

MISSISSIPPI-RIDEAU SOURCE PROTECTION REGION
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MINUTES

**Mississippi-Rideau
Source Protection Committee**

October 1, 2009

#8/09

Present: Alex Cullen Scott Bryce
Carol Dillon Richard Fraser
Paul Knowles Drew Lampman
Patricia Larkin Randy Malcolm
Peter McLaren Beverly Millar
Eleanor Renaud Janet Stavinga (Chair)
Mary Trudeau

Alan Arbuckle (Source Protection Authority Liaison)
Mary Wooding (Ministry of the Environment Liaison)

Regrets: George Braithwaite Christine Leadman
Jean-Guy Albert (Medical Officer of Health Liaison)

Staff: Sommer Casgrain-Robertson Rosalind Kee
Brian Stratton

SPA Members: Mark Burnham (Chair, Mississippi Valley Conservation)

Guests: Bruce Davidson, Concerned Walkerton Citizens

1.0 Welcome and Introductions

Chair Stavinga welcomed everyone to the meeting. She explained that a member was running late and while we waited for quorum we would start with agenda item 2.0.

a) Agenda Review

Chair Stavinga went over the purpose of the meeting and the agenda.

b) Notice of Proxies

None

c) Adoption of the Agenda

Motion 1-08/09

That the Agenda be adopted.

Carried

d) **Declarations of Interest**

None

e) **Approval of Minutes**

A Member asked if additional peer review was going to be undertaken regarding the vulnerability scoring methodology used for the intake protection zone studies, the Member noted peer review was not listed in the minutes under section 3.0. Chair Stavinga explained that an academic peer review of the Technical Rules was going to be undertaken to provide the Ministry of the Environment with suggestions to improve the Rules for the next round of Assessment Reports. Chair Stavinga clarified that staff and the consultants were currently reviewing other intake protection zone vulnerability scoring methodologies used across the province and the consultants were developing a revised methodology. This new methodology would be presented to Members at a technical briefing later this fall. Chair Stavinga then explained that the revised studies and their summaries would be presented to the MRSPC at their December or January meeting and members could decide at that time by motion to require additional peer review.

Chair Stavinga asked if there were any corrections. There were none.

Motion 2-08/09

That the minutes of the Mississippi-Rideau Source Protection Committee meeting of September 3, 2009 be approved.

Carried

f) **Status of Action Items**

A Member reported that on an Environmental Network conference call they were told compensation had been approved in the Terms of Reference for the Saugeen, Grey Sauble, Northern Bruce Peninsula Source Protection Region. Another Member confirmed that the same information had been reported at an Ontario Federation of Agriculture meeting she just attended. Chair Stavinga and Sommer Casgrain-Robertson both informed members that they had been told by the Ministry of the Environment that the last Terms of Reference had just been approved because compensation language had to be removed before it could be approved by the Minister. Ms. Casgrain-Robertson will contact the Saugeen, Grey Sauble, Northern Bruce Peninsula and confirm whether compensation was included in their approved Terms of Reference.

Chair Stavinga informed members that a paper titled *Development Rights and Land Use Regulation in Canada* was just circulated to the Chairs. It sheds a lot of light on the compensation issue. Ms. Casgrain-Robertson will circulate it to members via email.

A Member asked if the Mississippi-Rideau Source Protection Region web site had links to neighbouring source protection areas and regions. Ms. Casgrain-Robertson confirmed that there is an interactive map on the welcome page

that allows visitors to click on any part of Eastern Ontario and it will take them to the source protection web site for that area: Cataraqui, Mississippi-Rideau, Quinte or Raisin-South Nation. These neighbouring web sites are also listed on our Links page along with a link to Conservation Ontario who has a map of all the source protection areas and regions across Ontario with links to their web sites.

Motion 3-08/09

That the Mississippi-Rideau Source Protection Committee receive the following report for information.

Carried

g) Correspondence

None

2.0 Walkerton – The Cost of Getting It Wrong: Understanding the Consequence Of Failing to Protect Drinking Water from Source to Tap

Chair Stavinga introduced Bruce Davidson, co-founder and spokesperson for the Concerned Walkerton Citizens, a group which formed in response to the Walkerton drinking water tragedy. Since 2000, Mr. Davidson has been involved in public education and policy development regarding the protection of drinking water sources. Currently, Mr. Davidson holds positions on a number of boards and committees including the Saugeen, Grey Sauble, Northern Bruce Peninsula Source Protection Committee.

