

WALKERTON  
A TRAGEDY  
A WARNING





# INTRODUCTION

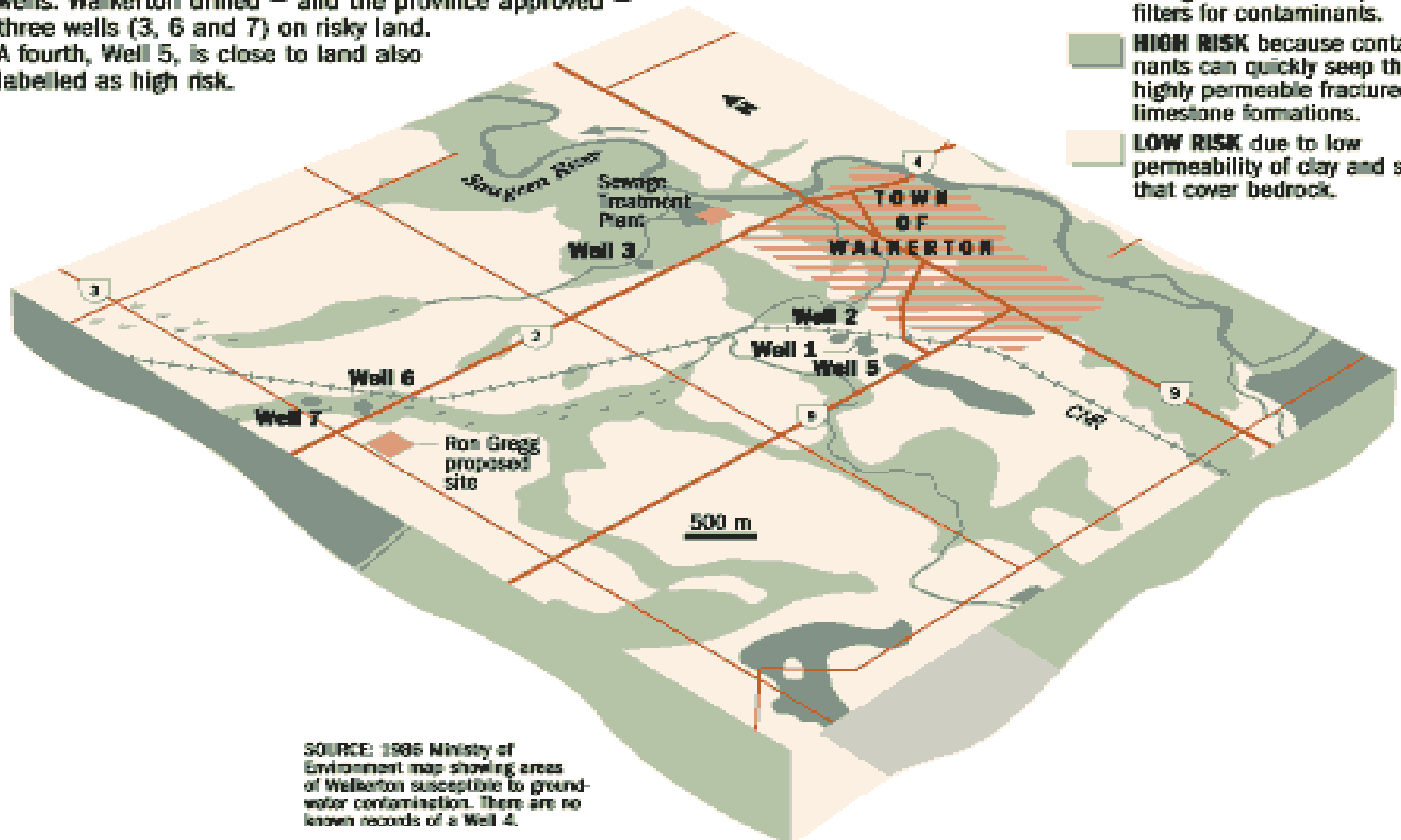
- Chronology of Events
- Defendants and Insurance Issues
- Resolution of the Class Action

# Where the wells were built

Certain types of land are at higher risk of groundwater contamination. The more permeable the ground, the more contaminants will enter the groundwater – and a town's wells. Walkerton drilled – and the province approved – three wells (3, 6 and 7) on risky land. A fourth, Well 5, is close to land also labelled as high risk.

