JOINT BOARD OF MANAGEMENT

Wednesday, April 4, 2018
9:00 AM
Kingsville Community Room
Kingsville Arena
1741 Jasperson Road, Kingsville

AGENDA

A. Call to Order:

B. Disclosures of Pecuniary Interest:

C. Approval of Minutes:

Minutes of the meeting of the Union Water Supply System Joint Board of Management Meeting held Wednesday, February 21, 2018
Pages 3 - 10

D. Business Arising Out of the Minutes

E. Items for Consideration:

1. UW/06/18 dated March 29, 2018 re: Status Update of UWSS Operations & Maintenance Activities and Capital Works to March 29, 2018
   Pages 11- 12

2. UW/07/18 dated March 12, 2018 re: UWSS 2017 Financial Report
   Report Pages 13 – 15
   Financial Statements Pages 16 - 31

3. UW/08/18 dated March 28, 2018 re: MOECC Drinking Water Inspection for the UWSS – January 16, 2018 Inspection
   Report Pages 32 – 33
   MOECC Inspection Pages 34 - 63

4. UW/09/18 dated March 28, 2018 Re: System Interest Updates
   Pages 64 - 65

5. UW/10/18 dated March 29, 2018 re: Payments from February 17 to March 29, 2018
   Pages 66 - 69

F. **New Business:**

G. **Adjournment:**

H. **Date of Next Meeting:** April 18, 2018 (subject to change) at the Kingsville Community Room of the Kingsville Arena.

/kmj

JOINT BOARD OF MANAGEMENT

Wednesday, February 21, 2018
9:00 AM
Kingsville Community Room
Kingsville Arena
1741 Jasperson Road, Kingsville

MINUTES

Members Present:	Deputy Mayor MacDonald (Chair); Mayor Paterson, Councillors Dunn, Hammond, Verbeke – Leamington Mayor Nelson Santos (Vice-Chair); Councillors Gaffan, Neufeld, Patterson – Kingsville Mayor McDermott – Essex Mayor Bain - Lakeshore
Members Absent:	Councillor Jacobs – Leamington Councillor Diemer – Lakeshore
UWSS Staff Present:	Rodney Bouchard - Manager Khristine Johnson – Administrative Assistant/Recording Secretary
Staff Present:	Nelson Carvalho, Steve Lewis - Leamington
OCWA Staff Present:	Susan Budden, Dave Jubenville Dale Dillen

Call to Order: 9:02 am

Manager call the meeting to order.

Election of Chair for the UWSS Joint Board of Management

The Manager call for the nominations for the position of Chair for the Union Water Supply System Joint Board of Management for a period ending December 31, 2018.

No. UW-01-18

Moved by: Mayor Paterson

Seconded by: Councillor Patterson

That Deputy Mayor MacDonald is nominated to the position of Chair for the UWSS Joint Board of Management.

Carried

Deputy Mayor MacDonald accepts the nomination.

No. UW-02-18

Moved by: Mayor McDermott

Seconded by: Councillor Gaffan

That the nominations for the position of Chair are closed and that Deputy Mayor MacDonald is received as Chair of the UWSS Joint Board of Management for a period ending December 31, 2018.

Carried

The Chair takes over control of the meeting.

The Chair calls for nominations for the position of Vice-Chair for the Union Water Supply System Joint Board of Management for a period ending December 31, 2018.

No. UW-03-18

Moved by: Councillor Verbeke

Seconded by: Councillor Patterson

That Mayor Nelson Santos is nominated to the position of Vice-Chair for the Union Water Supply System Joint Board of Management.

Carried

Mayor Santos accepts the nomination.

No. UW-04-18

Moved by: Mayor McDermott

Seconded by: Councillor Patterson

That the nominations for the position of Vice-Chair are closed.

Carried

No. UW-05-18

Moved by: Councillor Hammond

Seconded by: Councillor Dunn

That Mayor Santos is received for the position of Vice-Chair for the Union Water Supply System Joint Board of Management for a period ending on December 31, 2018.

Carried

Disclosures of Pecuniary Interest: none

Approval of UWSS Joint Board of Management:

No. UW-06-18

Moved by: Mayor Paterson

Seconded by: Councillor Neufeld

That Minutes of the UWSS Joint Board of Management meeting of December 20, 2017 be received.

Carried

Business Arising Out of the Minutes:

There was none.

Items for Consideration:

Report UW/02/18 dated February 16, 2018 re: Status Update of the UWSS Operations & Maintenance Activities and Capital Works to February 16, 2018

The Manager informs the Board of the activities that have been taking place within the UWSS system since the last meeting in December 2017.

He notes that the new Low Lift Pump #2 is still experiencing some vibrations. He confirms that the pump supplier will be attending the site to see what is happening and try to determine a proper fix. The Manager confirms that there is still a warranty and UWSS will not incur any costs.

High Lift Pump #5 discharge pipe, located at the main water treatment plant (WTP), has a pin hole leak. The leak was just discovered by maintenance staff and should be repaired soon. This pipe is original to the plant, but the work for repairs is scheduled for mid-March.

The Manager updated the Board on the Essex Water Tower (EWT) rehabilitation project. He indicates that the preconstruction meeting was held on January 17, 2018. The project is very weather dependent as scaffolding will need to be erected around the EWT and this process will take approximately five (5) weeks. There are several antennas and other communications equipment that will have to be moved. He further notes that the project will take approximately 16 weeks to complete, so a finish date should happen sometime around mid-August. He also confirms that a great deal of testing has already occurred to ensure that proper pressure could be maintained for fire suppression as well as properly feeding the Town of Essex.

The Board questioned the Manager if security tighter than when a similar project occurred at the LWT? The Manager confirmed that there would be cameras installed and he is assured that the scaffolding will be less accessible. He will be bringing a mock-up of the

EWT to the next board meeting to show members what the completed EWT should look like. The EWT will also have lights as seen at the LWT site.

The RFP for the SCADA Upgrade closed and the proposals were evaluated by a team from UWSS, OCWA and Associated Engineering (AE). The team from Summa Engineering have been chosen. Their bid was the lowest, but also offered the best value for the complexity of the project. The Manager reminds member of the Board that this will be a very challenging project and will take approximately 1.5 years to complete. He is projecting that the "plug 'n play" option will allow for greater functionality and ease of use for the operators.

AE is currently working on the design details of the CO2 raw water pH Adjustment system. Soil samples were taken at the WTP near the clarifiers to ensure stability for the storage tank. His hopes are that this project is in place prior to the 2018 algae event, which can start in late August or early September.

The MOECC inspection is under way for the UWSS System. The Manager notes that the inspector is being very thorough and requesting a lot of data to sift through, however, he does not foresee any problems.

The new Municipal Drinking Water License has been issues for the WTP.

Finally, the Manager indicates that the flows for 2018 are up quite a bit over the last several years.

No. UW-07-18

Moved by: Councillor Neufeld

Seconded by: Mayor Bain

That the report UW/02/18 dated February 16, 2018 Re: Status Updates of UWSS Operations & Maintenance Activities and Capital Works to February 16, 2018 is received.

Carried (UW/02/18)

Report UW/03/18 dated February 15, 2018 re: 2017 Annual Report under the Safe Drinking Water Act and Ontario Regulation 170/03

The Manager notes that this is a yearly report to that is completed and provided to the systems that UWSS serves. It must be prepared and provided by February 28th of the following year setting out any water quality (AWQIs) issues, capital improvements and must be made available to the public.

The Manager makes notes of the AWQI that the WTP experienced in 2017. He confirms that a coagulant pump failed to run for a short period of time. Maintenance personal arrived to switch out the pump, but the event was required to be documented.

The Boards asks the Manager if the WTP has redundancy regarding the pumps. The Manager notes that the pump is attached to an alarm and the alarm did provide the operator with notification, however the operator was not mechanically able to switch out the pump. The event occurred in the middle of the night and personal had to be called.

No. UW-08-18

Moved by: Councillor Dun

Seconded by: Councillor Neufeld

That report UW/03/18 dated February 15, 2018 re: 2017 Annual Report under the Safe Drinking Water and Ontario Regulation 170/03 is received.

Carried (UW/03/18)

Report UW/04/18 dated February 15, 2018 re: 2017 Summary Report for Municipalities under Regulation 170/03 made under the Safe Drinking Water Act

The Manager notes that this is a yearly report to that is completed and provided to the systems that UWSS serves. It must be prepared and provided by March 31st of the following year. This report sets out any issues within any of the systems within the UWSS.

The Manager makes notes of the AWQIs within the Town of Kingsville regarding a sample station that kept testing for bacteria. After consultation with the MOH and the WECHU it was decided to replace the sample station, since that time all tests have come back within standards. He also notes the AWQI within the Municipality of Leamington, wherein a bacteria sample tested positive. However, after flushing and further testing all results were within normal range.

Finally, this report also sets out the volume of water used by each municipality and by UWSS as whole to ensure that it is within its Permit to Take Water (PTTW) limit.

No. UW-09-18

Moved by: Mayor Paterson

Seconded by: Councillor Gaffan

That report UW/04/18 dated February 15, 2018 re: 2017 Summary Report for Municipalities under Regulation 170/03 made under the Safe Drinking Water Act is received.

Carried (UW/04/18)

Report UW/05/18 dated February 16, 2018 re: Payments from December 16, 2017 to February 16, 2018

The Board asks the Manager whether or not extra parts (say piping or fittings) are stored at the WTP in case an emergency occurs. The Manager indicates that the WTP does maintain some parts on hand, however, UWSS also relies on its municipal partners to assist if parts/pipes are needed in an emergency. So far the arrangement has been working.

No. UW-10-18

Moved by: Councillor Dunn

Seconded by: Councillor Verbeke

That report UW/05/18 dated February 16, 2018 re: Payments from December 16, 2017 to February 16, 2018 is received.

Carried (UW/05/18)

The Chair then asks the members of the audience to dismiss themselves.

Special Closed meeting of the UWSS Joint Board of Management:

Motion to move into closed session:

No. CUW-01-18

Moved by: Mayor Patterson

Seconded by: Mayor Bain

That the UWSS Joint Board of Management meeting moved into closed session at 9:37 am.

Carried

A closed meeting was held at between 9:37 and 10:42 am following the open session of the Board pursuant to Subsections 239(2)(f) of the Municipal Act, 2001 for the purpose of considering 2 items.

