



# Challenges and Opportunities in the Operation of Small Drinking Water Systems

Gander, September 21, 2004

Wayne Stiver, Peterborough Utilities

# Setting the Stage



- ✓ **A Public Utility since 1902**
- ✓ **Member of AWWA since 1911**
- ✓ **AWWARF member since 1986**
- ✓ **Employee services now contracted to PUC**
- ✓ **Conventional Surface WTP**
- ✓ **Operate adjacent water & wastewater systems under contract**

**“The goal of any drinking water system should be to deliver water with a level of risk that is so negligible that a reasonable and informed person would feel safe drinking it.”**



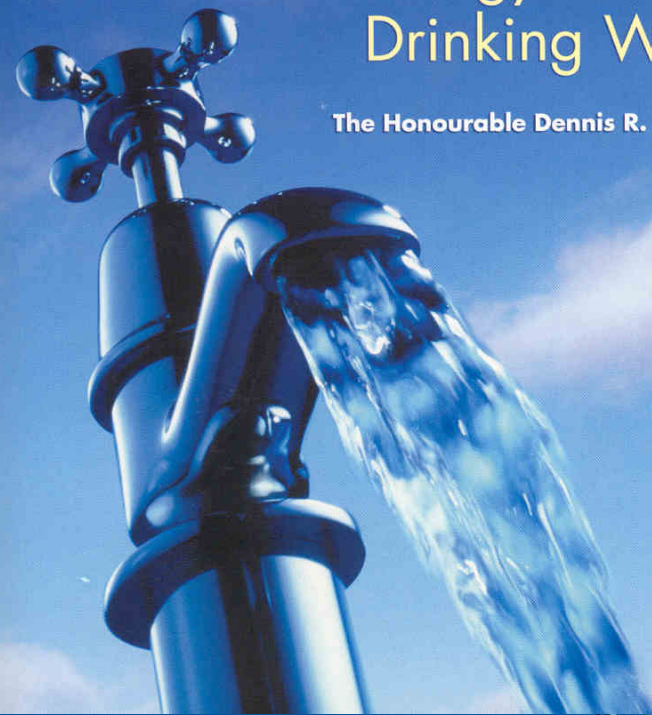
Walkerton Report Part 2, Page 74

PART TWO

# REPORT OF THE WALKERTON INQUIRY

A Strategy for Safe  
Drinking Water

The Honourable Dennis R. O'Connor



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# Areas of Discussion

## *Challenges & Opportunities...*

**Structure & Governance**

**Management**

**Financial Considerations**

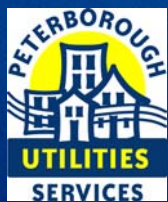
**Operational Issues**

**Human Resources**



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# Structure & Governance



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# Structure & Governance

- 💧 **Traditionally water & wastewater services have been *out of sight, out of mind***
- 💧 **Requirement to have a transparent, accountable municipal system**
- 💧 **Legislation is complex**
- 💧 **Penalties can be severe**



# Structure & Governance

- More governance knowledge expected than ever before

Standard of Care requirements

Cannot contract owner-liability

Focused governance

Not good enough to be financial stewards

Able to rely on “experts”

Must ask the tough questions



# Structure & Governance

- 💧 **How big is big enough?**
- 💧 **Consolidation or regionalization**
- 💧 **In-house expertise vs. consultant**
- 💧 **Electric deregulation in Ontario had major impact for water restructuring**
- 💧 ***“Why would anyone want to run for municipal office?”***





# Structure & Governance

## Summary of Options for Municipal Water Systems

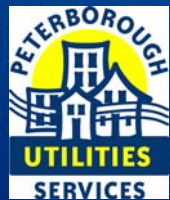
### Operating Agency

### Options

- |                                      |                                                                                      |                                         |
|--------------------------------------|--------------------------------------------------------------------------------------|-----------------------------------------|
| <b>1. Municipal operating agency</b> |    | <b>a. Municipal department</b>          |
|                                      |                                                                                      | <b>b. Public utilities commission</b>   |
|                                      |                                                                                      | <b>c. Municipally owned corporation</b> |
| <b>2. Regional water provider</b>    |   | <b>a. Regional governments</b>          |
|                                      |                                                                                      | <b>b. Intermunicipal agreements</b>     |
| <b>3. External operating agency</b>  |  | <b>a. Ontario Clean Water Agency</b>    |
|                                      |                                                                                      | <b>b. Another municipality</b>          |
|                                      |                                                                                      | <b>c. Private operating agency</b>      |