## Risk of groundwater contamination

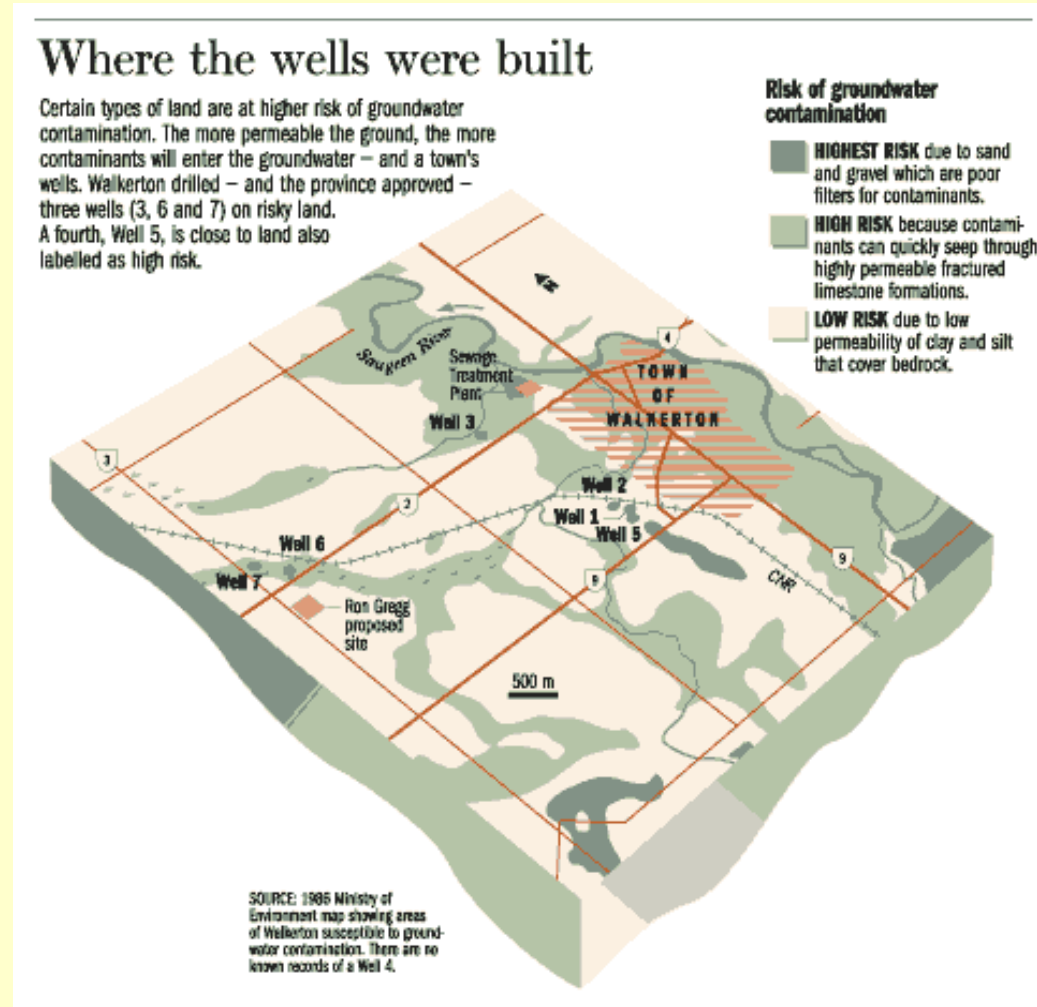
- HIGHEST RISK** due to sand and gravel which are poor filters for contaminants.
- HIGH RISK** because contaminants can quickly seep through highly permeable fractured limestone formations.
- LOW RISK** due to low permeability of clay and silt that cover bedrock.



SOURCE: 1995 Ministry of Environment map showing areas of Walkerton susceptible to groundwater contamination. There are no known records of a Well 4.