1. Confidential Report C-UW01-18 Legal Opinion and Financial Business Case for Proposed UWSS Restructuring dated February 15, 2018. Review and discussion of report to be considered in closed session pursuant to Subsection 239(2)(f) advice that is subject to solicitor-client privilege, including communications necessary for that purpose.

2. Confidential Report C-UW02-18 Legal Opinion Regarding Water Rates dated February 15, 2018. Review and discussion of the report is considered in closed session pursuant to Subsection 239(2)(f) advice that is subject to solicitor-client privilege, including communications necessary for that purpose.

As a result of this meeting, the following motions are before the UWSS Joint Board of Management for consideration:

CUW-02-18

Moved by: Councillor Patterson

Seconded by: Mayor Paterson

That the Manager is directed to create a restructuring team consisting of the himself, the Chair, the Vice-Chair, the legal representative (Willis Business Law) as well as the financial representative (Price Waterhouse Cooper), for the purposes of seeking audiences with the Councils of the Town of Essex, the Town of Kingsville, the Town of Lakeshore and the Municipality of Leamington regarding the UWSS Restructuring.

Carried (C-UW01-18)

And

CUW-03-18

Moved by: Mayor Santos

Seconded by: Mayor Paterson

That the Manager return to legal counsel (Willis Business Law) for an updated opinion regarding the water rate pertained within report C-UW02-18 dated February 15, 2018 re: Legal Opinion Regarding Water Rates;

And that the Manager bring this legal opinion back to the UWSS Board as soon as possible.

Carried (C-UW02-18)

Adjournment of Special Closed Meeting:

No. CUW-04-18

Moved by: Councillor Verbeke

Seconded by: Mayor Bain

That the UWSS Special Closed meeting adjourn at 10:42 am, February 21, 2018 and move back into regular session.

Carried

Resumption of Regular UWSS Joint Board of Management Meeting

The administrative assistant read both of the motions of direction as a result of the Closed UWSS Joint Board of Management meeting.

New Business:

A board member informs members of the board that he has been in contact with an elderly customer who was having some issues regarding her water. He notes that after speaking to members of the OCWA staff the issue was resolved quickly and efficiently. He further comments that the elderly resident was very pleased with the swiftness of the resolution.

A board members asks the manager for an update regarding the Co-Gen project. The Manager notes that he has received the final report from the consultant. He further notes that a meeting has been held with the University and the greenhouse owner across the street from the WTP. A final report needs to be completed and then sent off to IESO and Hydro One.

The board asks the manager if there are any financial grants or incentives available for residents in order to hook up to the watermain lines that run in front of their homes (this generally refers to rural residents). The Manager indicates that there is nothing in place for this type of assistance.

The Manager informs the board that he has been contacted by the consultant for the County of Essex regarding the 16" watermain line that runs along Division Road North to South Talbot Road. He reminds members of the board that approximately three (3) years ago the board was required to pay several hundred thousand dollars in order moved a UWSS watermain to allow for proper drainage in an area very close to this new area. The Manager notes that the County of Essex has not gone through the Drainage Act for this project and therefore UWSS is not required to pay. However, the issue at hand is that the UWSS Manager does not feel it is appropriate to move the 16" watermain. He notes that a meeting has been set up with the consulting engineer in order to determine a resolution that might avoid touching the watermain. He will report back to the board.

Adjournment:

No. UW-11-18

Moved by: Councillor Patterson

Seconded by: Councillor Gaffan

That the meeting adjourn at 10:46 am

Carried

Date of Next Meeting: April 4, 2018, 9:00 am, Kingsville Community Room, 1741 Jasperson Road, Kingsville Arena

/kmj

Chair – Hilda MacDonald

Vice-Chair – Nelson Santos

UW/06/18

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

From: Rodney Bouchard, Union Water Manager

Date: March 29, 2018

Re: Status Update of UWSS Operations & Maintenance Activities and Capital Works to March 29, 2018

Aim:

To inform the UWSS Board about operational and maintenance activities and capital works projects for the Union Water Supply System since the last Board meeting on.

Discussion:

The UWSS Manager conducts regular meeting with OCWA Operations staff in regards to on-going operations and maintenance programs for the UWSS facilities. The following provides an update on UWSS operations, regular maintenance and major maintenance and Capital Works at UWSS facilities:

1. Regular Maintenance on all process equipment and analyzers continue to be completed through OCWA's Workplace Maintenance Management System.

2. Vibration issues on the new (2017) Low lift pump #2 has been addressed and this pump is now in service.

3. Low lift pump #3 motor vibration issues were noted and couldn't be fixed in place. The pump motor was removed and Phasor Electric was retained to assess the motor vibration issues and repair it if possible.

4. The leak that was previously identified with High Lift pump #5 discharge pipe that connects to the main plant header has been repaired.

5. MOECC Inspection report was received on March 19, 2018. The inspection report provides an inspection rating of 90.77% for the UWSS.

6. Scaffolding around the Essex Water Tower is almost complete. The Water Tower is scheduled to be isolated and drained on April 16th, 2018.

7. New staff lunchroom/kitchen construction at the Ruthven water is underway, and the anticipated completion is April 30th, 2018

8. New SCADA system field verification is underway. SCADA integrators from Summa Engineering will be on-site for the next few weeks to "reverse engineer" the existing SCADA system hardware such as the Programmable Logic Controllers (PLCs).

Re: UW/06/18 - Status Update of UWSS Operations &Maintenance Activities and Capital Works to March 29, 2018

Comparative Flows for 2014 through 2018 in Millions of Imperial Gallons (for the period 1 January to March 28, 2018)

	2014	2015	2016	2017	2018
Flow to Date (MG)	618.41	569.47	549.79	563.95	623.15
Max Day (MGD)	9.55	8.47	8.47	9.21	10.03
Min Day (MGD)	4.19	3.79	4.29	4.56	5.18
Average Day (MGD)	7.11	6.55	6.25	6.48	7.16
No of Days	87	87	88	87	87

Flows to date are up 59.20 MIG or 10.50% from last year. The 2018 flows to date are up 8.30% over the previous 4 year average.

Recommendation:

That this report be received by the UWSS Board for information purposes.

Respectfully submitted,

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

rb/kmj

Filename: t:\union wtr\reports to board\2018\uw06-18 operations report for april 2018.docx

UW/07/18

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

From: Laura Rauch, Director of Finance and Business Services, Municipality of Leamington

Date: March 12, 2018

Re: UWSS 2017 Financial Report

Aim:

To present the draft audited 2017 Financial Report for the Union Water Supply System (UWSS) to the Joint Board of Management for review and approval.

Background:

A UWSS Financial Report is prepared annually to comply with accounting and reporting requirements for government entities. The Financial Report enables the four municipal owners to report their share of the UWSS on their municipal financial statements and returns.

The financial statements in the report have been prepared in accordance with Public Sector Accounting Board standards (PSAB), including PSAB section 3150 for tangible capital assets (TCAs).

Discussion:

The Draft 2017 Financial Report has been prepared by the Municipality of Leamington on behalf of the Joint Board of Management (Board) and audited by the external audit firm of Hicks, MacPherson, Iatonna and Driedger LLP. The Draft 2017 Financial Report is attached to this report and will become final upon approval by the Board, at which point the 2017 Statement of Financial Position will be submitted as final for signature by the Board Chair and Vice-Chair.

Highlights of the 2017 Financial Report in relation to prior year results and the 2017 Budget are as follows:

Statement of Financial Position (page 3 of 14)

1. Financial Assets have increased by $2.26M (13.2%) primarily due to an increase in cash at year end. This is a result of timing of payments received, capital spending as well as increased operating revenues and decreased expenditures.
2. Financial Liabilities are fairly consistent from prior year in total. Accounts payable and accrued liabilities have increased by $560k which is an increase to

related party balances owed at the end of the year. This is offset by the long-term debt annual repayments in 2017. Throughout the year there was no new debt issuance.

3. Non-financial assets have increased by 758k (1.9%) and represents capital additions of $435k less disposals and depreciation.
4. Capital asset purchases in 2017 included the following:
    - Turbidity meter replacements, upgrades replacements of filters, billing meters, pumps, and clarifiers - $207k
    - Water treatment plant window replacements and floor repair, other equipment - $73k
    - Low lift station pump #2 - $52k
    - High lift pump #4 rehabilitation - $31k
    - Scada system - $26k
    - Essex water tower - $19k
    - Water quality and level instrumentation - $17k
    - Kingsville water tower rectifier - $9k
5. The 2017 ending balance of the accumulated surplus, under PSAB, increased by $1.7M (4%).

<u>Statement of Financial Activities</u> (page 4 of 14)

1. Wholesale billings were higher than budget expectations by about $374k (4.35%) and 2017 flows were approximately 158M gallons more than budget and 16.6M gallons less than prior year. Since consumption is slightly less than 2016, the increase in revenue is driven by rate changes.
2. Investment income has increased by $190k (82%) over budget due to conservative estimates and consistently strong cash position throughout the year. This investment income includes a $10M GIC at 2.55%.
3. Other income is greater than budget by $43k (180%) due to refunds related to the Energy Audit Study as well as the combined heat and power (CHP) project.
4. Wages and benefits exceed budget by approximately $17.8k (10%) for the current employees' post-employment benefits expense, based on the actuarial report that were not budgeted. This is a non cash entry to accurately reflect UWSS' post retirement obligation. The remainder relates to the recognition of 2017 vacation entitlement earned and not taken by staff.
6. Rents and Services were less than budget by $85k (35%) primarily due to timing on work completed for the financial analysis and development of a business case for restructuring UWSS into a municipal service corporation as approved by the Board in June 2017.
7. Electricity was less than budget due to conservative budgeting.
8. Repairs and maintenance expense exceed budget by $78k (36%) for work completed that is not capital. Included in the 2017 budget was work to clean out the lagoon which was underspent by $45k. This amount is offset by $127.3k in watermain break repairs that were not budgeted. As this is becoming more common, watermain maintenance expense is included in the 2018 operations budget.

9. Operational Programs and Studies were greater than budget by $46k (19.4%). This is offset by the rebates recorded as “Other Income” (explained in point 3 above).
10. Ontario Clean Water Agency (OCWA) operating contract costs were also under budget by $54k (1.95%) as actual contract costs were less than anticipated.

