



## Turbidity – Gastroenteritis Link

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A statistically significant relationship between turbidity and endemic gastroenteritis has been found in the Greater Vancouver Regional District's unfiltered surface water supply. Endemic means that the events are common and/or widespread.

The relationships were strongest among the young and elders, both groups being more susceptible to disease.

Four prominent lag times were observed, that is the time between infection and the first sign of disease. These lag times were 3 to 6 days, 6 to 9 days, 12 to 16 days and 21 to 29 days.

These times correspond to the incubation periods of common waterborne bacterial and protozoal gastroenteritis-causing organisms. Further, they are consistent with the findings of related research carried out across North America.

They support several water supply management beliefs:

1. Significant levels of endemic gastroenteritis events are potentially waterborne;

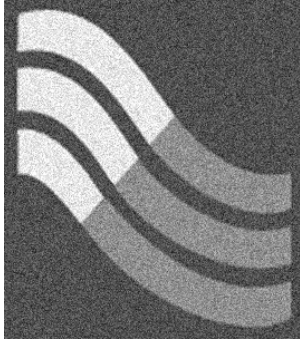
2. Watershed protection together with chlorination may not adequately protect against waterborne transmission of enteric pathogens; and
3. Turbidity is a valuable indicator of water quality.

While the researchers will caution against over-interpretation of the findings because of limitations in data sources and analytical methods, their report adds to the growing body of consistent findings in this area.

In the early 1990s Health Canada began a movement toward reduced turbidity guidelines in the Drinking Water Guidelines. The Maximum Acceptable Concentration and Aesthetic Objective remain as they were at 1 NTU and 5 NTU, respectively.

Many unfiltered surface water supplies in the North often exceed these NTU values. The Department of Health will accept a water supply of 5 NTU, provided that disinfection is not compromised.

This new report will add to the pressure already on communities to add filtration to their water systems.



## NTWWA Newsletter

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### Office

NTWWA Water and Waste Association  
#5 4807 49th Street  
Yellowknife, NT  
X1A 3T5  
Fax: 403 873 4058  
WebPage [www.ntwwa.com](http://www.ntwwa.com)

Office Manager: Pearl Benyk

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## Consultants and Contractors

### FERGUSON SIMEK CLARK

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**Ron Kent, P. Eng.**

Head, Environment Department

4910 53 Street, P.O. Box 1777,  
Yellowknife, NT Canada X1A 2P4  
Tel: (867) 920-2882  
Fax: (867) 920-4319  
email: [ron@fsc.ca](mailto:ron@fsc.ca)  
Website: <http://www.fsc.ca>



5010 - 43 Avenue  
P.O. Box 210  
Calmar, Alberta Canada  
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**SCOTT P. SMITH**  
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# Conference 2000 Report

By Richard Cook, Secretary/Treasurer

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“Celebrating Our Diversity” was the theme to grace this year’s conference and AGM. An appropriate title for an NTWWA conference, when one considers that our membership spans two territories that equal approximately one-third the landmass of Canada. The diversity across the North (the geography, climate and cultures) is unbelievable!

Of course, these differences affect how we do our jobs, namely, the design, operation and maintenance of public infrastructure and services. Or more simply put: water and waste. This is one of the reasons our conferences are so interesting.

The problems (or more politically correct: CHALLENGES) that each of us face can differ quite a bit with each location. That’s what we’re talking about when we say “diversity”.

Having said how different everything is across the north, there are a lot of common *challenges* that we all face.

One example illustrating the value of information exchange in a venue such as the NTWWA’s training courses and conference was Kojo Kumi’s presentation this year on larval infestation of a water supply in the Kitikmeot.

After the presentation, Don Forsyth from Rankin commented that they encountered an identical seemingly unlikely problem in the Kivalliq region.

After that *little* ramble, I should say something about this year’s conference. Well, in short, it

was a good time. Ron Kent and Pearl Benyk did an excellent job of organizing presentations and taking care of the million little details in organizing the facilities, food, registration, etc.

Scott Smith of Urecon Insulation deserves big thanks for organizing our first ever “official” trade show, for which we had a sell-out of the eight designated booths.

Thanks also to all the companies that participated in the trade show and showed their support to the NTWWA. Some of these exhibitors are well known (at least by telephone or fax correspondence) to many of the association’s members.

We were honoured to have Ted Gillespie, P. Eng, Past President of CWWA, attend our conference and write such a glowing report in the CWWA Newsletter.

In summary, here are some of the highlights of this year’s conference:

1. First ever trade show. Cool stuff;
2. A record attendance at the conference of 75. Lots of familiar faces again but it was great to see some new ones;
3. The very professional and informative presentations by all the presenters. It is these people who make the conference such a success; and
4. The informal “jam session” and sing-along in the restaurant after dinner on Saturday night.

# ***Proudly Announcing!***

Our New! Improved! Expanded! Updated!