Mr. Davidson's one hour presentation (slides attached) covered:

- Brief history of Walkerton as an average rural town
- Unfolding of the tragedy:
 - Illness strikes the community, schools close, hospital full to overflowing, businesses devastated, many children sent to safer communities, and media saturation of community.
- The systemic breakdown of Walkerton's water system
- Life without potable water
- Economic and social impacts
- Health consequences
- Steps taken locally to restore Walkerton's drinking water
- Public involvement in water management
- Commitment to transparency and accountability

A Member mentioned that he had previously seen a presentation by Dr. Biesenthal who noted that there was a trailer and septic system located very close to well 5, a septic system that was often under water. Mr. Davidson stated that the old way of thinking had been to drill for water where there was already water and because there was notoriously hard water in Walkerton they commonly drilled shallow wells. Mr. Davidson informed members that

there had also been barrels of chemicals stored in the low lying area around well 5. There had been no regard for local hydrogeological conditions and no consideration of how water flowed locally. There had been absolutely no source protection and we know that is the cheapest way to protect our drinking water, it is the first barrier in the multi-barrier approach. Mr. Davidson acknowledged that many of our municipal systems are in great shape but there are some that are not and there is much source protection work across the province that needs to be done.

A Member asked if well five had a proper casing because in the submersible camera video footage shown at the beginning of the presentation it looked like the well was lined with stone. Mr. Davidson acknowledged that it does look like an old stone lined well but informed members that what you see in the video is likely mineral built up on the casing. That said, a well of only 50 feet should have been closely monitored and regularly inspected and instead it was neglected and ignored.

Chair Stavinga expressed sincere gratitude for Mr. Davidson providing such important information about the Walkerton water tragedy and for sharing his deeply personal experiences from that time. She presented him with a token of appreciation from the Mississippi-Rideau Source Protection Committee. Chair Stavinga explained that the stories told by Mr. Davidson are important ones and they send a powerful message to all not to take drinking water for granted. Mr. Davidson thanked the Committee for the opportunity to share his experiences with them.

3.0 Reviewing the Province's Discussion Paper on Source Protection Plans

Ms. Casgrain-Robertson reminded Members that a session was held for municipalities on September 1, 2009 to get their feedback on the discussion paper. Approximately 25 people attended from 18 different municipalities and participants provided excellent comments and feedback. A similar session was held for MRSPC members on September 11. The feedback from these two sessions, plus comments developed by other regions across Ontario, was considered by staff in preparing the draft comments listed in the staff report.

Ms. Casgrain-Robertson explained that nearly all the comments fall under one of two key themes: 1) create an enabling regulation not a prescriptive one that provides Source Protection Committees with lots of flexibility when developing source protection plan policies; 2) sufficient long-term funding is required from the Province to successfully implement source protection policies.

Ms. Casgrain-Robertson introduced two new proposed comments that were added by the Source Protection Authorities when they reviewed and approved these comments on September 24. The Source Protection Authorities added a comment calling on the Province to define terms in the regulation that have a specific meaning under the source protection process and a comment calling on the Province to host regional training sessions for source protection committees.

A member asked if municipal planning staff might try to dominate the process of developing source protection plan policies and override decisions of the source protection committee. The member explained that these concerns were raised at a recent Ontario Federation of Agriculture meeting. Ms. Casgrain-Robertson responded that she was aware of the concerns that had been raised and that that was not the intention of the source protection planning process. Chair Stavinga elaborated that that was not the tone of the September 1 session with municipal staff, half of which were planning staff. Our local municipalities have expressed a desire to work collaboratively with the source protection committee to develop source protection plan policies, the way they worked collaboratively with staff to lead the technical studies.

A Member commented that the ability to use municipal instruments is important enough to warrant a separate comment rather than integrating it into comment number 21. Two other Members also supported this change.

A Member had reservations about comment number 4. They were uncertain about how guidance could be developed ranking the effectiveness of different risk management strategies when source protection committees have yet to develop those strategies. Ms. Casgrain-Robertson explained that managing drinking water threats is not a new concept and source protection plan policies will rely heavily on tried and true best management practices that have been used by various sectors. Very few risk management strategies will be brand new concepts, most will borrow from practices of industry leaders. Ms. Casgrain-Robertson went on to explain that it would be valuable information for a committee to know if a particular risk management strategy was tried by a sector and could not be successfully implemented.

A Member asked about the statement made in comment number 12 that policies would “differ” across the province. Ms. Casgrain-Robertson explained that provincial staff who amend or issue provincial instruments will have to be aware of the different ways source protection committees across the province have chosen to manage a particular drinking water threat. The same land use activity may not be subject to the same source protection policy across the province.

A Member noted that in the September 1 session with MRSPC members, most members did not support the provincial suggestion that Risk Management Officials have the ability to exempt someone from a risk management plan if a provincial instrument would manage the risk. Ms. Casgrain-Robertson explained that the comments prepared by staff also integrated feedback from the municipal session and comments from other regions which was not always identical to the feedback from MRSPC members. She provided a substitute comment that recommends to the province that Risk Management Officials not have the ability to exempt people. Another member asked that the comment emphasize that in this situation a risk management plan can be very short, simply referring to the provincial instrument that will address the threat.