The UWSS’s auditors have provided their opinion that the Draft 2017 Financial Report is a fair representation of the UWSS’s financial position as at December 31, 2017 which is included on page 1 of the draft report.

Recommendation:

That the 2017 Financial Report for the Union Water Supply System Joint Board of Management be approved.

Respectfully submitted,

Laura Rauch, CPA, CMA
Director of Finance & Business Services/Treasurer
Municipality of Leamington

Encls.

Union Water Supply System

Financial Statements
December 31, 2017

Union Water Supply System

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INDEPENDENT AUDITOR'S REPORT

To the Owners of
Union Water Supply System

We have audited the accompanying financial statements of Union Water Supply System, which comprise the statement of financial position as at December 31, 2017, and the statements of financial activities, cash flow, and change in net assets for the year then ended, and a summary of accounting policies and other explanatory information.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with Canadian public sector accounting standards, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, we consider internal control relevant to the entity’s preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity’s internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, these financial statements present fairly, in all material respects, the financial position of Union Water Supply System as at December 31, 2017, and the statements of financial activities, cash flow, and change in net assets for the year then ended in accordance with Canadian public sector accounting standards.

HICKS MacPHERSON, IATONNA & DRIEDGER LLP

Leamington, Ontario
April 4, 2018

Chartered Professional Accountants
Licensed Public Accountants

Union Water Supply System

Statement of Financial Position
as at December 31

	2017	2016
Assets		
Financial		
Cash and Short-Term Investments (note 3)	$ 8,384,546	$ 16,272,820
Long-Term Investment (note 4)	10,000,000	-
Accounts Receivable (note 5)	927,338	777,581
	19,311,884	17,050,401
Liabilities		
Accounts Payable and Accrued Liabilities (notes 5 and 11)	1,139,030	580,378
Long-Term Debt (note 6)	13,756,545	14,550,960
	14,895,575	15,131,338
Net Assets	4,416,309	1,919,063
Non Financial Assets		
Inventories (note 7)	66,581	-
Tangible Capital Assets (notes 2 and 7)	40,097,187	40,922,342
	40,163,768	40,922,342
Accumulated Surplus (note 10)	$ 44,580,077	$ 42,841,405

See accompanying notes to financial statements

Approved by the Board:

Chair _____

Vice Chair _____

Union Water Supply System

Statement of Financial Activities
for the years ended December 31

	2017 Budget (note 12)	2017 Actual	2016 Actual
Revenues			
Wholesale Billings (notes 5 and 8)	$ 8,585,200	$ 8,959,542	$ 8,855,085
Investment Income (note 9)	232,000	422,241	421,951
Other Income	24,000	66,985	22,147
	8,841,200	9,448,768	9,299,183
Expenses			
Wages and Benefits (note 11)	214,197	236,096	223,255
Rents and Services	241,750	156,768	56,575
Administration Fee (note 5)	30,000	30,000	30,000
Property Taxes	145,000	143,276	138,889
Electricity and Gas	1,250,000	1,163,827	1,161,020
Repairs and Maintenance	215,000	293,422	201,265
Operational Programs and Studies	235,000	280,647	191,206
Sundry	1,000	-	873
Amortization (Schedule 1)	1,193,447	1,193,447	1,169,116
OCWA Operating Contract	2,766,240	2,712,328	2,648,533
Long-term Interest Expense	1,500,285	1,500,285	1,578,421
	7,791,919	7,710,096	7,399,153
Annual Surplus	1,049,281	1,738,672	1,900,030
Accumulated Surplus, Beginning of Year	42,841,405	42,841,405	40,941,375
Accumulated Surplus, End of Year	$ 43,890,686	$ 44,580,077	$ 42,841,405

See accompanying notes to financial statements

Union Water Supply System

Statement of Cash Flow
for the years ended December 31

	2017	2016
Net Inflow (Outflow) of Cash Related to the Following Activities:		
Operating		
Annual surplus	$ 1,738,672	$ 1,900,030
Decrease (Increase) in accounts receivable	(149,757)	135,699
Increase (Decrease) in accounts payable	558,652	(1,617,545)
Increase in long-term investment	(10,000,000)	-
Cash provided by (applied to) operating transactions	(7,852,433)	418,184
Capital		
Amortization of tangible capital assets	1,193,447	1,169,116
Cash used to acquire tangible capital assets	(434,873)	(593,721)
Cash provided by capital transactions	758,574	575,395
Financing		
Debt repayment (principal only)	(794,415)	(697,659)
Increase (Decrease) in Cash and Short-Term Investments	(7,888,274)	295,920
Cash and Short-Term Investments, Beginning of Year	16,272,820	15,976,900
Cash and Short-Term Investments, End of Year	$ 8,384,546	$ 16,272,820

See accompanying notes to financial statements

Union Water Supply System

Statement of Change in Net Assets
for the years ended December 31

	2017 Budget(note 12)	2017 Actual	2016 Actual
Annual Surplus	$ 1,049,281	$ 1,738,672	$ 1,900,030
Amortization of tangible capital assets	1,193,447	1,193,447	1,169,116
Acquisition of tangible capital assets	(2,820,000)	(434,873)	(593,721)
Change in Net Assets	(577,272)	2,497,246	2,475,425
Net Assets (Debt), Beginning of Year	1,919,063	1,919,063	(556,362)
Net Assets, End of Year	$ 1,341,791	$ 4,416,309	$ 1,919,063

See accompanying notes to financial statements

Union Water Supply System

Notes to the Financial Statements
for the years ended December 31

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1. Description of Reporting Entity

The Union Water Supply System (UWSS) was created, effective January 8, 2001, by Order of the Minister of the Environment pursuant to the Municipal Water and Sewage Transfer Act, 1997. The Order transferred all assets, liabilities, rights and obligations of the Ontario Clean Water Agency in the municipal drinking water treatment and distribution system located in Ruthven to the municipalities of Leamington, Kingsville, Essex and Lakeshore ("member municipalities"). The Order provided for the establishment of a Joint Board of Management to govern the operation and management of the "System". Each owner's representation on the Board is based on its share of the total flows of the system with no municipality receiving more than fifty percent of the total number of members.

The interests of the Municipalities in the System shall be as tenants-in-common, each as to the undivided interest according to their proportional consumption of the total flows of the system. The ownership interests were reset on January 1, 2017 as Leamington - 50.55% (2013 - 56.11%), Kingsville - 40.33% (2013 - 34.83%), Essex - 5.97% (2013 - 6.04%) and Lakeshore - 3.15% (2013 - 3.02%). The ownership interest is to be updated every four years.

2. Summary of Accounting Policies

The financial statements of the Union Water Supply System are the representation of the Joint Board of Management prepared in accordance with Canadian public sector accounting standards for local governments, as recommended by the Public Sector Accounting Board of CPA Canada.

Basis of Accounting

Sources of financing and expenditures are reported on the accrual basis of accounting, with the exception of interest charges on long-term liabilities, which are charged against operations in the periods in which they are paid. The accrual basis of accounting recognizes revenues as they become available and measurable; expenditures are recognized, as they are incurred and measurable as a result of the receipt of goods or services and the creation of a legal obligation to pay.

Liabilities on the statement of financial position represent the outstanding principal portion of long-term liabilities, liabilities not yet due and other future expenses not yet raised by rates on the users.

Use of Estimates

The preparation of financial statements requires management to make estimates that affect the reported amount of assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenditures during the reporting period. Significant items subject to such estimates and assumptions include the valuation of accounts receivable, carrying value of tangible capital assets, accounts payable and accrued liabilities, including the valuation of post-employment benefits. Actual results could differ from those estimates.

2. Summary of Accounting Policies (Cont'd)

Tangible Capital Assets

Tangible capital assets are recorded at cost which includes all amounts that are directly attributed to acquisition, construction, development or betterment of the asset. The costs, less residual value, of the tangible capital assets are amortized on a straight-line basis over their estimated useful life as follows:

Land	Infinite
Land Improvements	15 years to infinite
Buildings	20 to 50 years
Machinery and Equipment	3 to 25 years
Linear Assets	10 to 90 years

One-half of the annual amortization is charged in the year of acquisition and in the year of disposal. Assets under construction are not amortized until the asset is available for productive use.

Contributions of Tangible Capital Assets

Tangible capital assets received as contributions are recorded at their fair value using the half year rule as though they have been received July 1.

Leases

Leases are classified as capital or operating leases. Leases which transfer substantially all the benefits and risks incidental to ownership of property are accounted for as capital leases. All other leases are accounted for as operating leases and the related lease payments are charged to expenses as incurred.

Inventories

Inventories consist of work-in-progress measured at cost.

Long-Term Investment

Investment is recorded at fair market value.

Future Accounting Changes

Effective for fiscal periods beginning on or after April 1, 2017, all governments will be required to adopt PSAB Section 2200 Related Party Disclosure, Section 3210 Assets, Section 3320 Contingent Assets, Section 3380 Contractual Rights and Section 3420 Inter-entity Transactions.

2. Summary of Accounting Policies (Cont'd)

Future Accounting Changes (Cont'd)

Effective for fiscal periods beginning on or after April 1, 2019, all governments will be required to adopt PSAB Section 3450 Financial Instruments, Section 2601 Foreign Currency Translation, Section 3041 Portfolio Investments and Section 1201 Financial Statement Presentation. These standards provide guidance on how to account for and present financial instruments and foreign currency translation.

Management is currently in the process of evaluating the potential impact of adopting these standards.

3. Cash and Short-Term Investments

This balance represents a consolidation from the operating fund and the reserve fund as follows:

	2017	2016
Operating Fund		
Cash	$ 2,171,824	$ 1,762,929
Reserve Funds		
Cash	6,212,722	251,482
One Fund investments	-	14,258,409
	6,212,722	14,509,891
	$ 8,384,546	$ 16,272,820

4. Long-Term Investment

Funds are invested in a guaranteed investment certificate (GIC) with an annual interest rate of 2.55%. The GIC has a five year term (matures April 2022).