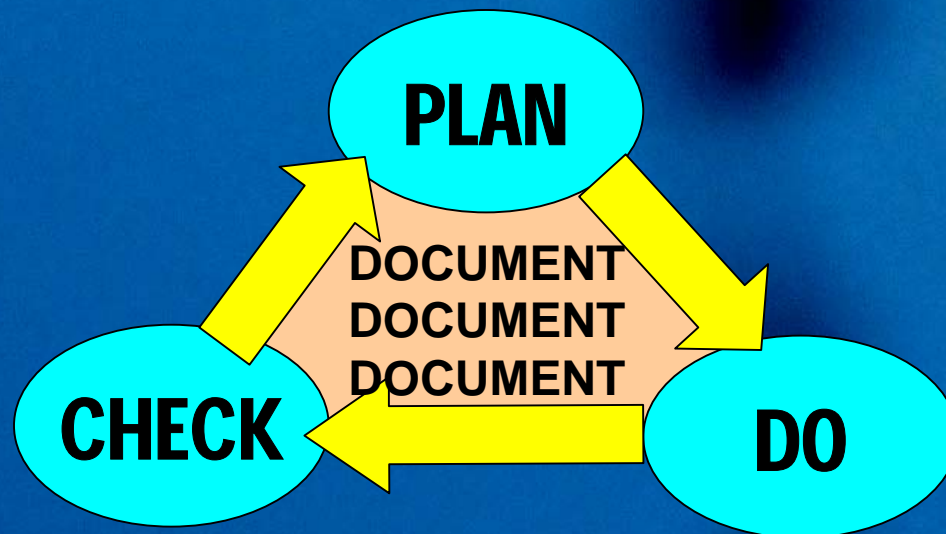
# Management



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# Management

- Movement to have everything more formalized



...and audited!



# Management

Regulatory Knowledge

Inspector Requirement

Potential for  
Regulatory Non-  
Compliance

Time →

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# Management

- Customer confidence in your product



- Transparency vs. security
- Privacy information (PIPEDA)

# Management

## 💧 **Get to know the players**

Medical Officer of Health

Regulators

Laboratory

Special-needs Customers

Conservation Authorities

Building Officials

Economic & Land-use Planners

Clients



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# Management

## 💧 Emergency and contingency planning

Substance in drinking water

### Water once again proven safe

By JOËLLE KOVACH  
Examiner Staff Writer

The drinking water has been given a final clean bill of health.

Peterborough County-City Health Unit spokesman Tom Cathcart said yesterday that tests showing high levels of a cancer-causing chemical in the drinking water last week were wrong.

Final testing done by the Min-

istry of the Environment (MOE) have come back clean, he said.

"We're very satisfied with these results," he said.

On April 28, the health unit reported high levels of N-nitrosodimethylamine, or NDMA, in the drinking water in both Peterborough and Lakefield.

The chemical has caused cancer in laboratory animals.

Follow-up samples were sent to laboratories in Toronto and Waterloo May 1. Results showed traces of the chemical, or none at all.

Cathcart said samples were taken again Monday and Tuesday by the MOE and analysed at the provincial labs in Etobicoke.

Some showed no detectable levels of NDMA, Cathcart said. Others had 1.6 parts per trillion (ppt), far

less than the nine ppt considered safe by the MOE. The original tests showed 120 to 180 ppt.

Last week Peterborough Utilities Services president Bob Lake said there was reason to believe the first test results were faulty.

They had been taken by the PUS and analysed locally.

He was unavailable for comment last night.

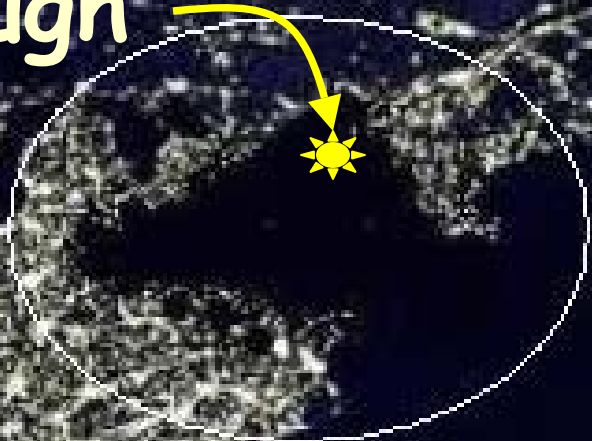
### Boiling won't cure what's in water



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Peterborough



August 14, 2003

GeoStar 45





July 15, 2004



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# Management

- 💧 **Sustainability of infrastructure**
- 💧 **Source water protection**



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# Management

- ◆ **Regulatory knowledge**
- ◆ **Have to meet the developing “Quality Management Standards”**
- ◆ **Operating authority accreditation**
- ◆ **Benchmarking with caution**
- ◆ **Established roles & responsibilities**
- ◆ **Top-level support**