## Webpage

That's right. Come visit us anytime at

[www.ntwwa.com](http://www.ntwwa.com)

There's lots of features on the new site including:

- Downloadable versions of past and current Full Cycle newsletters;
- Reports on Annual General Meetings;
- Downloadable version of all our very best forms;
- You can directly register your CEU's;
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- You can get all the information on our voluntary certification program and on the national reciprocity agreement; plus
- Links to useful sites.

And, it's real classy looking, too.

The site was designed and programmed under the watchful eye of Bob Nardi of Hyperborean Marketing Ltd. in Whitehorse. Thanks, Bob.

Say, after you've had a chance to view the site, just click on "Contact NTWWA" and tell us what you think.

## Proposed Revisions to the Nunavut Water Board Municipal Effluent Guidelines

by Dionne Filiatraut, P. Eng., Technical Advisor, Nunavut Water Board

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In 1980, the NWT Water Board commissioned a study that led to the development of guidelines for the discharge of municipal wastewater. The resulting guidelines, *Guidelines for the Discharge of Treated Municipal Wastewater in the Northwest Territories*, published in 1981, were designed to consider the assimilative capacity of each of the unique northern environments, the treatment capability of the preferred sewage treatment method – a single cell annual discharge lagoon, and the unique wastewater quality generated by NWT communities.

In 1992, revised guidelines were published to update effluent quality criteria including the replacement of total coliform with faecal coliform as a discharge parameter, establish winter and summer discharge criteria, and add a requirement for proper operation and maintenance plans for all waste facilities.

In 1996, the Nunavut Water Board established and adopted the NWT Water Board's municipal effluent guidelines. Several concerns have been raised by the NWB in applying the guidelines in Nunavut. These include:

- ❑ Addressing effluent discharges from large and small camps;
- ❑ Addressing wetlands, and options to effectively regulate such discharges;
- ❑ Addressing mechanical systems and other systems that may be used in Nunavut;
- ❑ The treatment, handling, and disposal of sludge from mechanical systems;
- ❑ Establishment of minimum monitoring standards;
- ❑ Issues of chlorination and disinfection of effluents; and
- ❑ Outlining the conditions for secondary effluent standards.

The previous guidelines, and now the proposed revisions, recognize the conflict between what is

achievable and what is desired. The approach taken here strives for a reasonable balance.

The NWT Water Board's effluent guidelines, upon which Nunavut's are based, continue to stand the test of time and while some localized effects may be present in some areas, generally, no receiving environment has been polluted beyond mitigation as a result of their application. Neither has there been any public health threats from upstream discharges.

Increasing the stringency of effluent quality is, therefore, seen as an investment with a diminishing return at this time.

As Nunavut grows, so does its economic base. Such growth increases the potential for industrial and commercial wastewater discharges to Nunavut's municipal systems. The current municipal systems are designed to treat only domestic (carbon based) wastewater. Uncontrolled industrial or commercial discharges have a significant impact on municipal systems and the potential to create a toxic waste site at the sewage lagoon is great. The creation of such a toxic waste site will be an unwelcome economic hardship for Nunavut in the future..

In addition to addressing those specific areas in the project outline, the revisions to these guidelines address the quality of the untreated wastewater entering the treatment process, the accumulation of contaminants in treatment residuals (sludges), and the treatment and disposal of sludges. This important next step of prevention is good science, good government, and focuses directly on protecting the public's purse for now, and for the future.

The Nunavut Water Board wishes to consult on the proposed revisions to these guidelines. People or organizations wishing to see the proposed revisions should contact Dionne Filiatraut, P. Eng.

## A Report on the Activities of CWWA

Robert Phillips, CPHI(C) Health Officer, Kitikmeot Health & Social Services

This issue the CWWA report is a message from Doug Scott, President.

### Strategic Issues for the Municipal Water and Wastewater Sector, 2001

As we enter the first year of the new Millennium (correct accounting), I think it appropriate that members of the municipal water and wastewater sector consider the top eight strategic issues that the Association has identified as being most likely to impact the sector over the coming year and years. The issues which will focus CWWA activities, are:

1. **Drinking water quality standards:** the *Canadian Guidelines for Drinking Water Quality* will be both tightened and become mandatory in more provinces and territories;
2. **Water discharge quality standards:** guidelines for the discharge of waters into the environment (storm and sanitary effluents) as published by CCME will be both tightened and expanded to cover more parameters and become mandatory in more provinces and territories for both saline and fresh water receiving bodies - there will be increasing pressure to disallow "mixing zones" for effluent discharges;
3. **Agricultural uses of biosolids:** will come under increasing scrutiny both as to the standards for the biosolids' qualities and the practices and liabilities of applying them outside the source municipality's territory
4. **Watershed protection:** the federal and provincial / territorial governments will become more active and demanding in programs and regulations protecting watersheds and groundwater recharge areas from contamination from all sources - industrial and agricultural;
5. **Pollution prevention programs:** municipal wastewater activities particularly, but also water activities, will be subject to greater expectations of involvement in pollution prevention activities and will have to become more active in this field - international, national and provincial/ territorial requirements for elimination of the use of toxic chemicals and for the elimination of toxic discharges will require municipalities to work with their local industry and commercial sectors on pollution prevention programs - these include National Pollutant Release Inventory Reporting and Priority Substances List evaluations and management strategies;
6. **Water and wastewater operator standards:** expect the requirements for training, education and certification standards for water and wastewater operators to become more demanding and mandatory as public attention focusses on this issue with the additional possibility that there may be demands to declare these essential services to adequately protect human health and the environment during labour interruptions;
7. **Financing infrastructure improvements:** major investments in infrastructure will be required over the coming decade that will be hard to finance - federal/provincial infrastructure programs will be inadequate and in any case conflict with the policy of encouraging full cost pricing of municipal services which in many cases are limited by provincial/territorial legislation governing municipalities; and
8. **Sustainable community initiatives:** will demand a review of the water and wastewater treatment, distribution and collection systems and practices (use of chemicals, water loss, energy requirements, etc.) and may spark a debate on the advantages and disadvantages of central vs. decentralized operations.

Should you have any questions of me. I can be reached at (867) 983-7345 or by e-mail at [rphillips@gov.nu.ca](mailto:rphillips@gov.nu.ca).

## Mixing Zones

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Polling results recently released by Health Canada indicate that in late July, 2000 there was continuing concern for environmental health issues with shifts in priority for some individual issues. The poll (taken after, but apparently not because of Walkerton) was based on telephone interviews of 1508 Canadians. Results indicate that the top 10 "high health risks" in order of concern (with the 1992 ranking in brackets) were:

- |                           |                         |
|---------------------------|-------------------------|
| 1. Cigarette smoking (1)  | 6. Ozone depletion (2)  |
| 2. Street drugs (3)       | 7. Stress (4)           |
| 3. AIDS (7)               | 8. Sun tanning (6)      |
| 4. Pesticides in food (8) | 9. Bacteria in food (5) |
| 5. Crime and violence (5) | 10. Food irradiation    |

The survey also suggests that Canadians support government efforts to research toxic chemicals and to develop legislation to protect the environment and human health. The poll indicates that 85 percent of Canadians agreed that not enough is being done to protect the environment or people, but only one third of those polled agreed that current regulations are strict enough. Two in five respondents expressed concern for water pollution as a source of environmental health risk..

The poll suggests support for government funding of research on toxins is almost unanimous in Canada, with 96 percent agreeing that the government has a public obligation to conduct research on toxic substances and their effects, although of those who felt that more research was needed, one third also felt

that it did not result in stricter regulations - so why bother! Nine out of ten people also agreed that research is necessary in order to pass appropriate legislation.

With such widespread support for environmental health initiatives (including the scepticism for the effectiveness of regulations), it can be expected that the federal government will increase research into the health and environmental impacts of pollution and consider stricter regulatory approaches.

This could have a profound impact on water and wastewater facilities, since treatment processes result in considerable releases of contaminants/chemicals to air and water and, through biosolids, to land.

Also of note, the United States Environmental Protection Agency has issued a final rule banning the discharge of most toxic chemicals through the practice of "mixing zones." The theory has been that the dilution of the chemicals in surrounding waters justifies less protective dumping standards within the zone. However, the EPA has rejected this theory and releases will be restricted regardless of the size and nature of the receiving body.

If Canada follows as could be expected, water and wastewater facilities could find it even more difficult to meet current and future environmental requirements. It is noted that both the NWT and Nunavut Water Board Guidelines base their effluent quality criteria on using a mixing zone.

## Bioavailability of Aluminum in Alum-Treated Drinking Water.

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Several years ago, the word was stunned by a report that the aluminum remaining in alum-treated water when straight to the brain, potentially contributing to Alzheimer's disease. At the end, it turned out this report was based on some questionable research. When the dust finally settled, no regulations were imposed, however, people's fears remained. Research continued.

Recently, a more realistic study involved 29 healthy volunteers who consumed regular food and water. In

past studies, the food and drink was spiked with aluminum. The researchers found that only 1% to 2% of a person's daily intake of aluminum came from alum-treated water and, of that, only 0.3% to 0.4% was absorbed by the body. At the worst, that's 0.4% of 2% or 0.0005%.

The researchers conclude that in healthy people, the uptake of aluminum from alum treated drinking water is low. So you guys can quit worrying and stop with all the jokes now.

*Hey Everyone!* It's time to renew your membership for 2001. Otherwise you won't know what's going on in the association, or where the next conference and training will be held. If you are wondering whether or not you have renewed, well, unless you were at the Yellowknife Conference, chances are you didn't renew. We'll keep you on the list for a while but after that you're on your own. Send your cheque in along with "General All-Purpose" registration form. That way we are sure of having your correct address. \$40 bucks!?! Cheap, eh?

## Northern Territories Water and Waste Association General All-Purpose Registration Form

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