

American Water Works Association Research Foundation - Annual Subscription

(City Council on December 14, 15 and 16, 1999, adopted this Clause, without amendment.)

The Works Committee recommends the adoption of the following report (November 24, 1999) from the Commissioner of Works and Emergency Services:

Purpose:

The purpose of this report is to request authorization for expenditure in the amount of \$128,000.00 to continue our annual subscription to the American Water Works Association Research Foundation's Subscription Program.

Financial Implications and Impact Statement:

Funds for this purpose were budgeted for in the approved 1998 and 1999 Annual Operating Budgets, Water Supply, Water Production Administration Appropriation.

Recommendation:

It is recommended that authority be granted to provide our annual subscription to the American Water Works Association Research Foundation in the amount of \$128,000.00 and 1999.

Background:

The American Water Works Association (AWWA), an organization of water utility operators, regulatory authorities, academic researchers and instructors, consulting engineers and equipment and material suppliers, consists of 40 sections, five in Canada, one in Mexico and the remainder in the United States.

AWWA works very closely with the American Water Works Association Research Foundation (AWWARF), a non-profit corporation set up by the water supply industry to research common problems. AWWARF is run by water utilities for water utilities, with active involvement and support by engineering consultants, manufacturers, universities and the industry related groups. AWWARF has over 900 subscribers world wide including 31 subscribers in Canada. AWWARF provides an intensified research program, financed by contributions from its members, particularly the utilities, similar to the research financing methods of the electrical and gas industries on this continent and the water supply industry in Europe.

An agreement has been arrived at between AWWARF and the Canadian Water and Wastewater Association (CWWA), whose full members are exclusively owners and operators of water or wastewater systems in Canada, to establish a basis for developing and recommending research proposals from institutions, companies, groups or individuals, and on specific issues in Canada.

Comments:

AWWARF's major funding is through a research subscription program, through which water utilities subscribe and make annual payments proportionate to the volume of water they deliver. Additional funding is provided by research contractors who contribute 25 percent or more of the cost of projects for which they are selected following a rigorous process. Research is carried out by contract with local utilities, universities, consultants and other appropriate organizations. A Board of Trustees, largely utility representatives, governs AWWARF, determines its program, sets its policies and supervises its operations.

The AWWARF sponsors practical, applied and future-need based research for the drinking water community. AWWARF's research program embraces all aspects of water supply planning and operation such as:

- (a) treatment technologies;
- (b) analytical techniques and monitoring;
- (c) storage and distribution system operations;
- (d) health effects issues;
- (e) public and customer relation;
- (f) development and maintenance of water resources; and
- (g) utility planning and management.

By subscribing to AWWARF, members stay at the forefront of technology by:

- (i) joining a multi-million dollar, state-of-the-science research program;
- (ii) accessing a global network of experts and gaining early access to research results;
- (iii) keeping informed with complimentary research reports, periodicals, regional technology transfer conferences, poster sessions, papers, CDs, and a videotape library;
- (iv) influencing and participating in the research agenda;
- (v) fine tuning their own research efforts to avoid duplication or to take advantage of Foundation results; and
- (vi) pooling financial resources for much needed utility-based research.

The research projects sponsored by the Foundation involve technical experts and utilities from all over United States and Canada. The scope and depth of work provided by AWWARF is beyond the means of any local water utility. It is appropriate for the City of Toronto to participate in research involving water to ensure we continue to provide water of excellent quality and are able to respond effectively to emerging issues. Active participation in AWWARF would help the City to obtain some of the answers required to formulate short-term and long-term strategies for on-going improvements in water quality.

AWWARF provides an additional benefit to subscribers by conducting regional Technology Transfer Conferences throughout the United States and Canada. The purpose of these conferences is to provide local areas with information that has been under research by AWWARF, and of interest to that region. There are no registration fees for AWWARF subscribers attending Technology Transfer Conferences. A Technology Transfer Conference on Research Solutions to Treatment and Distribution Problems was held in Toronto in October 1997 and a number of the City employees were able to attend and benefit from it without any registration fees.