# Management

- ◆ **Operational Plan will look at operating authority's corporate and operational systems (management strategies)**

Focus on multi-barriers and continuous improvement

“Made in Ontario” quasi-HACCP/ISO hybrid

Piloting just started



# Management

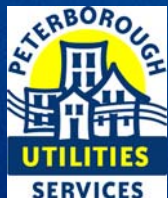
- 💧 **Get the good news out!**
- 💧 **Focus on customers**
- 💧 **Focus on proactive, not reactive**
- 💧 **Partner with industry associations and others**



Peterborough Children's  
Water Festival

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# Financial Considerations



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# Financial Considerations

- **Drinking water has historically been undervalued**
- **Still difficult to get even modest water rate increases**
- **Rate impacts from regulations**
- **Best practices vs. meeting regulations**



# Financial Considerations

- 💧 Funding source water protection and other new ventures
- 💧 Grants?
- 💧 Rate structure and metering
- 💧 Other fees and charges
- 💧 Uniform method of accounting



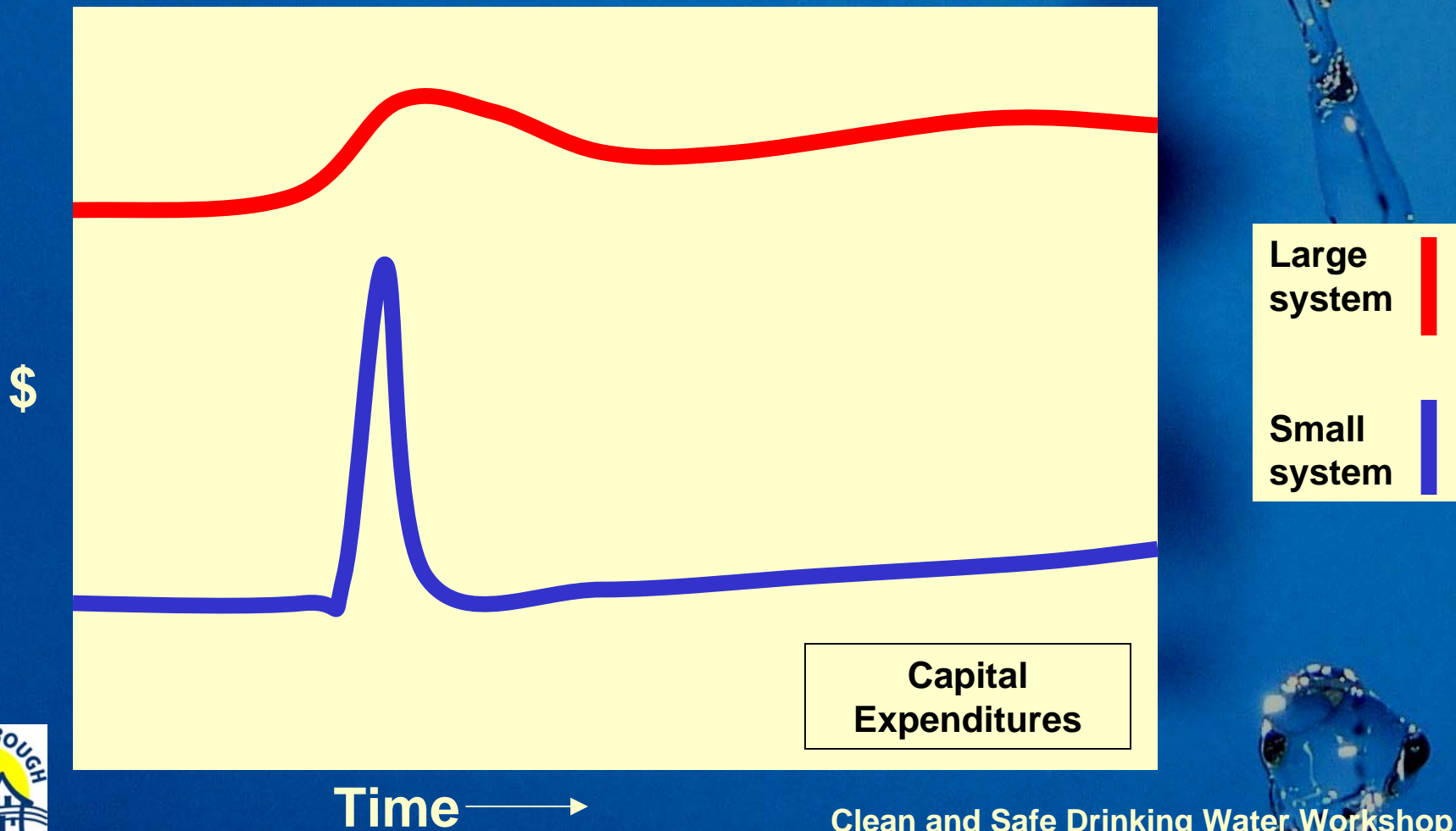


# Financial Considerations

- 💧 **Asset inventory is key**
- 💧 **Develop a capital infrastructure management plan**
- 💧 **Long-range forecasting and service levels**
- 💧 **Know your “full” costs**
- 💧 **Dedicated revenues and reserves**



# Financial Considerations



# Operational Issues



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# Operational Issues

- ◆ **Multi-barrier approach**
- ◆ **As water science improves, challenges will increase**
- ◆ **Redundancy of system**
- ◆ **Redundancy of human resources**
- ◆ **Use of technology for reliability, redundancy or cost reduction**



# Operational Issues

- 💧 **Review operational changes**
- 💧 **Balance water demand and water quality**
- 💧 **Have a complete and up-to-date O&M manual**
- 💧 **Exercise your Emergency Plan**
- 💧 **POU devices**
- 💧 **Pay close attention to records**



# Operational Issues

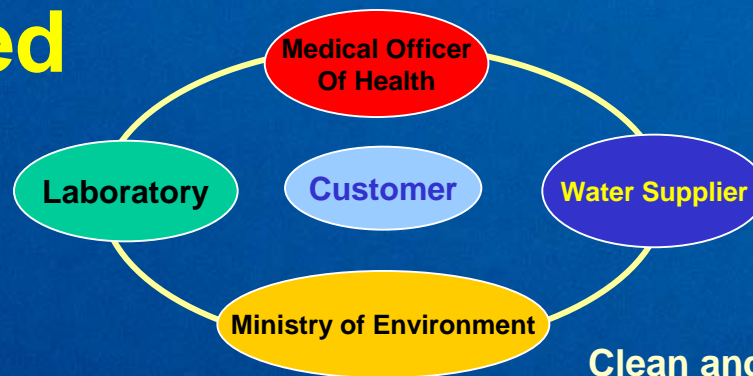
- Have established procedures for dealing with adverse water quality reports