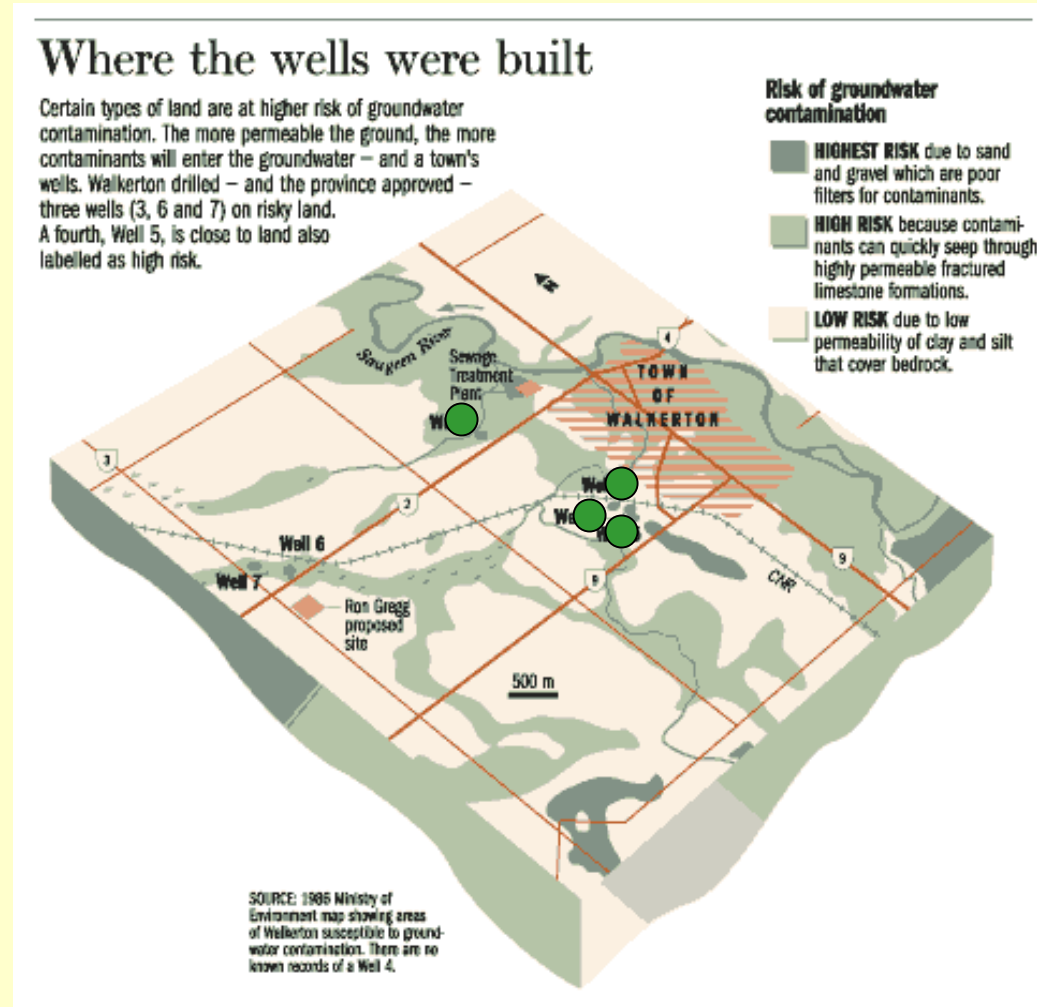
# BEFORE - 1978

- Water came from three wells built between 1949 & 1962.
- PUC got complaints about foul tasting water & rust stains on clothing.