For the 1999 research program, AWWARF has allocated US\$7.6 million to sponsor solicited projects, US\$1.4 million for unsolicited projects, US\$700,000.00 for tailored collaboration projects, US\$170,000.00 for non-“Request for Proposal” projects, and US\$70,000.00 for applications projects. The total funding including the dollars and resources contributed by the contractors has resulted in over US\$10 million research program.

The following projects which address current issues of particular importance to Toronto Water and Wastewater Services from a water quality and service delivery perspective are included in the 1999 program:

- (1) Inactivation of Pathogens by Innovative UV Technologies - US\$300,000.00;
- (2) Chlorinated Disinfection Byproducts (DBP) Formation Kinetics: Back to Basics - US\$250,000.00;
- (3) Occurrence and Problems Associated with Trace Contaminants in Water Treatment Chemicals - US\$200,000.00;
- (4) Knowledge-Based Approach for Real-Time Water Quality Reliability Management - US\$350,000.00;
- (5) A Strategic Assessment of the Future of Water and Wastewater Utilities - US\$250,000.00;
- (6) Cost-Benefit Analysis of Flushing (of Water Mains) - US\$175,000.00;
- (7) Guidance to Estimate Comprehensive Costs of Infrastructure Failures - US\$225,000.00;
- (8) Identify Causes and Solutions for External Corrosion on Existing Water Mains - US\$350,000.00;
- (9) Innovative Biofilm Prevention Strategies - US\$400,000.00;
- (10) Customer Attitudes, Behaviour, and the Impact of Communication Efforts - US\$300,000.00;

- (11) Early Warning Techniques and Communication Plans for Surface Water Taste-and-Odour Events - US\$300,000.00; and
- (12) Helping the Public Understand Emerging Issues in Drinking Water - US\$200,000.00.

AWWARF appoints a project advisory committee (PAC) for each of its research projects. Individual PACs are established for every project approved by the Board of Trustees, and volunteer members are appointed to them based upon their expertise in that particular research area. Each PAC has a utility representative. The responsibilities of the PACs are to review and refine the Request for Proposals issued for each project, review all of the submitted proposals, select the best proposal, and monitor the performance of the contractor throughout the project. The PACs are extremely important, as they provide the technical overview for the projects. Input from PAC members is critical to ensure that the project results are both scientifically valid and practically meaningful. Our Senior Engineer Mr. A.D. Tadwalkar, P.Eng. and Senior Chemist Mr. J.I. McKergow have served as PAC members on different projects.

As a wholesaler of water, the former Metro Toronto has been an active member of the AWWARF for over 25 years and contributed \$64,000.00 in 1997 for subscription. In the past, the former City of Toronto and Scarborough Public Utilities Commission have been “retail” members. During 1997, the former City of Toronto and former Scarborough Public Utilities Corporation contributed US\$11,914.00 and US\$10,717.00 respectively towards membership in the AWWARF for 1997-98.

AWWARF requests subscription payments from utilities based on the approximate volume of water sold per year. The 1999 rate for the new City of Toronto, as a “retailer” of water, was \$0.46 per thousand cubic meters of treated water delivered to the customers. On the basis of the 1998 water production of 453,159 thousand cubic metres (excluding water sold to the Region of York), the requested payment from the City in 1999 would have been approximately CDN\$208,450.00. Due to financial constraints, we did not budget the full amount for 1999 contribution.

No contributions were made during 1998 towards the subscription payment although funding of \$64,000.00 which was allocated in the amalgamated water program operating budget has been established as a liability for expenditure during 1999.

For 1999, we have again budgeted \$64,000.00 in the Annual Operating Budget, Water Program, Water Production Appropriation. We are now seeking approval for subscription payment to the AWWARF in the amount of CDN\$128,000.00.

Conclusions:

As an active supporter of environmental enhancements and service excellence in water supply, it is appropriate for Toronto Water and Wastewater Services to continue to subscribe to the AWWARF. A subscription payment of CDN\$128,000.00 is requested for 1999.

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