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# Operational Issues

- 💧 The system IS working!
- 💧 January 1, 2003
- 💧 1 E.coli on P.E. with 1.8 mg/L free  $\text{Cl}_2$
- 💧 All parties alerted and knowledgeable
- 💧 Established procedures known & followed



# Operational Issues

- **Ministry inspections go well beyond treatment**
- **Look at source water, distribution system, management, best practices**
- **Assign knowledgeable supervisory staff for inspections**

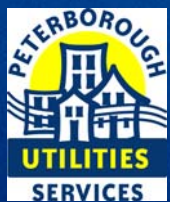


# Operational Issues

- 💧 **Be prepared for unannounced inspections**
- 💧 **Compliance issues vs. recommendations**
- 💧 **Know the difference between inspections and investigations**



# Human Resources



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# Human Resources

- There is already a shortage of operators and it will get worse
- Consider developing operators (apprentice program)
- Elimination of “grandparented” licence
- Mandatory “entry-level” training course



# Human Resources

- **Training changes...moving to CEU-based**
- **Renewal of operator licence will require training CEU's**
- **Individual training needs assessments**
- **Quality training – online, correspondence, etc**



# Human Resources

- 💧 **Most training focused on passing exams for licences**
- 💧 **More health-risk training**
- 💧 **More regulatory training**
- 💧 **Training efforts should be industry-coordinated**




# Human Resources

- 💧 **Province will be more active in training development and curriculum**
- 💧 **More operator “musical chairs”**



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A scenic view of a lake with autumn foliage and buildings in the background. The water is calm, reflecting the sky and the surrounding trees. On the right side, there is a stone wall and a cluster of trees with vibrant yellow and orange leaves. In the distance, a large white building with a glass facade and a smaller red building with a steeple are visible across the water. The sky is a pale, hazy blue.

**Thanks for the  
invitation to Gander!**

**Questions...**