



## STAFF REPORT INFORMATION ONLY

### Procurement of Required Materials, Equipment and Services for the Emergency Rehabilitation of Filters #1, #3 and #5 at the Toronto Island Water Treatment Plant

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|--------------------------|---|
| <b>Date:</b>             | May 13, 2008  |
| <b>To:</b>               | Public Works and Infrastructure Committee                                       |
| <b>From:</b>             | General Manager, Toronto Water<br>Director, Purchasing and Materials Management |
| <b>Wards:</b>            | 28  |
| <b>Reference Number:</b> | P:\2008\Cluster B\TW\pw08007 (AFS#7659)   |

#### SUMMARY

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This purpose of this report is to advise on emergency procurement up to an anticipated final cost of \$3,529,858.00, net of all taxes, related to the emergency rehabilitation of three of six filters at the Island Water Treatment Plant (WTP).

An emergency sole source procedure was followed in accordance with Section 195-10(F), Municipal Code, Chapter 195. It was necessary to complete the work without a formal competitive tender process due to the complete failure of the underdrains on filter #5 and a risk of imminent failure of the underdrains of filters #1 and #3 at the Island WTP, and the extremely limited amount of time available to carry out the necessary design, procurement and rehabilitation work associated with the emergency.

Rehabilitation of all three filters was completed within the timeframe required to meet the City's service capacity requirements for the Island WTP and was within the original cost estimates provided by suppliers.

## FINANCIAL IMPACT

The total funds, net of GST allocated and committed to date for the emergency rehabilitation works is \$3,529,858.00 (\$3,706,350.90 including all taxes). Funding is available in the 2008 Toronto Water Capital Budget in accounts CPW043 and CPW064, as per the details in the table below:

| <b>Account</b>              | <b>2008</b>            |
|-----------------------------|------------------------|
| CPW043 Island Equipment R&R | \$ 1,867,000.00        |
| CPW064 Island Equipment R&R | \$ 1,662,858.00        |
| <b>TOTAL</b>                | <b>\$ 3,529,858.00</b> |

The Deputy City Manager and Chief Financial Officer has reviewed this report and agrees with the financial impact information.

## DECISION HISTORY

The immediate requirement to rehabilitate filters #1, #3 and #5 at the Island WTP was deemed an emergency condition by the General Manager of Toronto Water under Chapter 195-10 F of the Municipal Code. There was a requirement to complete repairs as quickly as possible during the winter season to maintain an essential service (supply of potable water for residential, commercial, and fire fighting purposes), as well as protecting the City's interests through the maintenance of continued water supply to the Deep Lake Water Cooling (DLWC) facility. The City has a contractual obligation with Enwave under the Energy Transfer Agreement to maintain the plant in full production during the peak cooling season.

Due to the emergency nature of the work, it was deemed that the time available did not allow for a formal competitive tender process, hence required services to rehabilitate the filters were secured through a sole source. A report is required to be submitted to the Public Works and Infrastructure Committee, in accordance with Section 195-9(C) of Chapter 195, Municipal Code.

## ISSUE BACKGROUND

The Island WTP is one of four water treatment facilities which supply potable water to the City of Toronto and the Regional Municipality of York. In addition, the Island WTP is the sole facility capable of supplying DLWC with cold (4° C) water between the months of April and December (The R.C. Harris Water Treatment Plant can provide this supply from January to March when the Lake is sufficiently cold). The Island Plant is capable of producing up to 410 Million Liters per day (MLD), and uses six dual media filters (sand and anthracite) to remove particulate matter from the process stream through chemically assisted filtration.

During regular filter inspections it was discovered, in early January of 2008, that a substantial amount of filter media (sand and anthracite) had been lost from filter #5 at the Island WTP. Detailed investigation revealed that the clay filter drain tiles adjacent to the west (or outside) wall of the filter had completely failed and media had been allowed to pass through to the clear well. While at no time was water quality compromised, this represented a major failure of the filter. Further investigation indicated that underdrain tiles in filters #1 and #3 were cracked in a similar location to those in filter #5 and were in danger of experiencing a similar failure.

Due to the requirement for the Island WTP to supply potable water for the City of Toronto and York Region for residential, commercial, and fire fighting purposes, as well as fulfill the City's contractual obligation to meet the needs of DLWC, it is necessary to have five filters at the Island operational by May and all six filters by June each year. Therefore, the required rehabilitation of filters #1, #3 and #5 was deemed an emergency condition as it was impossible to carry out the work through a competitive tender process in the limited time available.