A Member asked why the comment was referring to a person being exempt from a risk management plan rather than a property. Ms. Casgrain-Robertson

explained that a risk management plan is not negotiated for a property, it is negotiated between a risk management official and a specific property owner. The wording is in keeping with the wording used in the discussion paper.

A Member asked if “waterways” could be added to the list of possible transportation corridors listed in comment number 23. Ms. Casgrain-Robertson responded it could be added.

A Member recommended that comment number 28 be moved to follow comment number 35 because it pertains to successful implementation of source protection plans.

A Member was frustrated that the definition of ‘threat’ in the glossary of the discussion paper did not specify ‘municipal drinking water’. Instead it states ‘drinking water’. Ms. Casgrain-Robertson explained that threats are assessed in all four vulnerable areas including highly vulnerable aquifers and significant groundwater recharge areas, both of which look at threats to regional groundwater that supplies private wells. The distinction is that *significant* threats can only pertain to municipal drinking water. That is why the distinction between ‘drinking water’ and ‘municipal drinking water’ is made clear when you get to the section of the discussion paper that talks about prohibition, risk management plans and restricted land uses, as these policy options can only be used to address significant threats.

A Member raised a concern about property owners having to report the same information to various government agencies to demonstrate compliance with regulations. The Member emphasized the time burden this can place on individuals and businesses. The Member suggested a comment be added to encourage inter-agency coordination and sharing of compliance reporting information to reduce the paperwork and bureaucracy faced by property owners.

A Member asked if risk management officials would have access to reports pertaining to provincial instruments if that is the tool used to address a drinking water threat so they could ensure compliance. Ms. Casgrain-Robertson explained that risk management officials are responsible for negotiating risk management plans and provincial ministry staff is responsible for issuing provincial instruments. It is the role of the committee to monitor the effectiveness of policies and report on the success of source protection plan implementation. Chair Stavinga reiterated that committee members raised concerns about relying on provincial instruments to address threats and this is reflected in the comment calling on detailed training for committees on what instruments are available, how they are administered and how their compliance is monitored.

Chair Stavinga asked if there were any additional questions. There were none.

Motion 4-08/09

That the Mississippi-Rideau Source Protection Committee add the following two comments, which were included in comments submitted by the Source Protection Authorities, to their Environmental Bill of Rights Registry submission:

- **Definitions** – The regulation needs to provide clear definitions for terms the province has assigned a specific meaning to, these include “restricted land uses” and “risk management plans”. Terms can sometimes have a common meaning which needs to be clearly distinguished from their specific definition under the Clean Water Act.
- **Regional SPC Training Sessions** – It is essential that the MOE play a key role in building the capacity of source protection committees to develop effective source protection plans. This should include regional training sessions for source protection committee members (e.g. Eastern Ontario session for Cataraqui, Quinte, Mississippi-Rideau and Raisin-South Nation). These sessions must cover details of the final Source Protection Plan regulation and detailed information about available provincial instruments and risk management measures. It may also be beneficial to include other partners in these training sessions (e.g. municipalities, health units).

Carried

Motion 5-08/09

That the Mississippi-Rideau Source Protection Committee revise comment number 15 as follows:

15. **Official cannot Exempt a Risk Management Plan** – Risk Management Officials should not have the ability to exempt a person from requiring a risk management plan. If a provincial instrument can mitigate the risk then the risk management plan can be short and simple referencing the instrument that will be used to address the drinking water threat.

Carried

Motion 6-08/09

That the Mississippi-Rideau Source Protection Committee add the following comment which expands on comment number 21:

- **Municipal Instruments** – Municipal instruments should be identified as another policy approach category in addition to "land use planning" and "provincial instruments". Municipal instruments, such as sewer use bylaws and building permits, are a category of instruments that are generally derived from provincially delegated authority to municipalities, but they are

well established and recognized as municipal instruments. In particular, sewer use bylaws could be used to reduce the risk of stormwater contamination and release of hazardous materials to sewers that pass through wastewater treatment facilities and enter watercourses supplying drinking water to downstream communities. Building permits and tree cutting permits are other examples of common municipal instruments that can limit or control land use activities at a lot level and therefore may be useful for source protection plans.

Carried

Motion 7-08/09

That the Mississippi-Rideau Source Protection Committee add the word “waterways” to comment number 23 as follows:

- 23. Transportation Corridors** – The source protection planning framework should recognize the role that source protection committees can play in raising awareness of, and filling gaps between, emergency response protocols for spills along corridors (e.g. highways, railways and waterways) and at facilities.

