

REGION OF OTTAWA-CARLETON
RÉGION D'OTTAWA-CARLETON

REPORT
RAPPORT

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DATE 20 August 1999

TO/DEST. Co-ordinator
 Planning and Environment Committee

FROM/EXP. Acting Deputy Commissioner
 Environment and Transportation Department

SUBJECT/OBJET **RESPONSE TO 10 JUNE 1999 COUNCIL INQUIRY -
 FLUORIDE IN DRINKING WATER**

DEPARTMENTAL RECOMMENDATION

That the Planning and Environment Committee and Council receive this report for information.

BACKGROUND

On 10 June 1999, at Regional Council, Councillor Munter made the following inquiry for information:

“It has recently come to light that the Water Environment Protection Division has altered the amount of fluoride in Ottawa-Carleton’s drinking water, in keeping with the range set out by provincial regulation and based on sound public health practice but without advising Council. Could an information report be prepared for Committee and Council on this decision and could we ensure that any future changes to drinking water in Ottawa-Carleton go through the normal Committee and Council report procedures?”

In order to respond to this request in a comprehensive manner, background information in legislative requirements and Regional procedures are included in this report.

Water quality guidelines have been established by both the Federal and Provincial governments. The primary objective of both sets of guidelines is to protect public health. Accordingly, the water quality objectives listed within each set of guidelines have been established to ensure that consumers of potable water are not exposed to potentially harmful concentrations of contaminants. These guidelines are reviewed regularly by both governments, and should research identify a need for a change, they are implemented through updates to either or both sets of guidelines. In this manner, the guidelines are kept current with the ever changing amount of information relating to health, environment and water quality.

From a regulatory point of view, the Region's requirement to meet these objectives is created through the *Ontario Water Resources Act* and our Certificates of Approval, which give the Region the authority to operate our two major water purification plants and creates the requirement to operate, maintain and monitor the treatment and distribution process in compliance with the Ministry's Ontario Drinking Water Objectives.

The drinking water supplied to the residents of Ottawa-Carleton undergoes various treatment processes to meet legislative water quality parameters. The Ministry of the Environment (MOE) provides a Certificate of Approval (C of A) for each Water Facility which purifies or distributes drinking water. The C of A is detailed in nature, and requires the Region to meet the Ontario Drinking Water Objectives. As well, Health Canada has Drinking Water Guidelines which the MOE usually adopts in their Drinking Water Objectives.

The Region has adopted the principle that because drinking water has a direct impact on the health of our community, drinking water in Ottawa-Carleton will be produced to the highest quality (as opposed to simply meeting the minimum requirements of the C of A). This practice is based on the current purification processes in place at our facilities and our other objective of delivering this high quality potable water in a cost effective manner.

Given the widespread distribution of potable water in our society and the potential for impacts on the health of every community, the amount of research around the world on all aspects of drinking water is tremendous. As new analytical methods, technologies and water issues emerge, the Region continues to assess the impact of our drinking water on our customers. The intent is to remain current with the knowledge in the industry and continue to provide our customers with the highest level of water quality in an ever changing environment. To meet this requirement, the Region has many partnerships with academia (University of Ottawa, Carleton University, University of Toronto and University of Waterloo), the Natural Science and Engineering Research Council (NSERC), the American Water Works Association Research Foundation (AWWARF) and other private sector firms. These partnerships allow us to test new treatment processes at our Pilot Facility, and adopt those which provide a benefit to our drinking water quality.

Through these efforts, the water quality in Ottawa-Carleton continues to be better than all Federal and Provincial Health parameters.

Our current practice is to monitor new technologies and emerging water quality issues in the industry and evaluate these through either our partnerships, or at our laboratory or pilot facilities. Any positive impact on our water quality, or efficiency through the more efficient use of chemicals, as an example, is adopted. Should a change to our drinking water process have a more direct impact on our customers, the proposed change is forwarded through the Planning and Environment Committee and then on to Council for approval. The last such change took place in 1992 with the implementation of chloramination.

