Bulletin and similar requirements, or their successors must be maintained as regulation or statute and have the force of law in Ontario, applicable to all water works operators, laboratories and others involved in the drinking water system in the province.

V. MODEL BILL AN ACT TO CONSERVE ONTARIO WATERS

We have included a Model Water Act, in support of our recommendation for a strong Water Conservation and Protection Act (previously submitted in Part II of the Inquiry).

VI. RECOMMENDATIONS FOR A NUTRIENT MANAGEMENT ACT

Brief submissions were made during Part II hearings regarding nutrient management; we enclose for convenience a copy of our recommendations regarding the proposed Nutrient Management Act as we submitted them following the EBR posting thereon.

VII. SUMMARY OF RECOMMENDATIONS MADE DURING PART II SUBMISSIONS.

This section is a summary of additional recommendations made by us during the various Part II Public Hearings. We have endeavoured not to repeat the recommendations contained in the above submissions and documents. For your convenience, we have included the date and page references to the transcripts.

Public Hearing No. 1, July 12, 2001 (p. 134)

The Commission Should adopt the approach that water is a "Social Resource". This approach would ensure that the utmost attention be given to this essential resource.

Public Hearing No. 1, July 12, 2001 (p. 136)

The *Federal Water Policy* (1988) should be updated and vigorously implemented.

Public Hearing No. 1, July 12, 2001 (p. 147, and pp. 162-163)

In fashioning regulations and policy recommendations to protect Ontario's drinking water, the Commission should expressly adopt the 'Precautionary Principle'.

Public Hearing No. 1, July 12, 2001 (p. 165)

Enforcement of environmental laws should be given priority and appropriate resources. Enforcement activities should remain at the Ministry of the Environment, and NOT given to a third party as suggested in the "Gibson Report".

Public Hearing No. 1, July 12, 2001 (pp. 167-72 and pp. 174-175)

The Federal Government does have a role in water quality, including:

- 1) A research role in relation to water quality and treatment issues.
- 2) The role of setting a minimum national drinking water standards.
- 3) The role of contributing financial resources for the upgrading and drinking water regimes as well as implementing the full cost pricing approach.
- 4) The Full Cost Pricing regimes should be cognizant of the impacts of such an approach on people with low incomes.

Public Meeting No. 2, July 23, 2001 (p. 47)

There should be regulatory oversight of both small and large waterworks.

Public Meeting No. 2, July 23, 2001 (pp. 48-49)

The oversight of waterworks should be carried out by the Ministry of the Environment

Public Meeting No. 2, July 23, 2001 (p. 55)

Enforcement policy should be carried out by the Ministry of the Environment, and the activities should be independent, well resourced and transparent. These activities should be highlighted in an annual report, modeled on the last Annual Report on Offences Against the Environment. (See attached **Annex A**)

Public Meeting No. 2, July 23, 2001 (pp. 57-58)

Public participation should be enhanced through the public meeting process.

Public Meeting No. 2, July 23, 2001 (p. 62)

Drinking water standards should be designed to protect children, the elderly, immuno-compromised, and other vulnerable populations.

Public Meeting No. 4, August 2, 2001 (pp. 128-131)

Source Protection:

- 1) Watershed and ecosystem protection is a first step in any source protection regime.
- 2) There should be enhanced public participation avenues in the siting of drinking water sources.

Public Meeting No. 4, August 2, 2001 (pp. 139-142)

The *Planning Act* should be reviewed to ensure that planning decisions are consistent with provincial environmental policy statements.

Public Meeting No. 4, August 2, 2001 (pp. 143-145)

There are various models with respect to watershed planning that includes the public in a very integral way. One example is found in Annex II of the *Great Lakes Water Quality Agreement* (As amended by Protocol Signed November 18, 1987, see **Annex B**) However, the Model Water Bill submitted above is our primary submission on the need for integrated watershed planning and an appropriate mechanism for doing so.

Public Meeting No. 4, August 2, 2001 (pp. 156-158)

There should be a federal role in the protection of drinking water. One of those roles relates to funding programs that promote technology development and research.

All of which is respectfully submitted this 23rd day of November, 2001

CANADIAN ENVIRONMENTAL LAW ASSOCIATION
Counsel for Concerned Walkerton Citizens