5. Related Party Transactions

The related party balances on account of trade in the Statement of Financial Position are listed below:

	2017	2016
Accounts receivable	$ 706,215	$ 770,070
Accounts payable and accrued liabilities	987,209	457,070

The accounts receivable amount is the receivables from the four member municipalities for 2017 water flows that have not been received by year end. The accounts payable and accrued liabilities amount is the Due to Leamington balance that arises from Union Water Supply System 2017 purchases and debt payments that have not been paid by year end.

Union Water Supply System

Notes to the Financial Statements
for the years ended December 31

5. Related Party Transactions (Cont'd)

The related party transactions on the Statement of Financial Activities are listed below:

	2017	2016
Wholesale billings revenue (note 8)	$ 8,959,542	$ 8,855,085
Administration fee	30,000	30,000

Wholesale billings revenue balance is 2017 sales of water flows to the four member municipalities and is detailed in Note 8. Administration fee is the fee paid to the Municipality of Leamington for annual bookkeeping services. These transactions are measured at exchange amounts, which are the amounts of consideration established and agreed to by the related parties.

6. Long-Term Debt

As beneficial owners, Leamington, Kingsville, Essex and Lakeshore (collectively "the Municipalities") had become indebted to OCWA for work performed by OCWA in developing the System. The Municipal Water and Sewage Transfer Act provided that the Municipalities to whom the System was transferred were liable for such indebtedness.

In anticipation of the pending transfer order, the Municipalities jointly refinanced the indebtedness to OCWA. A financing agreement for $18,492,167, dated March 8, 1999, with Sun Life Assurance ("Sun Life"), requires a monthly repayment based on projected flows of the facility for a term ending on December 31, 2026. The effective interest rate is 10.55% per annum.

The Union Water Supply System Joint Board of Management has assumed the responsibility for all payments pertaining to the obligation detailed above.

The balance of long-term debt reported on the Statement of Financial Position is:

	2017	2016
Outstanding principal at the end of the year for:		
Net long-term debt, end of year	$ 13,756,545	$ 14,550,960

The estimated future principal payments required in the next five years and thereafter are as follows:

2018	$ 902,009
2019	1,021,638
2020	1,154,638
2021	1,302,487
2022	1,466,829
Thereafter	7,908,944
	$ 13,756,545

Union Water Supply System

Notes to the Financial Statements
for the years ended December 31

7. Tangible Capital Assets/Inventories

	Net Book Value	
	2017	2016
Land	$ 133,634	$ 133,634
Buildings	16,313,342	16,768,956
Machinery and equipment	6,314,239	6,347,177
Linear assets	17,228,582	17,562,184
Land improvements	107,390	110,391
Total tangible capital assets	40,097,187	40,922,342
Inventories	66,581	-
	$ 40,163,768	$ 40,922,342

For additional information, see the Consolidated Schedule of Tangible Capital Assets (Schedule 1).

8. Wholesale Billings Revenue

The member municipalities are invoiced on a monthly basis for their recorded flows.

	Revenues		Flows	
	2017	2016	2017	2016
	$	**$**	**Gals (000)**	**Gals (000)**
Municipality of Leamington	$ 4,256,356	$ 4,276,556	1,623,152	1,654,434
Town of Kingsville	3,922,396	3,789,918	1,446,853	1,423,838
Town of Essex	482,916	497,937	178,275	187,266
Town of Lakeshore	297,874	290,674	109,915	109,274
	$ 8,959,542	$ 8,855,085	3,358,195	3,374,812

9. Investment Income

Investment income includes bank and GIC interest income as follows:

	2017	2016
Interest income	$ 422,241	$ 282,749
Unrealized gain	-	139,202
	$ 422,241	$ 421,951

Union Water Supply System

Notes to the Financial Statements
for the years ended December 31

10. Accumulated Surplus

	2017	2016
Opening Reserve Balances		
Reserves:		
Operating fund	$ 1,960,131	$ 1,960,131
Wholesale rates reserve fund	3,685,763	2,187,430
Capital financing reserve fund	10,824,129	10,544,696
Total Reserve Balance	16,470,023	14,692,257
Long-term debt obligations	(14,550,960)	(15,248,619)
Tangible capital assets beginning of year (inc. inventory)	40,922,342	41,497,737
Accumulated Surplus, beginning of year	42,841,405	40,941,375
Contributions to reserve and interest	1,702,831	1,777,766
Tangible capital assets purchased (net of disposal)	434,873	593,721
Amortization of tangible capital assets	(1,193,447)	(1,169,116)
Debt repayment	794,415	697,659
Accumulated Surplus, end of year	$ 44,580,077	$ 42,841,405

11. Post Employment Benefits

Post employment benefits are future obligations of UWSS to its employees and retirees for benefits earned but not yet taken. Retiring full time employees hired prior to August 1, 2011 continue to receive paid health and dental benefits and life insurance coverage. All coverage continues for the lifetime of the retiree and spouse. In accordance with public sector accounting standards, the projected unit credit actuarial cost method has been used to determine the future cost of these benefits at the end of the year. The most recent actuarial valuation was dated June 1, 2015 and is effective December 31, 2014. Assumptions used are as follows:

(a) a discount factor of 3.65% was used;
(b) an increase of 8.10% for health in 2017, linearly decreased to an ultimate rate of 4.5% in 2035, and an annual increase of 4% for dental benefits was used;
(c) an employee will retire when they meet the criteria for an unreduced pension from OMERS, abut not later than 65; and
(d) all employees will remain employed by UWSS until retirement.

The liability, based on the above assumptions, at year-end is $106,000 (2016 - $88,200) and is included in accounts payable and accrued liabilities. An additional expense of $17,800 (2016 - $16,600) is reported in the Statement of Financial Activities and is reflected in wages and benefits.

Union Water Supply System

Notes to the Financial Statements
for the years ended December 31

12. Budget Figures

The 2017 Budget approved by the UWSS Board on December 21, 2016 was prepared on a modified cash basis. This budget was revised on August 2, 2017. The budget has been restated and is reported on a full accrual basis, in accordance with PSAB reporting requirements, in relation to the actual results in these financial statements.

The following summary outlines adjustments made to the approved budget (modified cash basis) to derive the restated based budget (full accrual basis) as presented in the financial statements:

		2017
Financial Plan (Budget) surplus for the year	$	(1,371,687)
Add:		
Accumulated surplus, beginning of the year		42,841,405
Principal payments on debt and due to related party		794,415
Capital expenditures reallocated to tangible capital assets		2,820,000
Less:		
Amortization expense on tangible capital assets		(1,193,447)
Budget Surplus per Statement of Financial Operations	$	43,890,686

13. Contingency - Liability Valuation

The Sun Life long-term debt obligation requires a monthly repayment based on projected flows of the facility over the term of the agreement ending on December 31, 2026. The annual valuation of the remaining obligation has been based on the present value of the remaining payment stream according to the cancellation provisions of the financing agreement.

In order to reflect the obligation in a manner similar to a traditional serial debt instrument, an amortization schedule allocating the required monthly payment stream between principal and interest has been created utilizing an effective monthly interest rate, as adopted in fiscal 2005 for the reporting of the remaining obligation.

Union Water Supply System

Schedule of Tangible Capital Assets - Schedule 1
as at December 31

	Infrastructure						Totals	
	Land	Land Improvements	Buildings	Machinery & Equipment	Linear Assets	Inventories	2017	2016
Cost								
Balance, beginning of year	$ 133,634	$ 120,022	$ 26,110,779	$ 10,366,114	$ 25,821,151	$ -	$ 62,551,700	$ 62,001,325
Add: New acquisitions during the year	-	-	21,499	231,733	30,338	66,581	350,151	484,216
Add: Additions during the year	-	-	22,844	52,512	9,366	-	84,722	169,361
Less: Disposals during the year	-	-	-	(20,516)	-	-	(20,516)	(103,202)
Balance, end of year	133,634	120,022	26,155,122	10,629,843	25,860,855	66,581	62,966,057	62,551,700
Accumulated Amortization								
Balance, beginning of year	-	9,631	9,341,823	4,018,937	8,258,967	-	21,629,358	20,503,585
Add: Amortization	-	3,001	499,957	317,183	373,306	-	1,193,447	1,169,116
Less: Accumulated amortization on disposals	-	-	-	(20,516)	-	-	(20,516)	(43,343)
Balance, end of year	-	12,632	9,841,780	4,315,604	8,632,273	-	22,802,289	21,629,358
Net Book Value of Tangible Capital Assets Including Inventories	$ 133,634	$ 107,390	$ 16,313,342	$ 6,314,239	$ 17,228,582	$ 66,581	$ 40,163,768	$ 40,922,342

See accompanying notes to financial statements

UW/08/18

To: Chair and Members of the Union Water Supply System (UWSS) Management Board

From: Rodney Bouchard, UWSS Manager

Date: March 28, 2018

Re: MOECC Drinking Water Inspection Report for the UWSS – January 16, 2018 Inspection

RECOMMENDATION

That the Union Water Supply System (UWSS) Board receives this report for information.

BACKGROUND

The UWSS is subject to annual inspections by the Ontario Ministry of Environment and Climate Change (MOECC) under the Safe Drinking Water Act, 2002 (SDWA) and its associated regulations.

The UWSS was inspected on January 16, 2018 and the final report for that inspection was issued by the MOECC on March 19, 2018. The previous inspection was conducted on January 26, 2017.

DISCUSSION:

The March 19, 2018 inspection report identifies two (2) items under the report section titled ***Non-Compliance with Regulatory Requirements and Actions Required.*** These items were identified by the inspector as items of non-compliance with the SDWA for the inspection period.

It should be noted that the identified non-compliances were addressed appropriately at the time of occurrence. All necessary required actions were completed immediately as indicated in the Inspection Report. Details regarding the non-compliance are provided on Page 16 of the Final Inspection Report (attached).

The inspection report also includes a section titled ***Summary of Recommendations and Best Practice Issues***, found on pages 17 of the Final Inspection Report. No recommended actions or best practices issue were identified in the Final Inspection Report.

As required by the regulations under the SDWA, the municipal water systems which receive drinking water from the UWSS have been provided with copies of the inspection report for the January 26, 2017 inspection. Further, the inspection has been posted on the UWSS website www.unionwater.ca .

CONCLUSION

This report is being provided to the Board for information purposes.