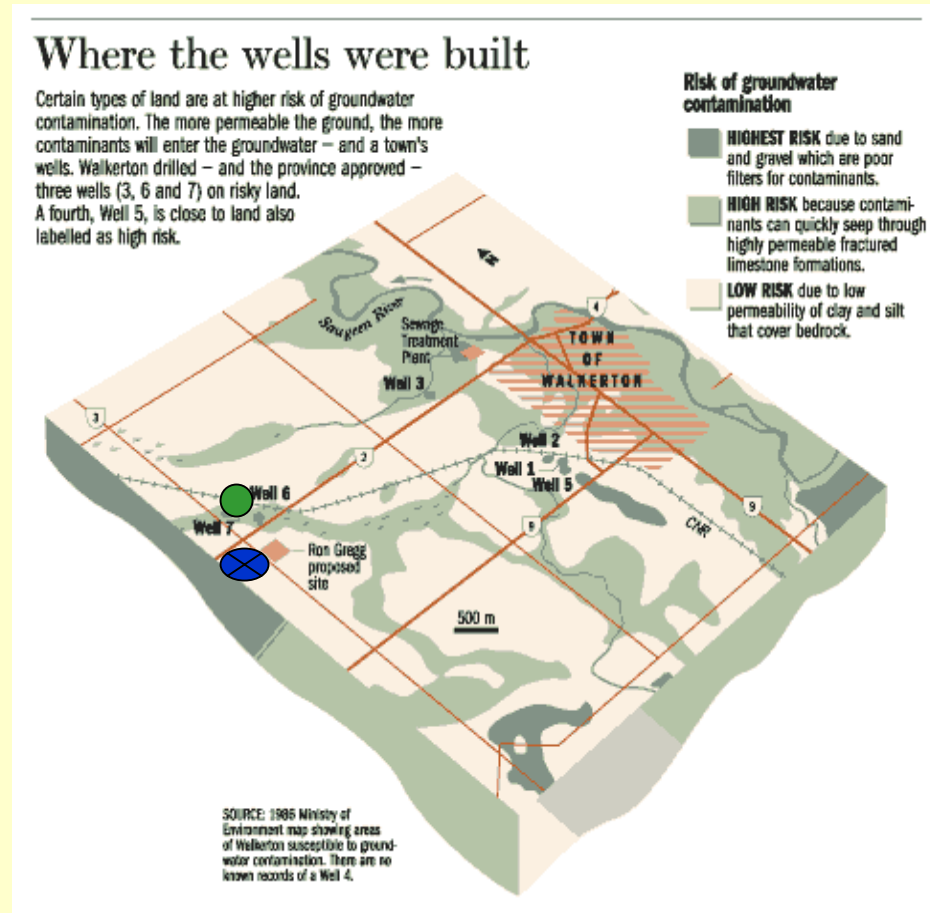
# THE BEGINNINGS - 1978

- 1978 - Well No. 5 is designed & built.
- Consultant recommends that adjacent farm land be purchased to control surface runoff.



# MORE WATER - 1982

- 1982 - Wells 1,2,3 & 5 are in use but, PUC is concerned about quality and quantity.
- Area NW of town believed to have a rich underground water source. Owner is Ron Gregg - pig and cattle farmer.
- Can't deal so PUC goes next door and gets a low-lying, marshy, narrow strip of land.
- Gregg complains.