Carried

Motion 8-08/09

That the Mississippi-Rideau Source Protection Committee add the following comment:

- **One-Window Compliance Reporting** – there should be inter-agency coordination when property owners report their compliance with source protection plan policies so property owners do not have to report the same information to multiple agencies.

Carried

Motion 9-08/09

That the Mississippi-Rideau Source Protection Committee move comment number 28 so it comes after comment number 34.

Carried

Motion 10-08/09

That the Mississippi-Rideau Source Protection Committee approve the following comments for submission to the Environmental Bill of Rights Registry – posting 010-6726 (Discussion Paper on Requirements for the Content and Preparation of Source Protection Plans.), as amended.

Carried

4.0 Community Outreach

Chair Stavinga reported on the Chairs Quarterly Meeting held in Kingston on September 21 and 22. The Chairs met with Environment Minister John Gerretson for approximately an hour and raised a number of key issues with him. One was the importance of renewing the Ontario Drinking Water Stewardship Program's funding commitment beyond 2011. The second was the need to provide provincial funding for small municipal infrastructure projects that reduce municipal source water vulnerability or threats. Chair Stavinga explained that she led that discussion. She used the example of deepening Kemptville and Merrickville's municipal well casings to reduce the local vulnerability and therefore the number of significant threats as an example of a great source water protection initiative. She reported that the Minister found the two case studies compelling but there still needs to be further discussion with senior MOE staff and the Minister's advisor.

The Chairs also raised concerns about Assessment Report timelines. The Minister encouraged committees to stay focused on the goals and scope of the *Clean Water Act* and to keep due dates in sight without undermining the quality of the science. The Minister also encouraged Committees to continue their good work around engagement of, and partnership with, municipalities. The Minister reaffirmed that he and Cabinet are committed to the source protection planning program. He recognized the volume of new science that has been generated over the past couple of years and wants to ensure that source protection plan implementation is effective.

Also at the Chairs meeting, a presentation was given by Rick Lindgren from the Canadian Environmental Law Association (CELA). He talked about some concerns environmental non-governmental organizations have about the source protection planning process, some of which have been raised by members of the MRSPC. Chair Stavinga will distribute copies of the presentation to any Member who is interested.

Mr. Stratton attended a consultation session on MOE's risk management catalogue. He provided Members with a letter from MOE in their blue folder that summarizes what will be included in the catalogue and its purpose and it also outlines what the catalogue will not accomplish.

A Member asked about progressing being made on an Ottawa River Inter-Jurisdictional Group. Chair Stavinga reported that work is underway with MOE to identify key stakeholders in the Ottawa River watershed to participate in an initial meeting to discuss forming an Ottawa River Inter-Jurisdictional group. There is a definite commitment from the Ontario government to participate in bilateral talks with municipalities in the Ottawa River watershed and the province of Quebec. We now need to see where the province of Quebec falls on this item and what their level of interest is.

A Member asked if there were any eskers in our region. Mr. Stratton responded that there are eskers in our region but they do not impact any of our municipal drinking water systems.

A Member reported that Raisin-South Nation received Ontario Drinking Water

Stewardship Program (ODWSP) funding to undertake education and outreach activities targeted at boaters on lakes and rivers near municipal intakes and to provide spill response equipment to local fire departments to use when responding to spills near municipal drinking water sources. The member asked if Mississippi-Rideau was planning to apply for similar funding. Chair Stavinga explained that municipal infrastructure projects are not be eligible for funding under the ODWSP. MOE has acknowledged that they have funded some such projects in the past and have informed us that they will be more selective about what projects they approve moving forward. Staff has not looked into targeted education of boaters.

A Member raised concerns that the annual funding allotment of seven million dollars was being watered down as yet another category called Early Response was being added. Ms. Casgrain-Robertson reminded members that the original purpose of the ODWSP was to provide financial assistance to property owners impacted by the Clean Water Act. The Early Response component will move us closer to achieving that purpose as it will direct funding towards land use activities identified in Assessment Reports as significant threats to drinking water. Property owners engaged in a land use activity that is deemed to be a significant threat to drinking water will be eligible for funding to voluntarily put risk management measures in place in advance of any requirements that may come out of a source protection plan. The Early Response component will eventually replace Early Actions which was intended as a temporary measure to get funding out the door to encourage best management practices near municipal systems while in advance of technical studies determining what the specific drinking water threats were. Members were reminded that they have strongly encouraged MOE to shift ODWSP funding away from general stewardship projects towards targeting drinking water threats once the science identified them. This allows regions to do that as soon as they post their draft Assessment Report.