Respectfully submitted,

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

Filename: t:\union wtr\reports to board\2018\uw08-18 moecc drinking water inspection report for the uwss for the january 16, 2018 inspection.docx

Ministry of the Environment and Climate Change

Windsor Area Office

Unit 620 – 4510 Rhodes Dr
Windsor ON N8W 5K5
Tel. : 519 948-1464
1-800-387-8826
Fax: 519 948-2396

Ministère de l'Environnement et de l'Action en matière de changement climatique

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No 620 – 4510 Ch Rhodes
Windsor ON N8W 5K5
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1-800-387-8826
Téléc. : 519 948-2396

Ontario

March 19, 2018

File #: SI-LA-KI-540

Union Water Supply System
1615 Union Avenue
Ruthven, ON N0P 2G0

Attention: Mr. Rodney Bouchard, Manager

Re: Union Water Supply System (DWS#210000853) Inspection Report

Please find enclosed the Drinking Water System Inspection Report for the inspection that was conducted at the Union Water Supply System (DWS#210000853) on January 16, 2018.

A summary of **Non-Compliance with Regulatory Requirements and Actions Required** are found on page 16.

Section 19 of the Safe Drinking Water Act (Standard of Care) creates a number of obligations for individuals who exercise decision-making authority over municipal drinking water systems. Please be aware that the Ministry has encouraged such individuals, particularly municipal councillors, to take steps to be better informed about the drinking water systems over which they have decision-making authority. These steps could include asking for a copy of this inspection report and a review of its findings. Further information about Section 19 can be found in "Taking Care of Your Drinking Water: A guide for members of municipal council" found under "Resources" on the Drinking Water Ontario website at www.ontario.ca/drinkingwater.

In order to measure individual inspection results, the Ministry has established an inspection compliance risk framework based on the principles of the Inspection, Investigation & Enforcement (II&E) Secretariat and advice of internal/external risk experts. The Inspection Summary Rating Record (IRR), included as Appendix B of the inspection report, provides the Ministry, the system owner and the local Public Health Units with a summarized quantitative measure of the drinking water system's annual inspection and regulated water quality testing performance.

IRR ratings are published (for the previous inspection year) in the Ministry's Chief Drinking Water Inspectors' Annual Report. If you have any questions or concerns regarding the rating, please contact Marc Bechard, Drinking Water Program Supervisor, at 519-383-3778.

If you have any questions or concerns regarding this report, please call me at (519) 948-2467.

Yours truly,

Emily Awad
Water Inspector, Provincial Officer #1823
Safe Drinking Water Branch, Windsor Area Office

Encl.
cc: Ken Penney, Process & Compliance Technician and Dale Dillen, Operations Manager, Union Water Supply System;
Dr. Wajid Ahmed, Acting Medical Officer of Health; Theresa Marentette, Director of Health Protection; Mike Tudor, Manager, Health Inspection Department; Phil Wong, Manager, Health Inspection Department; WECHU
Katie Stammler, Source Water Protection Manager, Essex Region Conservation Authority
Marc Bechard, Supervisor, Ministry of Environment and Climate Change

Ministry of the Environment and Climate Change

UNION AREA WATER SUPPLY SYSTEM

Inspection Report

Site Number:	210000853
Inspection Number:	1-F93SZ
Date of Inspection:	Jan 16, 2018
Inspected By:	Emily Awad

Table of Contents

OWNER INFORMATION:

Company Name: UNION WATER SYSTEM JOINT BOARD OF MANAGEMENT (LEAMINGTON, KINGSVILLE, ESSEX, LAKESHORE)
Street Number: 1615 **Unit Identifier:**
Street Name: UNION Ave
City: RUTHVEN
Province: ON **Postal Code:** N0P 2G0

CONTACT INFORMATION

Type: Main Contact **Name:** Ken Penney
Phone: (519) 326-4447 **Fax:**
Email: kpenney@ocwa.com
Title: Ontario Clean Water Agency - Process & Compliance Technician

Type: Owner **Name:** Rodney Bouchard
Phone: (519) 326-1668 **Fax:** (519) 326-3490
Email: rbouchard@unionwater.ca
Title: Manager, UWSS Joint Board Management

Type: Operating Authority **Name:** Dale Dillen
Phone: (519) 326-4447 **Fax:** (519) 326-0450
Email: ddillen@ocwa.com
Title: Operations Manager, OCWA

INSPECTION DETAILS:

Site Name: UNION AREA WATER SUPPLY SYSTEM
Site Address: 1615 UNION AVE RUTHVEN ON N0P 2G0
County/District: Kingsville
MOECC District/Area Office: Windsor Area Office
Health Unit: WINDSOR-ESSEX COUNTY HEALTH UNIT
Conservation Authority: Essex Region Conservation Authority
MNR Office: Chatham Regional Office
Category: Large Municipal Residential
Site Number: 210000853
Inspection Type: Announced
Inspection Number: 1-F93SZ
Date of Inspection: Jan 16, 2018
Date of Previous Inspection: Jan 26, 2017

COMPONENTS DESCRIPTION

Site (Name): Union AWSS
Type: Other **Sub Type:** Other
Comments:

The Union Area Water Supply System (Union WSS) is located in Ruthven, Ontario. The drinking water system is owned by, and supplies water to, the municipalities of Kingsville, Leamington, Essex and Lakeshore via the Union Water System Joint Board of Management. Each of these respective municipalities forms part of the board, but each also owns and operates a separate standalone distribution system receiving water from the Union WSS. According to the drinking water system registration profile, this results in a total serviced population of approximately 60,000 persons. The Union WSS system is considered a "large municipal residential system" under O. Regulation 170/03. The communities of Kingsville, Leamington, Essex are equipped with elevated tanks. Other than the reservoirs on-site at the Union treatment plant, there is also a reservoir/booster station in the village of Cottam which serves the Town of Essex.

Site (Name): Union AWSS Low Lift Building
Type: Source **Sub Type:** Surface Water
Comments:
The treatment facility in Ruthven, receives water from Lake Erie via a low lift pumping station. Seven low lifts pumps can draw water through two intake pipes and another emergency intake channel if needed. The low lift station is equipped with a zebra mussel control system consisting of two sodium hypochlorite chemical feed pumps to pre-chlorination lines retrofitted through both the #1 and 2 intake, extending to a diffuser within each intake crib. The low lift pumping station consists of a two cell interconnected pump-well, equipped with manually removed bar screens and automatic travelling screens. Low lift pump well #1 houses five low lift pumps and low lift pump well #2 houses the remaining two pumps. The low-lift also houses two surge tanks for pump pressure surges.
Raw water flows through 24 inch and 36 inch raw transmission mains to the treatment plant approximately one kilometre inland.

Site (Name): Union AWSS WTP
Type: Treated Water POE **Sub Type:** Treatment Facility
Comments:
The Union WSS treatment plant is currently rated at 124,588 m3/d approved capacity. It is a conventional water treatment plant consisting of contact clarification via four solids upflow clarifiers after coagulant, coagulant aid (polymer) and activated carbon addition. Clarified water flows into eight dual media-type filters (sand and anthracite). Filter aid can be dosed on a contingency basis. The filters are equipped with backwash facilities via two backwash pumps. Sedimentation sludge and backwash from the filters is directed to a residue management pump station and is transferred to two settling/storage ponds. Supernatant overflow from the ponds is discharged into a storm sewer which discharges to Lake Erie.
Primary disinfection is provided via chlorine gas solution injection into the clarified effluent water (pre) and filtered effluent water (post) locations. Chlorine contact is achieved in two on-site reservoirs, operated in series. Interconnecting piping and valves allow taking individual reservoirs out of service. Free and total chlorine is monitored after the reservoirs to properly meter and inject aqueous ammonia into the treated water stream for secondary disinfection before the high-lift pump station. The high-lift pump station consists of two wells. High-lift pump well #1 houses seven high lift pumps and high-lift pump well #2 houses two pumps. There is also an emergency diesel-drive for one of the high-lift pumps. The high-lift also houses two surge tanks for pump pressure surges.

Ontario

INSPECTION SUMMARY:

Introduction

- **The primary focus of this inspection is to confirm compliance with Ministry of the Environment and Climate Change (MOECC) legislation as well as evaluating conformance with ministry drinking water related policies and guidelines during the inspection period. The ministry utilizes a comprehensive, multi-barrier approach in the inspection of water systems that focuses on the source, treatment and distribution components as well as management practices.**

  This drinking water system is subject to the legislative requirements of the Safe Drinking Water Act, 2002 (SDWA) and regulations made therein, including Ontario Regulation 170/03, "Drinking Water Systems" (O.Reg. 170/03). This inspection has been conducted pursuant to Section 81 of the SDWA.

  This report is based on a "focused" inspection of the system. Although the inspection involved fewer activities than those normally undertaken in a detailed inspection, it contained critical elements required to assess key compliance issues. This system was chosen for a focused inspection because the system's performance met the ministry's criteria, most importantly that there were no deficiencies as identified in O.Reg. 172/03 over the past 3 years. The undertaking of a focused inspection at this drinking water system does not ensure that a similar type of inspection will be conducted at any point in the future.

  This inspection report does not suggest that all applicable legislation and regulations were evaluated. It remains the responsibility of the owner to ensure compliance with all applicable legislative and regulatory requirements.

  Specifically, this review includes an assessment of compliance/conformance in relation to the following:
  • Drinking Water Systems Regulation (O. Reg. 170/03);
  • Drinking Water Operator and Water Quality Analyst Certification Regulation (O. Reg. 128/04) with respect to facility certification, operator licensing and operating standards;
  • Drinking Water System Licence 041-101, Issue Number 5, issued June 9, 2017, related to Performance, Monitoring and Recording, Operations and Maintenance requirements;
  • Drinking Water Works Permit 041-201, Issue Number 4, issued June 9, 2017;
  • Permit to Take Water Number 0816-9T9SVT, related to compliance with permitted taking limits and special conditions;
  • Ontario Drinking Water Quality Standards based on water quality data generated since the previous inspection, and
  • required actions and recommendations in the previous ministry inspection report dated April 6, 2017.

  The inspection was conducted on an announced basis on January 16, 2018. It included:
  1. a physical inspection of the low and high lift pumping facilities, water treatment equipment, and residual waste management facilities, as well as the Cottam Booster Station;
  2. testing free and combined chlorine residuals in the laboratory water (treated);
  3. collection of relevant operational documents and owner's sampling results;

  A follow-up visit was conducted on February 15, 2018 to review SCADA data gaps.