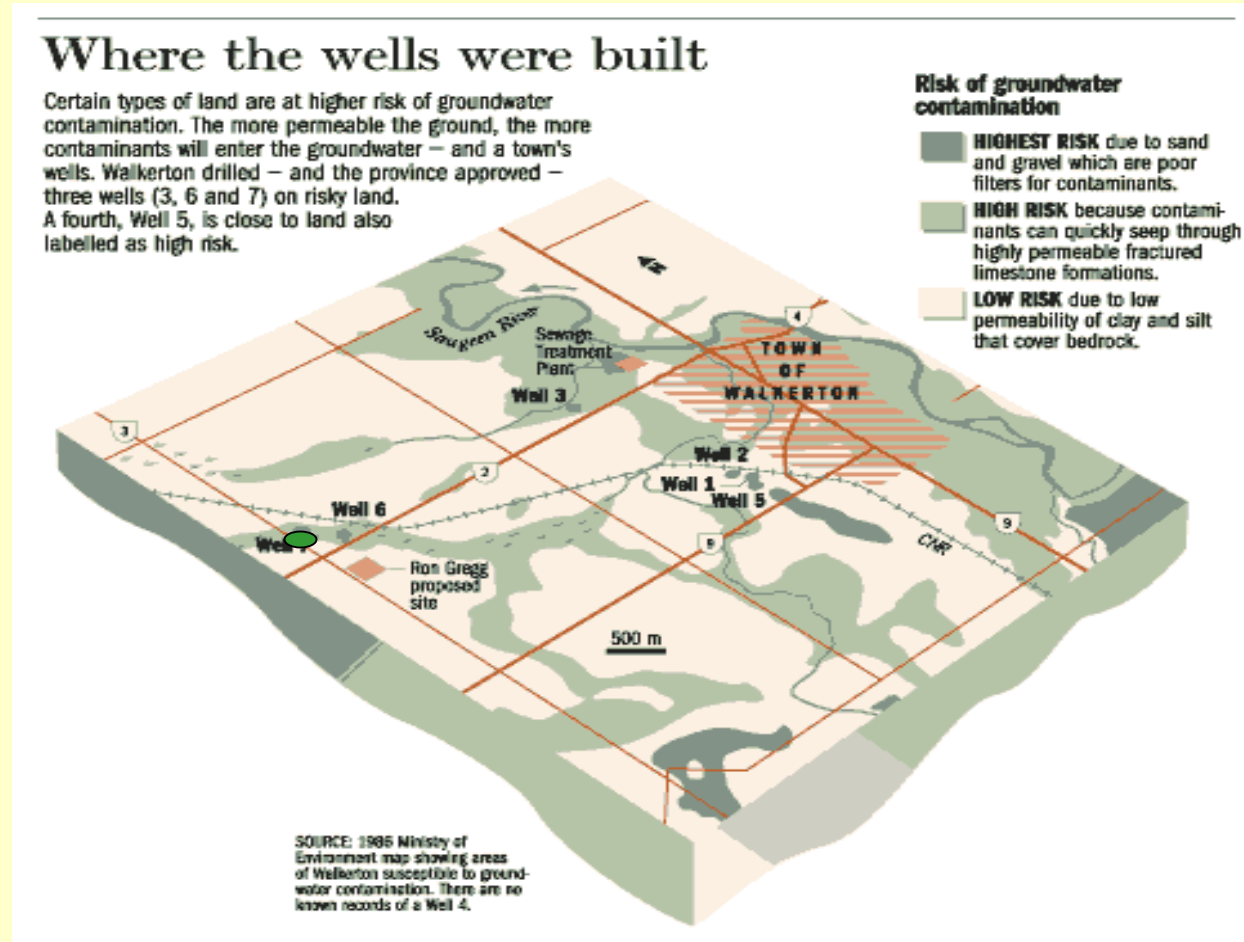
# MOE APPROVAL

- Meeting November 23, 1978.
- Concern re vulnerability from surface contamination.
- MOE officials agree that it is satisfactory if Walkerton PUC speaks to farmer about effect of activities on water supply.



# WELL, WELL, WELL

- 1979 - Well 5 is approved.
- 1982 - Well 6 is constructed.
- 1987 - Well 7 is developed in the same area as Well 6