A Member noted that concerns about geothermal heating systems were raised by members of the Ontario Environmental Network. The member asked if we should be determining how many geothermal units exist in the Mississippi-Rideau region. Chair Stavinga responded that this issue came up at the Chairs meeting as it has been raised by other source protection committees. Mr. Stratton responded that you only need a permit to take water if you are using more than 50,000 liters/day and most of these systems would not. Another Member noted that the legislation is being reviewed and the threshold for requiring a permit to take water for personal use may increase to 278,000 liters/day. Chair Stavinga noted that there will be a session about geothermal heating systems at the A.D. Latornell Conference in November. Chair Stavinga is attending the conference as a presenter. Mr. Stratton noted he would be attending a two day workshop on geothermal heating systems in Toronto in October. Ms. Casgrain-Robertson also noted that this concern was raised by the MRSPC at their July meeting and since then Mary Wooding has been working with MOE to get a bulletin issued about geothermal heating systems and source water. This bulletin is nearing completion and will be

circulated to members as soon as it is released. Also, MOE recently released a technical bulletin about geothermal heating systems which will be circulated to members shortly.

A Member asked if a well for a geothermal heating system requires a well record. Mr. Stratton confirmed that all wells require a well record.

A Member gave an update on the Mississippi Valley Field Naturalists program to education grade 8 students about source protection. So far five schools have learned the basics about source protection and visited their local municipal drinking water system: two schools in Carleton Place, two in Almonte and one in Carp. In the spring students will learn about potential threats to their local water supply. Of note, a lot of interest has been generated among the parents of these students about what their children are learning.

A Member asked for information for an upcoming meeting in Toronto of the Ontario Stone, Sand and Gravel Association. Ms. Casgrain-Robertson said she is happy to work with members to present or provide information.

Chair Stavinga reminded members of their upcoming MOE Threats Training Session, Tuesday, October 13 at RVCA starting at 1pm. Ms. Casgrain-Robertson informed members that Heather Malcolmson, a manager with MOE who oversaw the drafting of the Technical Rules, would be giving the presentation. Mr. Stratton added that Dillon consulting would also provide a quick overview of some preliminary threats results for the municipal groundwater systems.

The committee was asked if there were any more questions. There were none.

Motion 11-08/09

That the Mississippi-Rideau Source Protection Committee receive the following report for information.

Carried

5.0 Other Business

A Member reported that the Canadian Environmental Law Association (CELA) submitted comments to MOE regarding recent proposed amendments to the Technical Rules. Staff will circulate their submission to members.

A Member noted that a newspaper article in the Ottawa Citizen, dated October 1, reported that a company located in Northern Quebec was investigating the feasibility of shipping water to the United States via the Ottawa River. This would substantially increase the flows in the Ottawa River and is simply a concept project at this point for discussion.

Chair Stavinga reminded members that they have to RSVP to Rosalind Kee in advance of MRSPC meetings so staff knows ahead of time that there will

be quorum. Quorum is 2/3 of members as set out by the *Clean Water Act*. Chair Stavinga apologized if members find this practice cumbersome. Ms. Casgrain-Robertson informed members to keep the first Thursday of every month available for meetings through 2010. A proposed 2010 meeting schedule will be brought forward at the November meeting.

