

3

DRINKING WATER RESEARCH GROUP UNIVERSITY OF TORONTO PARTNERSHIP PROPOSAL

The Transportation and Works Committee recommends the adoption of the recommendations contained in the following report, September 8, 2008, from the Commissioner of Environmental Services:

1. RECOMMENDATIONS

It is recommended that:

1. Regional Council enter into agreement with the Governing Council of the University of Toronto, Drinking Water Research Group, in order to participate in the Natural Sciences and Engineering Research Council of Canada (NSERC) Senior Industrial Research Chair for a cost of \$50,000 a year.
2. The term of the agreement be from the date of Council approval and issuance of the purchase order and be in effect until March 30, 2012.
3. The Commissioner of Environmental Services to sign this agreement on behalf on the Region.

2. PURPOSE

This report outlines the benefits of a partnership with the Drinking Water Research Group (DWRG) for the Environmental Services Department and asks that Council endorse the agreement.

3. BACKGROUND

Drinking Water Research Group and NSERC Industrial Chair focused on innovation and delivery of safer tap water

The Drinking Water Research Group (DWRG) is associated with the Department of Civil Engineering, University of Toronto and is led by Professor Robert Andrews. In 2007 the DWRG along with industry and municipal partners (City of Toronto, Durham Region) established an NSERC Senior Industrial Chair in Source Water Quality Monitoring and Advanced/Emerging Technologies for Drinking Water Treatment. The goals of this Research Chair are: provision of safer tap water, delivery of major innovation to this Research Chair partners and dissemination of new ideas to the global water industry.

The mandate of the NSERC Industrial Research Chair is applied science responding to the technical needs of the water industry

The five primary research areas of the Research Chair include:

- Linking source water quality to treatment process selection.
- Advanced and emerging technologies for water treatment.
- Research into the application of membrane technology.
- Advanced oxidation and UV treatment.
- Granular Activated Carbon (GAC) optimization and computer modelling.

More detailed information is included in Appendix A of the NSERC Industrial Research Chair Agreement (*see Attachment 1*).

To date most of the studies undertaken by York Region have focused on groundwater

Although much of our investigative work to date has focused on groundwater, it is important for us to also focus on surface water supply as 85% of our drinking water comes from the surface water sources of Lake Ontario and Lake Simcoe. York Region owns and operates two water treatment plants on Lake Simcoe and purchases bulk water from the City of Toronto and Peel Region who use Lake Ontario as their source. York Region's participation in research projects that include Lake Ontario and Lake Simcoe will enhance our understanding of surface water quality, emerging water quality issues and assist in plant optimization. Development of partnerships with leaders in the drinking water industry will also be beneficial in continuing to increase our understanding of emerging drinking water issues (eg. Pharmaceuticals) and enable us to proactively address these issues within the Region.

4. ANALYSIS AND OPTIONS

Alignment with the Environmental Services Business Plan

Participating with the Drinking Water Research Group builds our knowledge and increases our understanding of our surface water supplies and will assist in optimization and improved operations. The following are business drivers and strategic objectives for pursuing the project:

- Leadership and Innovation
- Planning and Continuous Improvement
- Asset Management/Sustainable Infrastructure
- Branch Image
- Staff Development

Key opportunity for York Region to be a leader in innovative analysis and progressive use of technology for our water systems

Given the direction of the water industry in Canada it is beneficial to participate in a project that will improve our understanding of water quality and emerging water quality issues and enhance our high quality of service. This would enable us to act on emerging issues in advance of any regulatory mandate.

Future Benefits: Emerging Contaminants and Supply Sustainability

Two important challenges faced by the water industry are source water protection and concern about persistent chemicals, pharmaceuticals and personal care products in the environment. The research and technology gained by participating in the DWRG could be employed in York Region water treatment plants to develop and implement strategies to deal with these challenges. Our proactive approach will support communication and build confidence with our customers and key stakeholders.

Deliverables and Relationship to Current and Future Projects

The DWRG partnership offers five key research areas as outlined and will assist York Region on site specific projects. Projects for York Region water treatment plants include:

- Granular Activated Carbon (GAC) optimization resulting in a cost reduction and performance benefits for both the Keswick and Georgina water treatment plants.
- Treatment process analysis related to disinfection bi-product creation, taste and odour control and water quality improvements.
- computer model assisted operations refinements and improvements

The DWRG has also expressed an interest in working with the Region on our membrane technology, UV disinfection and the new processes at the Schomberg water treatment plant.

5. FINANCIAL IMPLICATIONS

The total cost to the Region to participate as a partner in the DWRG NSERC Industrial Research Chair is approximately \$175,000 over the approximately 3.5 year duration of the contract. Please see the following table for annual cost breakdown.

Table 1
DWRG Annual Cost Breakdown

York Region Costs	Year 1- 2008	Year 2- 2009	Year 3- 2010	Year 4- 2011
Direct Costs	\$20,833	\$41,667	\$41,667	\$41,667
Indirect Costs (20%)	\$4,167	\$8,333	\$8,333	\$8,333
Total	\$25,000	\$50,000	\$50,000	\$50,000

Year one will be prorated from time the agreement is endorsed until April 2009. The term of the agreement be from the date of Council approval and issuance of the purchase order and be in effect until March 30, 2012. Sufficient funds are available for this project from within the Water and Wastewater 2008 operating budget.

6. LOCAL MUNICIPAL IMPACT

A partnership with the DWRG would improve our treatment processes, provide efficiencies in operations and enhance water quality.

7. CONCLUSION

A partnership with the Drinking Water Research Group (DWRG) will allow York Region to participate in key industry research areas, show leadership and proactive responsibility for our emerging issues related to surface water supply, provide process efficiencies, add potential cost reductions as well as raise public confidence in our drinking water supply. Regional Council is asked to approve the funding and cost of the agreement.

For more information on this report, please contact Brett Bloxam, Director Operations, Maintenance and Monitoring at Ext. 5320.

The Senior Management Group has reviewed this report.

(The attachment referred to in this clause was included in the agenda for the October 1, 2008 Committee meeting.)