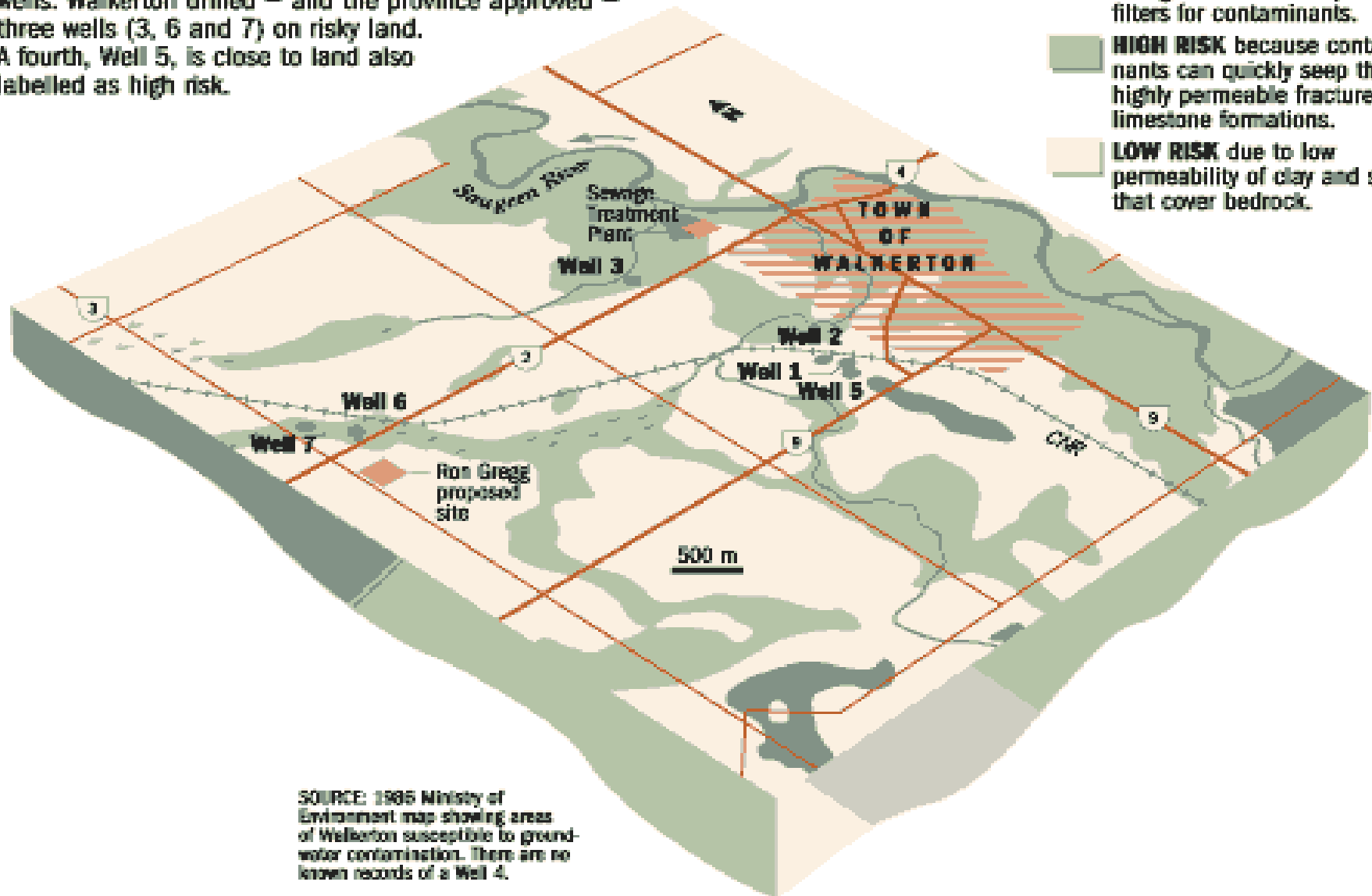


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# Walkerton's municipal wells

	Not in use at time of May, 2000 E. coli outbreak			In operation at time of outbreak		
	WELL 1	WELL 2	WELL 3	WELL 5	WELL 6	WELL 7
<b>Drilled</b>	1949	1952	1962	1978	1982	1987
<b>Depth</b>	76.5 metres	76.5 metres	27.4 metres	15 metres	72.2 metres	76.2 metres
<b>Volume</b>	90 litres/min.	n/a	900 litres/min.	1,360 litres/min.	1,272 litres/min.	3,400 litres/min.
<b>Water quality</b>	Poor tasting due to high mineral content.	Poor tasting due to high mineral content	Good	Very poor, sporadically showing high levels of bacteria, sometimes fecal.	Generally good, but evidence of occasional bacteria contamination.	Generally good, but testing of treated water after heavy rains in May, 2000 shows coliform and E. coli contamination.
<b>Problems</b>	Abandoned but not properly sealed. Holes in casing due to corrosion. Contaminated surface water may be filtering into aquifer.	Abandoned but not properly sealed. Contaminated surface water may be filtering into aquifer.	None, but does not provide enough water for continual use.	Surface material too thin to properly filter out bacteria. Contamination may also enter well through improperly sealed well shaft and nearby test well.	Drilled on land later identified by the environment ministry as high risk for contamination. When pumping, nearby springs and well run dry, indicating potentially contaminated water is being drawn into well. Unexplained holes in well casing where shallow water can enter.	Drilled on land already identified by the environment ministry as high risk for contamination. Faulty flap-gate valve and defective connection in outflow pipe may allow bacteria-filled marsh water to be drawn into well.