6.0 Member Inquiries

None

7.0 Next Meeting

Date: November 5, 2009

Time: 1:00 pm

Location: RVCA, Monterey Boardroom

8.0 Adjournment

The meeting was adjourned at 4.10pm

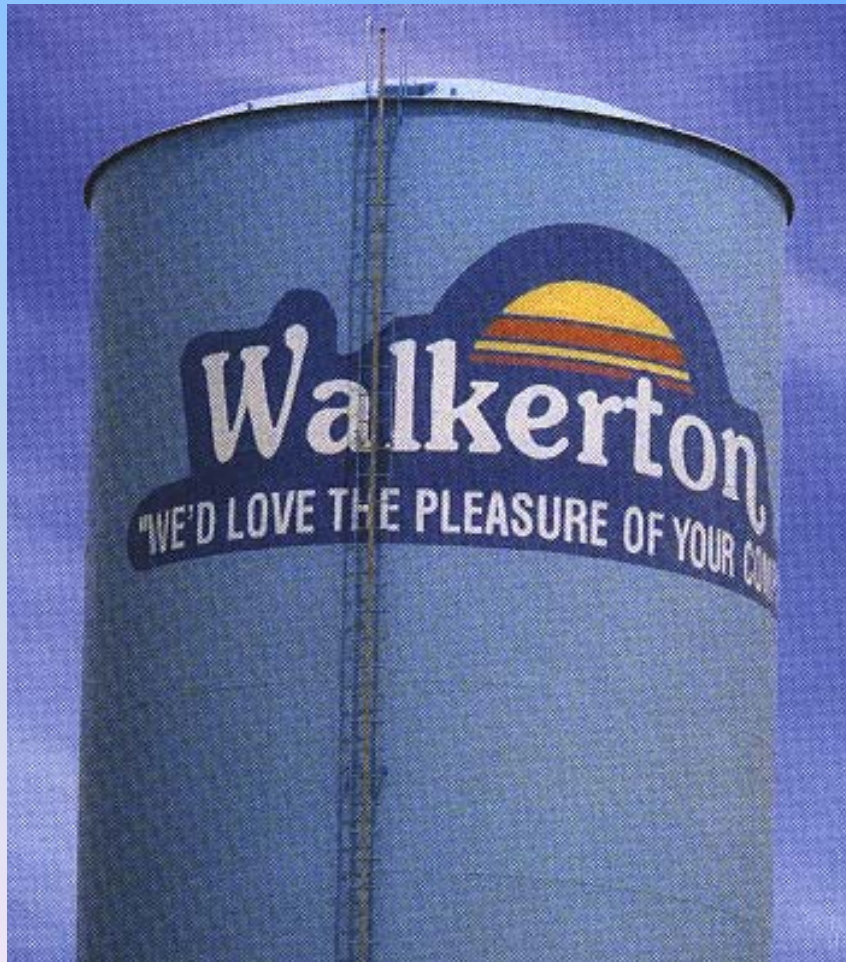
.....
Janet Stavinga
Chair

.....
Rosalind Kee
Recording Secretary

Walkerton - From Infamy To Excellence

The Cost Of Getting It Wrong

Bruce Davidson
Concerned Walkerton Citizens
P.O. Box 1376
Walkerton, Ontario
N0G 2V0
Phone: 519-881-0884
Email: cwc@bmts.com



From Anonymity To Infamy

- May 2000 Walkerton, E-coli enters water system
- Seven dead, thousands became ill
- Walkerton - Brand Name for Contaminated Water

The Myth Of Pristine Water

- Canada land of limitless pristine water
- Shock grips community
- Contaminated water not just in the developing world
- Environmental alarm clock unheeded by public and government

Walkerton...A Surreal Juxtaposition of Images

- Walkerton population 5000
- Seat of Bruce County
- Bruce County known for beaches, agriculture and Nuclear Power Plant
- Bruce County population 60,000
- Animal equivalent population over 1,000,000

Walkerton...A Surreal Juxtaposition of Images.....continued

- Schools closed after contamination
- Streets without children in neighbourhoods
- Hospital full to overflowing

Air Ambulance stationed in Walkerton



Main street lined with masses of media



PHOTO BY ANNE BAYIN

Media scrum outside Sacred Heart Church

Answers Equal Advocacy

- No State of Emergency declared in Walkerton
- How did it happen?
- How do we prevent recurrence?
- CWC formed to call for Inquiry
- Multitude of communal needs – health, compensation, water distribution, stress, political and media liaison

Anatomy of a Systemic Breakdown

- Many factors combine to create disaster
- Well #5 placement and zoning



An aerial view of Well #5 and the surrounding area.

Anatomy of a Systemic Breakdown....continued

- Maintenance of wells
- Operator training
- Falsification of records
- Public Utilities Commission
- Ministry of Environment

Anatomy of a Systemic Breakdown.....continued

- Local Health Unit
- Private Laboratory
- Water main construction
- Spills Action
- Government of Ontario - 11 separate warnings
- Voluntary compliance
- Risk management

BUT OUR WATER HAS ALWAYS BEEN GOOD

- Compared to what and based on what?
- Walkerton over 20 years had chronically contaminated water.
- Until now everything has been OK?

CHANGING CONDITIONS AND RISK TO WATER

- Intensive Industry
- Intensive Agriculture
- Urban Sprawl
- Evolving Micro Organisms
- Is E-coli the last water borne pathogen we will face?

WHAT IS CONTAMINATED WATER?

- What does another Walkerton really mean?
- Chronic exposure to moderate levels of contamination.
- Sporadic water related illnesses may be misinterpreted.

THE COST OF GETTING IT WRONG

- Experts suggest up to 15% of population may suffer Post Traumatic Stress Syndrome.
- Loss of business to other communities.
- Municipal insurance 3 times average cost.
- Cuts to MOE \$40 million.
- Cost of tragedy \$150 million.
- Ongoing illness.

Cost of a Crisis - \$64.5 Million *

Other Gov't Agency Costs	\$	11,110,184
OCWA & System Remediation	\$	9,222,215
Inquiry Costs	\$	9,000,000
Household Costs	\$	6,916,949
Town Costs	\$	6,548,523
Health & Epidemiological Study Costs	\$	5,212,160
Emergency Water Provision	\$	4,167,179
Health Unit & HU Assistance	\$	3,150,000
Local Business Losses (incl. Prod)	\$	2,694,435
Long-term health	\$	2,497,932
Loss Property Values	\$	1,106,136
Legal - Private	\$	1,000,000
Samples, labs, reporting	\$	645,000
Hospital Stays & Air Trans.& Opp. Cost	\$	597,418
Coroner Costs	\$	559,824
Physician Visits	\$	99,239
	\$	64,527,194

The economic costs of the Walkerton Water Crisis – Dr. J Livernois for Walkerton Inquiry.