  The inspection covers the period from January to December 2017.

Capacity Assessment

- **There was sufficient monitoring of flow as required by the Municipal Drinking Water Licence or Drinking Water Works Permit issued under Part V of the SDWA.**

  Condition 2.0 of Schedule C of Drinking Water Licence #041-101, Issue #5 requires the owner to undertake continuous flow measurement and recording for:
  2.1.1 The flow rate and daily volume of treated water that flows from the treatment subsystem to the distribution system.
  2.1.2 The flow rate and daily volume of water that flows into the treatment subsystem.

  Two differential pressure type (Clarifiers 1 & 2) and two magnetic type (Clarifiers 3 & 4) meters are installed on the raw inlet supply to each upflow clarifier, four in total. The metered flow piping to clarifiers 1 and 2 are inter-connected with each other. Magnetic type meters are installed on each filter effluent line.
  Magnetic type meters are also installed on the high-lift discharge headers to the distribution system. Additionally flow meters are installed to measure filter backwash. A flow meter is also in operation at the Cottam booster pumping station on the station effluent/bypass header.

  It was observed during the physical inspection that flow was being measured at all operating filter effluent line meters as well as meters 1A and 1B, the two primary flow meters at the high lift (from the treatment subsystem to the distribution system). During the inspection, the on-site SCADA system indicated a total raw flow of 4458 gallons/minute (into the treatment subsystem) and a total treated flow of 5826 gallons/minute going out to the distribution system. The primary flow meters at the high lift read the following flows during the inspection: 1A = 2850.36 and 1B = 3501.84 gallons per minute.

  Section 3.2 of Permit to take Water #0816-9T9SVT states that the maximum daily water takings shall not exceed 163,656 m3/d. During 2017, the daily maximum volume of water pumped into the plant ranged from 21,396 to 83,305 m3/d, the maximum of which was 51% of the authorized water takings.

- **The owner was in compliance with the conditions associated with maximum flow rate or the rated capacity conditions in the Municipal Drinking Water Licence issued under Part V of the SDWA.**

  Condition 1.0 of Schedule C of the Drinking Water System Licence states that the maximum daily volume of treated water that flows from the treatment subsystem to the distribution system shall not exceed 124,588 m3/day. During the period of review, the maximum daily flow of treated water was 75,568 m3, or approximately 61% of the approved rated capacity.

Treatment Processes

- **The owner had ensured that all equipment was installed in accordance with Schedule A and Schedule C of the Drinking Water Works Permit.**

  A recent update to Drinking Water Works Permit #041-201, Issue #4 (June 9, 2017) included the addition of the missing components, identified in previous inspections, to Schedule A. No further changes to the treatment equipment were noted during the physical inspection. A microstrainer that was formerly used in the treatment process was removed from the maintenance garage and there are plans to relocate the laboratory to this area. The other microstrainer will also be replaced to provide more space in the maintenance garage.
  At the time of the inspection, only two clarifiers were online and filters #5 and 7 were out of service; Filters #1 and 2 were online but not being used.

- **The owner/operating authority was in compliance with the requirement to prepare Form 2 documents as required by their Drinking Water Works Permit during the inspection period.**

  Form 2 documents must be prepared for any works falling within the scope of sections 4.1, 4.2 and 4.3 of the Drinking Water Works Permit. Required Form 2 documents were prepared for 17 projects undertaken in 2017:
  - Change in treatment coagulant chemical from DelPAC 2020 to Hyperion 1090 in order to reduce aluminum

Treatment Processes

residual (September 2)
- Change in treatment coagulant chemical from Hyperion 1090 to DelPAC 2020 (November 11)
- Addition of new turbidimeter on Low lift intake #1 (April 6)
- Replacement of 6 filter turbidimeters with HACH TU5300sc turbidimeters (Filter #1: March 13, #2: May 1, #3: November 22, #6: February 23, #7: March 2, and #8: March 2)
- Replacement of HACH turbidimeter on clarifier #1 with SWAN AMI TURBIWELL turbidimeter (November 20)
- Replacement of turbidimeter on clarifier #2 (January 19)
- Replacement of Channel #1 (combined filter) ABB turbidimeter (November 15)
- Replacement of 2 filter flow meters (February 15 and 16)
- Replacement of low lift pump #2 (October 27)
- Replacement of plant effluent ABB turbidimeter (November 15)
- Replacement of TMC-2 combined filter turbimeter with Rosemount Emerson model Clarity II (February 6)

The Operating Authority is reminded that, as per Schedule B, section 4 of the Permit, any minor modifications or replacements to the drinking water system must be documented on a Form 2 prior to the modified or replaced components being placed into service.

- **Records indicated that the treatment equipment was operated in a manner that achieved the design capabilities required under Ontario Regulation 170/03 or a Drinking Water Works Permit and/or Municipal Drinking Water Licence issued under Part V of the SDWA at all times that water was being supplied to consumers.**

  Operating logs and continuous trends from January to December 2017 were reviewed. Turbidity measurements from each filter and chlorine measurements from CRA-7 and the Cottam Booster effluent were provided by the Operating Authority in 2 minute intervals.

  The Disinfection Procedure requires that in order to be considered conventional filtration and meet or exceed the 2.5 log Giardia cyst removal, the 2.0 log Cryptosporidium oocyst removal and 2.0 log virus removal credits, the filtration process must use a chemical coagulant at all times when the treatment plant is in operation. On October 10, 2017 there was a loss of coagulant for 1 hour, six minutes due to coagulant pump failure. The operator could not repair it so had to call in off-site service to conduct the repair. Data review indicated that filter effluent turbidity did not increase during this time.

  Turbidity levels from filters #1-8 ranged from 0 to 0.92 NTU, with the exception of 3 instances, each lasting only 2 minutes, where the turbidity spiked above 1 NTU. In two of these instances, maintenance on the filter turbidity units was being conducted. Performance must meet filtered water turbidity of less than or equal to 0.3 NTU in 95% of the turbidity measurements each month. This performance standard was met at each filter in each month. Summaries assessed for the review period show that turbidity values on all filters were less than 0.3 NTU 100% of the time in March, May, July, November and December, and ranged between 99 and 100% in all other months except for August, when it dropped to 98.7%. This corresponds to increased algae detections in the raw water in August and the corresponding filter turbidity spikes.

  On May 1, 2017, operators began conducting more frequent plant walk-throughs and equipment checks (every 4 hours) as recommended in the last inspection report. Rounds sheets are completed each day and signed off by the operator.

- **Records confirmed that the water treatment equipment which provides chlorination or chloramination for secondary disinfection purposes was operated so that at all times and all locations in the distribution system the chlorine residual was never less than 0.05 mg/l free or 0.25 mg/l combined.**

  Distribution monitoring programs for combined chlorine residuals in each of the respective municipalities fed by the Union WSS are included within the scope of inspections for each of the stand-alone distribution systems for those

Treatment Processes

drinking water systems. The Union WSS is responsible for operation of the remote sites including Cottam Booster Station and the elevated tank and tower sites, and must maintain adequate combined chlorine residuals at those locations to ensure acceptable residuals are maintained throughout the entire system.

A review of the combined chlorine residuals at the outlet of the Cottam Booster Station showed the majority of total chlorine residuals above 0.25mg/L, ranging from 0.49 to 2.94mg/L, with an average concentration of 1.63mg/L. There were a few exceptions where values were recorded as "(null)" or zero. In all cases, these exceptions corresponded to notations of maintenance activities or power outages in the Facility Logbooks. There were also a handfull of results that exceeded 3mg/L that did not have a corresponding notation in the logbook. In these cases, the chlorine residual only spiked for a two minute interval and is not a concern.

During the inspection, the chlorine residual was measured in the laboratory water (treated) and showed a free chlorine residual of 0.11mg/L and a total chlorine residual of 2.08mg/L, for a combined chlorine residual of 1.97mg/L.

Treatment Process Monitoring

- **Primary disinfection chlorine monitoring was conducted at a location approved by Municipal Drinking Water Licence and/or Drinking Water Works Permit issued under Part V of the SDWA, or at/near a location where the intended CT has just been achieved.**

  A ProMinent D1C continuous chlorine monitor/controller with CLE probe (designated as CRA-7) measures free chlorine on the second reservoir outlet line for measuring primary disinfection CT, consistent with the ministry's "Procedure for Disinfection of Drinking Water in Ontario". This location is prior to addition of aqueous ammonia for the creation of chloramine for secondary disinfection. Free chlorine residuals from this monitor generally ranged between 1.03 to 3.0mg/L, with a few outliers (high values: >3mg/L and low values: <1mg/L) which corresponded to notations of maintenance in the Facility Logbook. The average free chlorine residual during the inspection period was 1.9mg/L.

- **Continuous monitoring of each filter effluent line was not being performed for turbidity.**

  Filter effluent turbidity values are measured by Hach TU5300sc analysers on all filters lines except for filter #4, which has a Rosemount Clarity II analyser. Measured results are recorded by SCADA. Alarm and filter-to-waste set-points are established in SCADA to respond to measured tests from these analysers.

  O. Reg.170/03, Schedule 7, Section 7(3)(2) requires continuous monitoring equipment of each filter effluent line. Continuous monitoring for turbidity is required only of the filter effluent that is directed to the next treatment process/stage (and eventually to the distribution system). On March 13, 2017, an "air-locked" turbidimeter on filter unit #3 was reported to the Spills Action Centre (SAC). Turbidity from the SCADA Historian data indicated 0.03 NTU prior to and 0.04 NTU after the incident. During the 2.5 hour intrerruption, the turbidity readings remained at 0.02 NTU and therefore turbidity from filter #3 was not continuously measured.

  At the inspection each operating filter effluent line had a functioning continuous turbidity meter. Filters #5 and 7 were out of service for annual maintenance and filters #1 and 2 were online but not being used.

- **Operators were examining continuous monitoring test results and they were examining the results within 72 hours of the test.**

  In accordance with the operating authority's policy, and as reflected in the project logs, review of continuous monitoring results via daily summary reports are completed once per day and recorded on the summary reports.

