

**AGENDA**  
**SPECIAL MEETING OF THE**  
**UNION WATER SUPPLY SYSTEM**  
**JOINT BOARD OF MANAGEMENT**  
**TO BE HELD AT 9:30 a.m. ON THURSDAY,**  
**MARCH 9, 2017**  
**IN THE UNICO COMMUNITY ROOM**  
**(37 Beech Street (behind A&A Flooring) Kingsville)**

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**A. Call to Order**

**B. Disclosures of Pecuniary Interest.**

**C. Staff Reports/Correspondence:**

Report UW/10/17 dated March 6, 2017

Re: UWSS Water Quality Masterplan (WQMP) Study - Presentation of Results to the UWSS Board

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**D. Adjournment**

**E. Date of next meeting:** April 19, 2016, 9:00 am, Kingsville Community Room, Kingsville Arena

kmj

UW/10/17

## Report

To: Chair and Members of the Union Water  
Supply System Joint Board of Management

From: Rodney Bouchard, Union Water Manager

Date: March 6, 2017

Re: UWSS Water Quality Master Plan Study - Presentation of  
Results to UWSS Board



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### Recommendation:

That the Union Water Supply Joint Board of Management (UWSS Board) receives this report for information.

### Background:

At the July 20, 2016 UWSS Board meeting, the UWSS General Manager recommended that the Board approve the undertaking of a Water Quality Master Plan for UWSS drinking water treatment facilities. This recommendation was presented to the UWSS Board in Report UW/23/16 UWSS Water Quality Master Plan Study dated July 14, 2016. The UWSS Board approved the recommendation under the following resolution:

*No. UW-39-16*

*Moved by: Mayor McDermott*

*Seconded by: Tony Gaffan*

*That the Union Water Supply Joint Board of Management (UWSS Board) receives this report for information;*

*And further, that the Board approves a budget of \$110,000 to be funded from the 2016 UWSS Operations Budget for the development of the UWSS Water Quality Master Plan;*

*And further, that the UWSS Board authorizes the UWSS General Manager to undertake a direct negotiation with Associated Engineering for the UWSS Water Quality Master Plan Study.*

*Carried (UW/23/16)*

A copy of Report UW/23/16 UWSS Water Quality Master Plan Study, dated July 14, 2016 is attached to this report.

## Discussion:

UWSS retained Associated Engineering (AE) to complete a Water Quality Master Plan (WQMP) for the UWSS treatment facilities. The purpose of this WQMP was to achieve the following:

- evaluate assess current treatment processes and assess their effectiveness;
- identify areas/processes that are not operating effectively (e.g. clarification) and would benefit from improvements;
- evaluate alternative technologies, including cost analysis, for the various treatment processes that should be upgraded;
- develop a capital funding and implementation plan for these proposed treatment upgrades;

AE has completed the draft WQMP report. AE will present the results of the draft report at the Special meeting of the board that will be held on March 9, 2017 at 9:30am at the Unico Community Centre in Kingsville, Ontario. The special meeting will take the form of a workshop to garner input from the Board and senior water management staff from our four municipal partners. This input will be used to establish a plan, including a timeline and funding mechanism for future capital treatment upgrades.

Respectfully submitted,



Rodney Bouchard, Manager  
Union Water Supply System Joint Board of Management  
rb/kmj

Attachments.

UW/23/16

## Report

To: Chair and Members of the Union Water Supply System Joint Board of Management

From: Rodney Bouchard, Union Water Manager

Date: July 14, 2016

Re: UWSS Water Quality Master Plan Study

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### Recommendation:

That the Union Water Supply Joint Board of Management (UWSS Board) receives this report for information;

And further, that the Board approves a budget of \$110,000 to be funded from the 2016 UWSS Operations Budget for the development of the UWSS Water Quality Master Plan;

And further, that the UWSS Board authorizes the UWSS General Manager to undertake a direct negotiation with Associated Engineering for the UWSS Water Quality Master Plan Study.

### Background:

Since 2012, the UWSS has undertaken a number of evaluations and capital improvements to components of the treatment process at the Ruthven Water treatment plants.

Treatment related capital improvements have included the following:

- Various upgrades to Filters #1 through #4 (i.e. air scour system, new valves, new underdrains, new media, etc.).
- Installation of new coagulant chemical feed system (i.e. pumps and controls)
- Replacement of the powdered activated carbon feed system (i.e. pumps, controls, etc)

Treatment process evaluations have consisted of the following:

- Residuals management study to evaluate the need for a residuals management facility (RMF) and identify types of residuals management technologies that would work for UWSS treatment residuals
- Coagulant evaluation to assess various coagulants and their effectiveness on UWSS raw water and effects on UWSS treated water, including potential for corrosion.