LIFE WITHOUT POTABLE WATER

- Walkerton 7 months under Boil Water Order.
- Some communities are years without potable water.
- Non potable water adds 3-4 hours of work per adult per day.
- Confidence in all government services is undermined.



From cooler to bath tub.

Hand washing, boiling and shaving.



10 Liters required to flush a toilet



**45 Liters required to prepare 1 pot of
stew and wash dishes.**

Orangeville Ontario 1985

- Water supply six untreated wells
- Campylobacter
- Symptoms – Vomiting, Fever, Chills
- Un-chlorinated wells, thought to be safe
- Heavier than normal snow pack
- High levels of runoff
- After Orangeville outbreak, chlorination made mandatory

Orangeville Cont.

- Sudden events can overwhelm untreated wells; regular monitoring alone is not sufficient
- Report published in 1991

Washington County Fair, New York State 1999

- Sept. 1999, E-coli 0157, 781 cases, 2 deaths
- 9 months before Walkerton
- Largest E-coli outbreak in the U.S.
- 600 km from Walkerton
- Fair attended by 108,000 but unregulated due to short duration
- Groundwater supplied by series of wells
- 4 chlorinated, 3 unchlorinated

New York Cont.

- Unchlorinated wells to be used for cattle washing only
- Buffer zone around wells created but lacked info on septic beds
- Updated map not received before commencement of fair
- Increased water demand led to unchlorinated water being added to water for human consumption

New York Cont.

- Heavy rains fell before fair
- Septic tank only 11 meters from unchlorinated well
- Travel time from septic bed to well five minutes
- Incident report published two months prior to Walkerton

North Battleford 2001

- March – April, 2001 Cryptosporidium
- Over 5000 affected
- Surface water supply from North Saskatchewan River
- Surface water plant constructed 1950 to service hospital
- Taken over 1961 to deal with growing water needs of North Battleford

North Battleford Cont.

- Treatment plant 3.5 km downstream of sewage treatment plant outfall into river on the same bank as water intake
- In spring level of oocysts as high as anywhere in North America. Raw water picked up contamination sewage plume from upstream waste water plant
- Poor history of effluent from upstream sewage plant
- Warning since 1963 about raw water quality caused by its own sewage treatment plant

North Battleford Cont.

- Investigation of outbreak took sometime
- First case reported April 14th thought to be cattle related
- Boil water order April 25th
- Poor removal of turbidity since March 20th
highest level of diarrhea April 13th
- No water quality problems reported
- Local officials fail to understand importance of all elements of water treatment

Milwaukee 1993

- March – April 1993 Cryptosporidium
- Surface water Lake Michigan
- 4400 hospitalizations
- 50 to 70 deaths
- No formal inquiry
- Early April 1993 Gastrointestinal illness
- April 5th shortage of Diarrhea medication

Milwaukee Cont.

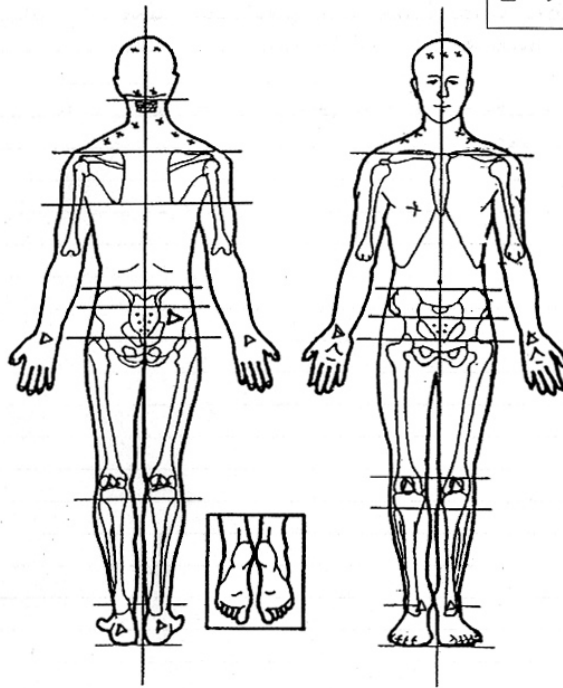
- Boil water order April 7th
- Illness peak April 3rd – 6th
- Turbidity spikes March 28th
- Implicated water plant closed April 9th
- Water plant operating within standards
- Sewage plant contaminated raw water travelling towards treatment plant intake
- Past Milwaukee outbreaks 1916 , 1936, 1978
- 1916 Chlorine shut off for a few hours, 50 deaths