Treatment Process Monitoring

- **All continuous monitoring equipment utilized for sampling and testing required by O. Reg.170/03, or Municipal Drinking Water Licence or Drinking Water Works Permit or order, were equipped with alarms or shut-off mechanisms that satisfy the standards described in Schedule 6.**

  Free chlorine is measured on the reservoir's outlet (CRA-7) for monitoring primary disinfection CT and each filter effluent line is equipped for continuous measurement of turbidity.

  Low and high chlorine alarm settings reviewed for CRA-7 through SCADA during the ministry's inspection were LoLo: 1.20 mg/L, Lo: 1.30 mg/L, Hi: 2.50 mg/L and HiHi: 2.60 mg/L, respectively. Alarms for secondary disinfection total chlorine levels leaving the plant (CRA-10) are similarly set.

  The plant is staffed 24 hours per day. The audible alarm can be heard through and outside the plant and the visual alarm is displayed on the SCADA terminal.

  Filter turbidity alarm setpoints reviewed through SCADA during the inspection were Hi: 0.16 NTU and HiHi: 0.18 to 0.20 NTU. At 0.20 NTU, the filter is automatically directed to waste; however, the operator can adjust this setpoint for operational purposes (i.e. to keep a filter online). Hi and hi-hi alarms are audible throughout the plant. Operational alarms for clarifier effluent turbidity prior to filtration are set at 3 NTU (hi) and 5 NTU (hi-hi).

  The alarm system is set so that if the turbidity value drops to zero or there is a power failure, it will alarm and filter to waste.

  New Hach turbidimeters have been installed on all filters except for filter #4. These Hach turbidimeters include a local alarm when flow is interrupted. The operating authority is currently exploring ways to connect this flow alarm to the SCADA system so that any flow disruptions to turbidimeters can be addressed immediately. Upgrades to the SCADA system planned for 2018 should address this issue.

  Due to the complexity of the Union WSS, the engineers designed an algorithm for SCADA to calulate CT which accounts for the current raw water conditions (temperature, pH), reservoir volume and flow rate, and free chlorine residual. The chlorine levels in the reservoirs are generally high as the chloramination system requires the chlorine at a 4:1 ratio to ammonia and alarm setpoints for CRA-7 warn the Operator if the chlorine levels are getting too low.

- **Continuous monitoring equipment that was being utilized to fulfill O. Reg. 170/03 requirements was performing tests for the parameters with at least the minimum frequency specified in the Table in Schedule 6 of O. Reg. 170/03 and recording data with the prescribed format.**

  O. Reg. 170/03, Sub-section 6-5(1) requires the continuous monitoring equipment to record the date, time, sampling location and result of every test for the parameter with at least the minimum frequency prescribed as follows:
  1. Free chlorine residual required to achieve primary disinfection: 5 minutes;
  2. Filter effluent turbidity: 15 minutes.

  A review of SCADA data confirmed that, in the majority of cases, monitoring of free chlorine residual at CRA-7 and turbidity at each filter was occurring at least every 5 minutes, with the exception of the March 13 turbidimeter air lock incident. Most instances where the frequency of measurements exceeded the minimum requirements were due to maintenance of the analyzers or filters, calibration of the analysers, software restarts, sample collection, power outages or communication losses, which were noted in the logbook. There were several instances in which the intervals between the chlorine and filter turbidity readings were greater than the required frequency. The WISKI database may have been down for maintenance during these instances, and the SCADA data provided was not complete because the current SCADA system will only record data if the percentage change in measurements meets an assigned threshold. It is recommended that SCADA record regulatory parameters at a minimum of 5 minute intervals. This issue should be addressed during the upgrade to SCADA planned for 2018-19.

Treatment Process Monitoring

- **All continuous analysers were calibrated, maintained, and operated, in accordance with the manufacturer's instructions or the regulation.**

  All continuous analysers are verified monthly and calibrated quarterly. Maintenance, checks and calibrations are documented in the operating authority's equipment maintenance recording system.

  Manufacturer's instructions for the Prominent free chlorine analyser located at CRA-7 indicates calibration should be repeated at regular intervals. Maintenance records show that the continuous chlorine analyser was verified and maintained monthly. Ongoing maintenance and calibration is conducted as necessary. Since the SCADA control system uses CRA-7 free chlorine analyser signal in a compound loop with the final plant flow signal to accurately dose aqua-ammonia to achieve a full conversion to monochloramine, CRA-7 accuracy must be frequently checked. Logs show that when the analyser was serviced the aqua-ammonia dosing pumps were temporarily shutdown. SOP OCWA-C1-03 outlines the procedure to follow for calibrating CRA-7. Upon request, this SOP was updated to include more specific directions, including placing the ammonia pump in manual and not making any adjustments to flow which would change the chlorine dosage; the updated SOP was reviewed with relevant staff.

  The HACH TU5400sc manufacturer's manual recommends that a calibration verification be done periodically to make sure that the system operates as intended and after repairs or comprehensive maintenance work. The manufacturer recommends cleaning the vial every 1 to 3 months, replacing the vial and the desiccant cartridge every 1 to 2 years, and cleaning the vial compartment and replacing tubing as necessary. Manufacturer's instructions for the Rosemount Clarity II turbidity sensor recommend calibration after maintenance of the turbidity sensor and lamp.

  Maintenance records show that all turbidimeters are verified monthly and routine calibration checks of on-line instrument versus hand-held and lab bench units is conducted as necessary. The maintenance described above is conducted at the recommended frequency. When the lamp is replaced on the Rosemount Clarity II turbidimeter, a calibration using either slope or standard calibration is conducted.

  The Operating Authority is moving away from developing additional SOPs so they have instructed staff to refer to the manufacturer's manuals for calibration instructions. Manufacturer manuals are stored on the shared drive and hard copies are filed in the office, readily available to all staff.

Operations Manuals

- **The operations and maintenance manuals contained plans, drawings and process descriptions sufficient for the safe and efficient operation of the system.**

  The Union Area WSS Operations Manual contains descriptions of each of the process steps. Sections of the Operations Manual were revised in 2015, 2016, and early 2017. Standard Operating Procedure manuals for the plant and the Cottam Booster Station contain standard procedures and policies. Operators also have access to a map showing transmission mains in the Union distribution system along with as-built drawings. These are available as hard copies at the water plant.

  As indicated in the previous inspection report, plant drawings were to be updated within one year (April 13, 2017) of the re-location of the powdered activated carbon (PAC) dosing equipment as required by conditions 4.8 of the Drinking Water Works Permit and 15.2 of the Drinking Water System Licence. The owner is in the process of creating a digital library for all drawings which has taken more time than anticipated and was not completed by April 13, 2017. The owner requested an extension from the ministry and a new deadline of November 13, 2017 was approved. The owner then contacted the ministry just before the November 13th deadline to request another extension due to some additional work that is planned for the near future that should be incorporated into the drawings. Based on the scope of the project, the ministry granted them a new deadline of July 10, 2018.

Operations Manuals

- **The operations and maintenance manuals met the requirements of the Drinking Water Works Permit and Municipal Drinking Water Licence issued under Part V of the SDWA.**

  As required by Condition 16.2 under Schedule B of the Drinking Water System licence, the Union Area WSS Operations Manual contains procedures for monitoring, operating and maintaining equipment, contingency plans for emergencies, and procedures for dealing with complaints.

  It was once again noted that the Operations Manual only refers to the use of Delpac 2020 coagulant; however, Hyperion 1090 coagulant was also used from August 6 to October 27, 2016 and September 2 to November 10, 2017. The operating authority was directed to update the Operations Manual to include a description of any coagulants used in the water treatment process. This update has been completed and no further actions are required.

Logbooks

- **Records or other record keeping mechanisms confirmed that operational testing not performed by continuous monitoring equipment was being done by a certified operator, water quality analyst, or person who suffices the requirements of O. Reg. 170/03 7-5.**

Security

- **The owner had provided security measures to protect components of the drinking water system.**

  The Union WSS water treatment plant is located in a fenced compound with locked/camera monitored security entrances which must be remotely opened by the operator. All doors of the plant, with the exception of the front door, are steel security doors which are normally kept locked.

  The low lift building is in a separate windowless brick structure. It is not in a fully fenced compound, although strategic security fencing has been installed for preventing access to the roof and the electrical transformer compound. The building is equipped with lockable steel security doors, intruder door contact alarms, keycode entry and remote camera monitoring.

Certification and Training

- **The overall responsible operator had been designated for each subsystem.**

  The overall responsible operator for the treatment system and distribution system is identified in SOP OCWA-C3-01. He holds a valid class IV certification for both; matching the classification of the Union water treatment plant and the Union trunk water distribution system. Three backup overall responsible operators hold class II or III certifications for both treatment and distribution sub-systems and are also identified in the SOP.

- **Operators in charge had been designated for all subsystems which comprised the drinking-water system.**

  Operators in charge for each shift are required to be identified in a designated field in the project log book.

- **All operators possessed the required certification.**

- **Only certified operators made adjustments to the treatment equipment.**

  According to operating logs reviewed for the period assessed, only certified operators made adjustments to the treatment equipment.

Water Quality Monitoring

- **All microbiological water quality monitoring requirements for treated samples were being met.**

  O. Reg. 170/03, Schedule 10-3 requires the owner and operating authority to sample treated water once per week and analyse it for E. coli, total coliforms and heterotrophic plate count (HPC). For the period reviewed, treated water microbiological samples were taken each week.

- **All inorganic water quality monitoring requirements prescribed by legislation were conducted within the required frequency.**

  Provided that previous sample results have not exceeded one-half maximum acceptable concentration (MAC) for any parameter under Schedule 23, O. Reg. 170/03, Schedule 13-2 requires that samples must be taken and analysed for Schedule 23 parameters every 12 months for a surface water supply. The required samples were taken January 10, 2017 and then again on July 18, 2017. Previous samples for analysis of these parameters were taken January 12, 2016.

  Schedule 6-1.1 (5) states that for samples required to be taken every 12 months and tested for a parameter, the owner and the operating authority shall ensure that at least one sample that is taken during a 12-month period for the purpose of being tested for that parameter is taken not more than 30 days before or after the first anniversary of the day a sample was taken for that purpose in the previous 12-month period. The owner complied with this provision.