The change to chloramination had many positive benefits including reduction in chlorinated by-products, reduced taste and odour and more stable water quality in our water distribution system. The addition of chloramination also impacted customers on dialysis treatment and customers with aquariums. A thorough information campaign took place at that time prior to the implementation of chloramination.

It should be made clear that changes to our drinking water processes occur daily due to the changing nature of our water source, the Ottawa River. Simple changes to the river like temperature and alkalinity, have an impact on our purification processes and as such, on the addition/reduction of chemicals used.

DISCUSSION

With regards to the recent change in fluoride levels in the drinking water, it should be made clear that the addition of fluoride at the two water purification plants (Britannia and Lemieux Island) is not part of the water “purification” process. Fluoride addition occurs at the water purification plants to meet the dental health requirements, and has no impact on the overall water treatment process.

Fluoride is a naturally occurring parameter in water. Across Eastern Ontario, for example, the degree of naturally occurring fluoride of water supplies ranges from 0.01 to 1.52 mg/L (milligrams per Litre) with the average level being 0.33 mg/L. In the Ottawa River, the range is from 0.01 to 0.09 mg/L with the average concentration being 0.03 mg/L.

The benefit of fluoride in preventing dental cavities was initially recognised in the 1930’s. Beginning in the 1940’s, the practice of adjusting the level of fluoride in water supplies was introduced by many towns, municipalities or regions to ensure optimal dental health while limiting the potential for dental fluorosis. The risk of dental fluorosis increases when too much fluoride (>1.5 mg/L) is available during the tooth development process. Fluorosis refers to permanent white marks or bands that can appear in the teeth. The potential for fluorosis in Ottawa-Carleton is greatest among children drinking from private water sources with high natural levels of fluoride and among young children who swallow toothpaste that has fluoride. The Health Department, in conjunction with the Environment and Transportation Department, offers well water testing to property owners using private wells in Ottawa-Carleton.

In December of 1964, a public plebiscite was held in Ottawa for the addition of fluoride to the drinking water. As a result of the public support for this initiative, fluoride addition began in mid-November, 1965, and has continued to this day. The process of adjusting water supplies to prevent dental cavities continues to be widely endorsed by organizations including the World Health Organization, Health Canada, the Canadian Public Health Association, Canadian Paediatric Society and the Canadian Dental Association, to name a few.

In Ontario, municipalities that adjust the fluoride content of their water supplies are required to ensure that the level is maintained between the concentrations of 0.8 and 1.2 mg/L.

Although water fluoridation is safe, effective, and widely endorsed by major health organizations, it continues to be rigorously studied and investigated. Several comprehensive reviews regarding water fluoridation have been conducted during the past fifty years. According to Health Canada's Canadian Drinking Water Quality Guidelines (released April 1998) the recommended level of fluoride was revised to 0.8 to 1.0 mg/L from 1.0 to 1.2 mg/L. Similar recommendations appear in a recently released Australian study (Department of Human Services, Victoria) that recommends a level from 0.6 to 1.1 mg/L based on climate and water fluoride exposure within the population. The adjustment in the recommended range reflects the increased sources of fluoride in addition to the water supply. The MOE is presently considering a review of the range prescribed in Ontario based on recommendations from the Federal Ministry of Health.

For residents in Ottawa-Carleton, fluoride is found in toothpaste, many dental rinses, and in a growing number of processed foods and beverages. The dental decay rates have continued to decline to the point where greater than 70% of school age children in this Region are cavity free. The reduction in dental decay is a result of many contributory factors including the continued fluoridation of drinking water, the additional sources of fluoride in foods and beverages, improved diet, increased access to dental care and better overall health education. In consideration of the foregoing, the Region has adjusted the fluoride level to 0.8 mg/L.

CONSULTATION

The public consultation process is not applicable.

FINANCIAL IMPLICATIONS

Not applicable.

CONCLUSION

The adjustment to the level was made under the legislative authority of the Medical Officer of Health, in accordance with the requirements of the *Health Protection and Promotion Act*. Prior to any future fluoride adjustments that may be recommended, Council will be advised.

Approved by
Nancy B. Schepers, P. Eng.

AP/ jw