CONSEQUENCES OF ILLNESS

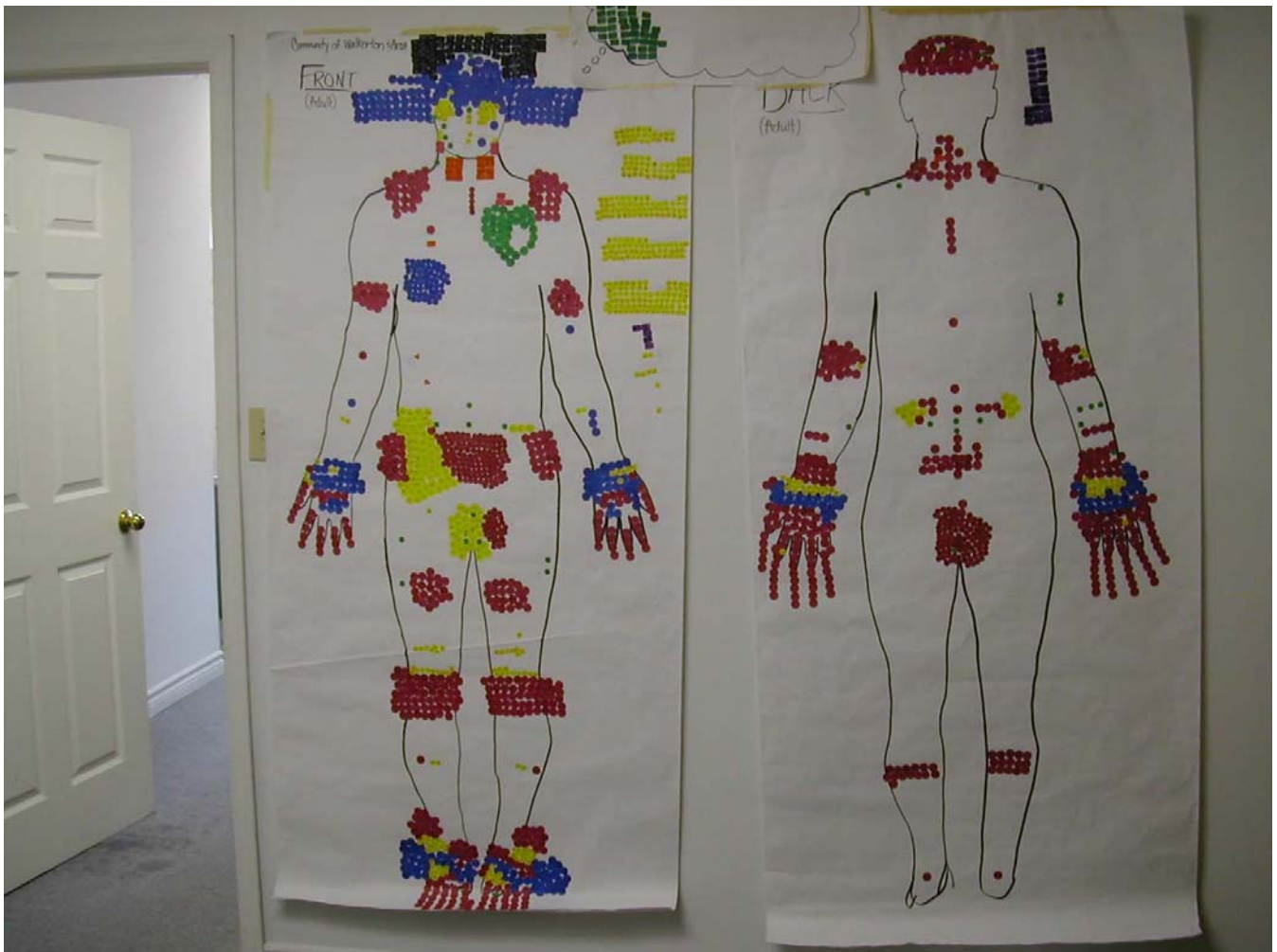
- Hemolytic Urea Syndrome
- Irritable Bowel Syndrome
- Reactive Arthritis
- Post Traumatic Stress Syndrome
- High blood Pressure
- Diabetes

Please indicate **current symptoms/conditions** using the index and diagram of the human body provided:

Index:
X = Pain
O = Condition
(diagnosed by doctor)
Δ = Dysfunction



Has a medical professional documented/indicated a relationship between your diagnosis and the 2000 water contamination exposure? (please circle appropriate) Y N





HOW CLOSE MUST ILLNESS COME BEFORE WE ACT?

- Woman with IBS.
- Man with reactive arthritis.
- Young boy with gout symptoms.
- Man with diabetes and high blood pressure.