NOTE: No known records of a Well 4.

SOURCE: Golder Associates report

# THE MANAGER

- 1972 - starts with Walkerton PUC
- 1988 - Applies for position of PUC Manager and is successful
- 1988 - As Manager, he appoints his brother, already a Walkerton PUC employee to his old position, as foreman
- Both are grandfathered for licences

# TROUBLE BREWING

- Manager and brother carry on with poor operational practices including:
- Not maintaining required chlorine levels
- Not accurately recording chlorine levels
- Improper water sampling for testing
- No training

# MOE INSPECTIONS

- Every three years
- 1992, 1995, 1998
- 1992 - identifies sampling deficiencies
- 1995 - sampling deficiencies  
some coliforms and e. coli  
maintain minimum chlorine  
level

# 1998 MOE REPORT

- Again, inadequate chlorine levels
- No records of training as required
- Sampling requirements not met
- More tests revealing coliforms and e. coli - indicator of unsafe water

# WALKERTON HAS A LOOK

- Town council debates a newspaper article regarding MOE report on water systems in Ontario
- 1998 MOE Report is debated
- Walkerton tells ministry it will properly chlorinate water, conduct frequent tests and seek staff training.
- Council is led to believe that the Manager has responded to all issues.



# DOWNLOADING

- 1996 - Province stops testing water samples and private labs take over.
- 1996 - Government grants for water upgrades end.
- GAP EnviroMicrobial - an accredited lab starts testing Walkerton water.

# BROCKTON CREATED



- January 1, 1999 - Brockton created from amalgamation of three municipalities

# NEW KID IN TOWN

- Walkerton PUC carries on with operation of waterworks
- October 1999- Walkerton PUC makes a presentation to Council and resolution passed for it to carry on with operation of waterworks

# PROBLEMS DEVELOP

- April 2000 - GAP advises it will no longer test water effective May 1, 2000
- GAP automatically sent adverse samples to MOE as required by MOE
- MOE usually sent these to Health Unit also



# PROBLEMS DEVELOP

- The Manager retains another Lab for water sample testing
- The new Lab does not know that adverse samples are to be sent to MOE
- April 3, 2000 samples from Well 5 have coliforms - sign of unsafe drinking water

# SYSTEM BREAKDOWN

- GAP sends sample to MOE
- MOE does not realize that two samples indicate unsafe drinking water
- MOE does not fax the results to Health Unit
- April 17, 2000 samples from Well 5 contain coliform
- MOE does not notify Health Unit

# MAY 2000 - THE OUTBREAK

- May 1, 2000 - samples taken on Monday as usual
- Same day the Manager faxes clear sample results of April 24, 2000 to MOE
- May 3, 2000 - Manager directs his employees to remove the chlorinator from Well 7 to install new one - new one not installed until noon May 19, 2000

# THE CONTAMINATION

- May 5, 2000- The new Lab faxes test reports to PUC, but not MOE, showing raw and treated water samples from Well 5 have coliforms
- Same day Manager leaves for holiday and attendance at Ontario Municipal Water Association conference to return on May 14, 2000



# RAINSTORM

- Very heavy rain falls from May 9 to 12, 2000
- Storm peaks with massive rainfall at night on May 12, 2000 causing extensive flooding

# TENSION BUILDS

- May 15, 2000 - The Manager returns to work and sees that Well 7 is not operating
- Manager turns this well on even though he learns later that day that it does not have a chlorinator
- Well 7 is supplying all of the water at this point
- Samples are taken as usual that day

# THE FATAL FACTS (FAX?)

- May 17, 2000 - PUC receives telephone call and fax from Lab.
- May 15th samples from system contain e. coli and coliforms
- Manager says he did not see fax until Saturday, May 20, 2000

# SUSPICIONS AROUSED

- May 19, 2000 - A doctor becomes concerned about symptoms several children are experiencing
- Doctor notifies the Health Unit at 9:00 a.m.
- About 2:00 p.m. Unit calls PUC Manager - he says water system okay, but will flush and chlorinate over weekend

# SUSPICIONS AROUSED

- May 19, 2000 - PUC Manager is called a second time that day by the Health Unit and gives the same answer
- At 5:30 Manager starts flushing the system and continues on Saturday, May 20th.