Further, the UWSS has been affected in recent years by Harmful Algal Blooms (HABs) that are now recurring annually in the Lake Erie Western Basin, which is the source water for UWSS. Since 2012, UWSS has been proactive in monitoring for HABs and optimizing plant treatments processes to mitigate HAB effects on treatment operations and water quality. However, it is anticipated that HABs will get worse in the future and it would be prudent for UWSS to evaluate treatment technologies that can effectively remove algae and algal toxins. A preliminary evaluation of these technologies was approved as part of the 2016 budget.

Another item of concern in regards to the UWSS treatment process is the existing chlorine gas primary disinfection system. Significant upgrades to this system are anticipated in the next year or two. This would include the installation of a costly scrubber system in the chlorine building to prevent toxic chlorine gas releases. Since upgrades to this system are necessary, the UWSS General Manager feels that it's a good time to evaluate other options for primary disinfection, including on-site generation of sodium hypochlorite using salt, which is much less hazardous than chlorine gas. A preliminary evaluation of on-site hypochlorite generation is approved in the 2016 budget.

## **Discussion:**

As identified previously in this report, the UWSS has undertaken or is planning to undertake a number of treatment process evaluations. These are needed to improve the effectiveness of the UWSS treatment process and to address concerns (i.e. algal toxins; chlorine gas release) that could affect treated water quality and/or public health.

However, the concern is that many evaluations are typically conducted independent of other evaluations. It has been observed in recent evaluations of UWSS treatment processes that a beneficial upgrade to a certain treatment process can have a negative effect on another part of the treatment process or on the water quality. For example, a change in coagulant chemical may improve the coagulation process significantly but may also result in an increase in corrosion potential of the treated water or may require an upgrade to an existing Residual Management Facility.

As such, to address the issues associated with undertaken independent treatment process evaluations, the UWSS General Manager proposes to undertake a Water Quality Master Plan study for the UWSS treatment facility.

The objectives of this Water Quality Master Plan are as follows:

- Document the current and future challenges of the entire system considering regulatory, social, economic and environmental (Climate Change) impacts with an eye to improve the overall system robustness for the years to come.
- Review and propose treatment alternatives to increase the plant's robustness and meet future treatment demands
- Prepare a defensible capital phasing plan to implement the preferred treatment alternatives.

It should be noted that Water Quality Master Planning is something of a new innovative tool for water treatment process improvements and financial planning. A Water Quality Master Plan was recently developed for the City of Toronto water department (Toronto Water) by Associated Engineering.

### **Financial Impact:**

The UWSS General Manager has requested a preliminary proposal from Associated Engineering to develop the UWSS Water Quality Master Plan. At this time, this proposal was solicited solely from Associated Engineering for the following reasons:

- Associated Engineering assisted UWSS with on-site studies for the residuals management system, the coagulant strategy and the corrosion evaluation. As such, Associated Engineering is very familiar with existing UWSS treatment operations & process and water quality concerns/issues.
- Associated Engineering recently developed the Water Quality Master Plan for Toronto Water and thus has technical expertise and experience to undertake this type of work

A copy of the Associated Engineering preliminary proposal for this work dated July 12, 2016 is attached to this report.

Based on Associated Engineering preliminary proposal, the costs for undertaking the UWSS Water Quality Master Plan Study is \$104,938. Follow up correspondence with Associated Engineering project team indicate that up to \$15,000 in cost reductions can be achieved by reducing the number of workshops, in-person meetings, and re-organizing some components. It is anticipated that the consulting fee for this work would be approximately \$95,000. However, the UWSS General Manager proposes a budget of \$110,000 for this work, to allow for contingency funds if needed.

The approved 2016 UWSS Budget currently includes the following studies:

- On-Site Hypochlorite Generation Assessment: \$40,000
- Algae Relative Assessments: \$30,000

The UWSS General Manager proposes that the approved funds for these studies totalling \$70,000 be reallocated to the proposed \$110,000 budget for the UWSS Water Quality Master Plan, since these studies would basically become part of the UWSS Water Quality Master Plan Study. The remaining \$40,000 required for this study would be funded from the 2016 UWSS Operations Budget.

### Closing Comments:

In light of the need to evaluate different components of the UWSS Ruthven Water Treatment Plant treatment process for improvement purposes and to address potential water quality issues, the UWSS General Manager believes that the development the UWSS Water Quality Master Plan would serve as a much needed overall treatment process evaluation and treatment works capital planning tool.

Based on the recent work Associated Engineering have completed at the Ruthven Water Treatment Plant and their familiarity with the treatment process and concerns, the UWSS General Manager recommends that this work be sole sourced to Associated Engineering through a direct negotiation.

Respectfully submitted,



Rodney Bouchard, Manager  
Union Water Supply System Joint Board of Management  
rb/kmj

Attachments.

Filename: t:\union wtr\reports to board\2016\uw23-16 - uwss water quality master plan study.docx