The firm of CH2M Hill Canada Ltd. was retained on an emergency sole source basis as they have extensive experience in managing water plant retrofits and expansion projects. They have completed large projects in Ottawa, Burlington, Peel Region, Peterborough, and as well as working with Toronto Water on the designs of the R.C. Harris Residue Management facility and for the expansion of the F.J. Horgan Water Treatment Plant (including filter system rehabilitation and construction). CH2M Hill was instructed to carry out the design of the rehabilitated filtration system, identify sources to manufacture, supply and install new filter drains, media, and associated appurtenances while assuring excellent value to the City, and provide site supervision during supply and installation. The upset limit of this emergency purchase order is \$450,000.00, net of all taxes.

After completing a review of options for the supply of new filter underdrains and associated equipment and appurtenances that took into account: (i) requirements for optimized high-rate filter performance; (ii) the need for proven and reliable filtration systems; and (iii) the extremely tight delivery schedule, CH2M recommended a filter underdrain system produced by Anthratech Western Incorporated (AWI). The City secured supply of the necessary materials and equipment from AWI for filters #1, #3 and #5 at a total cost of \$1,867,000.00, net of all taxes.

CH2M also sourced the labour necessary for the installation of the new underdrains and associated equipment and recommended the firm of Kenaidan Contracting Limited (KCL). KCL has performed well on previous major City assignments, including the construction of the R.C. Harris Residue Management facility and the rehabilitation of the Humber Wastewater Treatment Plant Digesters. KCL has the skilled trades and resources available to meet the City's tight timelines, and offered their forces at reasonable cost to the City. The City secured the services of KCL for the installation of new filter underdrains and associated equipment and appurtenances to an upset limit of \$660,000.00 net of all taxes.

The City has also engaged the services of Anthrafilter Media and Coal Limited to remove the existing filter media and damaged underdrains from filters #1, #3 and #5, expending \$552,858.00 through emergency sole source purchase orders. Anthrafilter began the removal work in January 2008 and as their work was progressing, CH2M worked with the City, AWI and KCL to pilot test, design, install and test the required new filter underdrains, filter media and associated appurtenances.

The fully rehabilitated filter #5 went into service on April 11, 2008, with both filters #3 and #1 returning to service in May 2008. The City's tight time requirements have been met and all work is expected to be completed within the original cost estimates.

## COMMENTS

The Island WTP has a rated capacity of 410 MLD and is equipped with six dual media filters for removal of solids from the process water. During warm summer months, when both water demand in Toronto and York Region, and the cooling load on DLWC are high, significant treated water production from the Island is required. In order to ensure adequate supply of potable water to the City of Toronto and York Region, as well as meet contractual requirements for the supply of cold water from the Island Plant to the Enwave DLWC facility at John Street Pumping Station, at least five of the six filters must be in operation by May 1st, with all six filters required by June 1st.

In early January, 2008, it was discovered that filter #5 at the Island facility had failed, and subsequent investigations determined that filters #3 and #1 were at imminent risk of failure. It was clear that the time available to rehabilitate these filters before high summer demand did not allow for a formal competitive tender process, hence required services to rehabilitate the filters were secured through a sole source. Please note the summary of costs incurred in the following table:

| Assignment  | Company                               | Upset Cost<br>(Net of GST) |
|---|---------------------------------------|----------------------------|
| Investigation, design, sourcing of supply and installation, site services   | CH2M Hill Canada Limited              | \$450,000.00               |
| Supply of filter underdrains, filter media, and associated equipment.       | Anthratech Western Incorporated (AWI) | \$1,867,000.00             |
| Installation of filter underdrains filters media, and associated equipment. | Kenaidan Contracting Limited (KCL)    | \$660,000.00               |
| Remove of previous filter media and underdrain tiles                        | Anthrafilter Media and Coal Limited   | \$552,858.00               |
|   | <b>TOTAL</b>                          | <b>\$3,529,858.00</b>      |

The firms engaged by the City to carry out the emergency work on a sole source basis are extremely experienced and competent firms, with a strong track record of excellent service. They are entering into formal agreements with the City to ensure all work performed will meet City standards. The emergency rehabilitation of filters #1, #3 and #5 was completed within the City's tight time requirements and all work is expected to be completed within the original estimated cost.

## **CONTACT**

Gordon Mitchell P.Eng.  
Senior Engineer  
Island and R.C. Harris WTPs  
(416) 392-9181  
[gmitchel@toronto.ca](mailto:gmitchel@toronto.ca)

Erik Lepik P.Eng.  
Engineer  
Island and R.C. Harris WTPs  
(416) 392-3151  
[elepik@toronto.ca](mailto:elepik@toronto.ca)

David Ferguson  
Manager, Construction Services  
PMMD  
(416) 392-7323  
[dfergus4@toronto.ca](mailto:dfergus4@toronto.ca)

## **SIGNATURE**

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Lou Di Gironimo  
General Manager  
Toronto Water

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Lou Pagano  
Director  
Purchasing and Materials Management