# HEALTH UNIT INVESTIGATES

- Saturday, May 20, 2000 - PUC Manager is contacted by Spills Action Centre of MOE, but does not disclose adverse results
- Health Unit takes its own water samples

# BOIL WATER ADVISORY

- Sunday, May 21, 2000 - Dr. McQuigge issues the advisory by radio at 1:30 p.m.
- Health Unit takes further samples and drives them to London for testing
- May 23, 2000 - Lab confirms e. coli in water samples from Walkerton
- Manager is confronted again and finally admits to knowing of problem.

# WATER IN A BOTTLE



- Walkerton citizens line up for bottled water



# MAYOR DAVID THOMSON



- He and his council had no idea that there was anything wrong

# DR. MURRAY MCQUIGGE



- He decided to issue the boil water advisory
- He has been called a hero

# WHAT CAUSED THE OUTBREAK?



It all seems so simple now.

# INVESTIGATIONS

- TWO KEY REPORTS
- Health Unit study
- B. M. Ross engineering study

# HEALTH UNIT REPORT

- The peak period of exposure to e. coli was May 13 to 16, 2000.
- Unusually heavy rains occurred on Friday May 12th, resulting in flooding
- Well 5 was shallow and subject to surface water contamination
- E. coli O157:H7 in the cattle herd in the adjacent farm

# B. M. ROSS REPORT

- Significant contamination of the water supply occurred between May 8 and 15, 2000
- Contaminants entering Well 5 overwhelmed the chlorination system
- Effectiveness of chlorination at Well 5 may have been reduced by excessive turbidity

# B.M. ROSS REPORT

- Operation of Well 7 without chlorination further reduced the chlorine residual in the system and possibly no chlorine
- Excessive rainfall of May 9 to 12, 2000 caused E. coli in cattle manure to enter Well 5
- Very low chlorine residual in the system resulted in the outbreak

# RESOLUTION

Settlement of the Class Action



# Walkerton Class Action

- \$300 million claimed
- Approximately 5000 claimants
- Defendants - Walkerton PUC, Manager, Province, Brockton, Health Unit
- Eventually 9 Third Parties added including engineers, well driller, labs and farmer

# Steps in Action

- Motion for certification
- Examinations
- Trial
- Certification motion was focus of all parties
- Judge Winkler involved from start

# SETTLEMENT DISCUSSIONS

- Judge Winkler mediated
- Focus on incorporating Province's Plan into Class Action to be paid for by Province
- Key issue was contribution by other parties other than Province

# SUCCESS!

- Judge Winkler convinces Province to accept \$22 million from other parties
- Third Parties are told to come up with \$1 million
- Walkerton PUC, Brockton and Health Unit insurers fund the balance
- Still required final approval by Province and details to finalize

# Walkerton Victims Compensated



- Settlement announced in court and at press conference on February 2, 2001
- Still required a fairness hearing and court approval

# COURT APPROVES DEAL

- Chief Justice LeSage conducts fairness hearing in Walkerton on March 19, 2001
- Only four objections filed
- Approved by court as “best possible result ... of the terrible tragedy that has befallen the citizens of Walkerton”

# POST LOSS ANALYSIS

- May 2000 - the outbreak
- February 2, 2001 - settlement, less than nine months later
- No-fault plan
- Same compensation as in courts
- Individual assessments
- Minimum payment of \$2,000 for each victim

# POST LOSS ANALYSIS

- No cap on claims
- Legal fees paid
- Can return for further compensation in future



# SOME LESSONS LEARNED

- Practices & Procedures
- Hiring Practices
- Training
- Nepotism Unchecked
- Technical vs Capable
- Honesty & Integrity
- Documentation

# FOOTNOTES

- Judge Winkler, parties, lawyers and insurers had to overcome many obstacles and take a leap of faith
- Credit to court system and insurance industry

The End - Thanks