- **All organic water quality monitoring requirements prescribed by legislation were conducted within the required frequency.**

  Provided that previous sample results have not exceeded one-half maximum acceptable concentration (MAC) for any parameter under Schedule 24, O. Reg. 170/03, Schedule 13-4 requires that samples must be taken and analysed for Schedule 24 parameters every 12 months for a surface water supply. The required samples were taken January 10, 2017 and then again on July 18, 2017. Previous samples for analysis of these parameters were taken January 12, 2016.

  Schedule 6-1.1 (5) states that for samples required to be taken every 12 months and tested for a parameter, the owner and the operating authority shall ensure that at least one sample that is taken during a 12-month period for the purpose of being tested for that parameter is taken not more than 30 days before or after the first anniversary of the day a sample was taken for that purpose in the previous 12-month period. The owner complied with this provision.

- **All haloacetic acid water quality monitoring requirements prescribed by legislation are being conducted within the required frequency and at the required location.**

  The drinking water system does not include any distribution systems except transmission mains. An assessment of distribution sampling compliance for haloacetic acid (HAA) is referred to within the scope of those separate stand-alone distribution system inspections. However, samples for HAA analysis were also taken at the water treatment plant quarterly and ranged from 5.3 (below detection limit) to 6.1 ug/L, which is comparable to results from 2 of the 4 distribution systems that are fed by the Union Area WSS: Leamington (all below detection, 5.3ug/L) and Kingsville (<5.3 to 5.6ug/L). HAA results were higher at the other two distribution systems fed by the Union Area WSS: Essex (<5.3 to 13.2ug/L) and Lakeshore (<5.3 to 14ug/L).

- **All trihalomethane water quality monitoring requirements prescribed by legislation were conducted within the required frequency and at the required location.**

  The drinking water system does not include any distribution systems except transmission mains. An assessment of distribution sampling compliance for trihalomethanes (THM) is referred to within the scope of those separate stand-alone distribution system inspections. However, samples for THM analysis were also taken at the water treatment plant quarterly and the running annual average (RAA) for 2017 (13.4 ug/L) was lower than in 2016 (19.6ug/L) and

Water Quality Monitoring

also lower than the RAAs at the 4 distribution systems that are fed by the Union Area WSS (Essex=23.5ug/L, Kingsville=19.6ug/L, Lakeshore=25.2ug/L, and Leamington=21.5ug/L).

- **All nitrate/nitrite water quality monitoring requirements prescribed by legislation were conducted within the required frequency for the DWS.**

  As required under O. Reg. 170/03, Schedule 13-7, samples must be taken and analysed for nitrate and nitrite every 3 months. Raw and treated samples were taken weekly and analyzed for total ammonia-N, nitrate-N, nitrite-N, and nitrite+nitrate-N. Concentrations of nitrate (0.1 to 1mg/L) and nitrite (0.1-0.5mg/L) in treated samples were well below the drinking water standards (nitrate=10mg/L and nitrite=1mg/L).

- **All sodium water quality monitoring requirements prescribed by legislation were conducted within the required frequency.**

  O. Reg. 170/03, Schedule 13-8 requires sampling and analysis of sodium every 60 months. A sample for analysis of sodium was taken on January 10 and July 18, 2017. The previous sample for analysis of this parameter was taken January 12, 2016.

- **All fluoride water quality monitoring requirements prescribed by legislation were conducted within the required frequency.**

  O. Reg. 170/03, Schedule 13-8 requires sampling and analysis of fluoride every 60 months. A sample for analysis of fluoride was taken on January 10 and July 18, 2017. The previous sample for analysis of this parameter was taken January 12, 2016.

- **All water quality monitoring requirements imposed by the Municipal Drinking Water Licence and Drinking Water Works Permit were being met.**

  Only sampling for Environmental Discharge Parameters are required under Schedule C, Condition 4.0 of the Municipal Drinking Water Licence. A monthly composite sample was collected from the point of discharge from the waste management settling pond and analyzed for total suspended solids (TSS). Concentrations ranged from below detection to 6mg/L. No additional monitoring for potable water was included in the Licence.

  SOP #OCWA-C3-34 provided during the inspection included instructions for the weekly TSS sample collection but no guidance on how the monthly composited sample is to be taken to ensure a thoroughly mixed sample. The operating authority has now updated the SOP to include detailed guidance on this and reviewed the update with relevant staff.

- **Records confirmed that chlorine residual tests were being conducted at the same time and at the same location that microbiological samples were obtained.**

  Review of all chain of custody forms sent to the laboratory confirmed that chlorine residuals were measured with the microbiological samples each week, with the exception of August 8, 2017. The operating authority is reminded to ensure that chlorine residuals are measured along with each microbiological sample and recorded on the chain of custody sheet that is sent to the laboratory.

Water Quality Assessment

- **Records showed that all water sample results taken during the inspection review period did not exceed the values of tables 1, 2 and 3 of the Ontario Drinking Water Quality Standards (O.Reg. 169/03).**

  All regulatory water sample results consistently met Ontario Drinking Water Quality Standards.

  The following water quality is also noted from the owner's results for samples collected from January to December 2017:
  (i) Aluminum residual samples of treated water from the plant were taken weekly. Concentrations were elevated

Water Quality Assessment

above the operational guideline (100ug/L) from April 24 to September 5, 2017, and was highest on August 24th (513ug/L). The operating authority switched coagulants (from DelPAC to Hyperion) from September to November to address the elevated aluminum residuals. Shortly after this switch (September 11, 2017), there was a marked decrease in aluminum residuals. This decrease may have been due to the switch to Hyperion and/or the decrease in raw water temperatures.
(ii) Samples of raw and filtered water for Clostridium perfringens were taken weekly; there were no detections in the filtered water.
(iii) Samples of raw and treated water for nitrites, nitrates, and ammonia were taken weekly.
(iv) Samples of Geosmin and MIB from raw and treated water were taken weekly; detections were generally only in the raw water, but there were a handful of detections of Geosmin in the treated water in July and August and one detection of MIB in the treated water in July.
(v) Samples of raw and treated water were taken weekly for chloride, sulphate, TOC , DOC and alkalinity for operational purposes.
(vi) As part of the corrosion study, water samples from each of the four distribution systems (Essex, Kingsville, Lakeshore and Leamington) were collected monthly and tested for lead, chloride, sulphate, pH, alkalinity, Langelier's Index as well as other parameters to monitor corrosivity potential in the distribution system. As in 2016, the chloride to sulphate mass ratio (CSMR) values in the treated water were around 1 and the Langelier's Index values were below 0 in the 2017 data, indicating that corrosion may occur. The owner stated that the raw water CSMR is also high, and therefore this is not due to the plant process, but to the raw water conditions. It is believed that the elevated alkalinity and pH buffer the treated water and prevent corrosion of lead pipes. For this reason, the owner has stated that corrosion monitoring will continue indefinitely. The lead concentrations in 2017 were all very low (0.04 to 1.65ug/L), indicating that corrosion is not occurring in the distribution system. No plumbing samples are currently being sampled for lead as the UWSS is exempt from this monitoring. However, due to the water conditions, it is recommended that monthly plumbing samples be added to the corrosion study to assess how the water conditions affect lead service lines and/or solder.
(vii) As part of UWSS internal algal toxin monitoring program, samples were taken weekly from the end of June to mid-August and then biweekly until November. Raw water was analyzed and if there was a detection, then the treated water was subsequently analyzed. Between August 14 and 30th, raw samples had low detections of total microcystins (0.14-0.50ug/L) but there were no detections in the treated water. Results from the ministry's Drinking Water Surveillance Program (DWSP) also showed detections of total microcystins in the raw water between August 8th and October 2nd which ranged from 0.2 to 2.4ug/L. There were no detections in the treated water. Samples collected between July 4 and October 24th were analyzed for several microcystin variants by Liquid Chromatography (Electrospray Ionization) Tandem Mass Spectrometry [LC-(ESI)MS/MS], including Microcystin-LR, which has a drinking water standard of 1.5ug/L (O. Reg. 169/03). Microcystin-LR results ranged from 0.083 to 0.42ug/L in the raw water between August 8th and 28th but were not detected in the other samples collected.

Reporting & Corrective Actions

- **Corrective actions (as per Schedule 17) had been taken to address adverse conditions, including any other steps that were directed by the Medical Officer of Health.**

  Forms 2A and 2B were submitted on time for the adverse event that took place on October 10, 2017 (loss of coagulant). After being unable to repair the coagulant pump, the operator called in a technician to complete the repair. The Medical Officer of Health was satisfied with these corrective actions.

- **All required notifications of adverse water quality incidents were not immediately provided as per O. Reg. 170/03 16-6.**

  The coagulant pump failure that occurred on October 10, 2017 was not reported to SAC immediately. The operating authority was directed to review the relevant SOPs with operators to ensure the required notifications are made.

- **Where required continuous monitoring equipment used for the monitoring of chlorine residual and/or turbidity triggered an alarm or an automatic shut-off, a qualified person responded in a timely manner and**

Reporting & Corrective Actions

took appropriate actions.

The water plant is staffed 24 hours per day, 365 days per year, therefore an operator is always on site and the operating authority has an expectation of an immediate response to alarms. Water plant operating logs indicate that appopriate actions were taken in a timely manner to regulatory equipment alarms.

Other Inspection Findings

- **The following issues were also noted during the inspection:**

1. Throughout August 2017, there was a plant upset at UWSS which included filter turbidity spikes likely caused by algal infiltration. Notes in the facility log indicate that on the morning of August 14th, an algal sheen was observed in the clarifiers and the sodium hypochlorite at the intake (for zebra mussel control) was turned off to prevent the breakage and release of toxins from the algae. However, in the early afternoon that same day, in the midst of this plant upset, the sodium hypochlorite at the intake was turned back on because the raw sample results from the previous week were free of total microcystin. The plant was still undergoing increased turbidity and struggling to keep the filters functioning (i.e. filtering to reservoir). Thus it seems that the sodium hypochlorite was switched back on prematurely. Especially since the raw samples collected that same day had a total microcystin detection of 0.22ug/L (UWSS sample) and 0.55ug/L (DWSP) and a microcystin-LR detection of 0.22ug/L (DWSP). It is recommended that during a known or suspected algal bloom where algae have infiltrated the plant, that the sodium hypochlorite at the low lift remains off as long as possible or until it can be determined that the algae infiltration has been cleared. Further recommendations on operational modifications during a blue green algal bloom are included in Appendix C. Appendix C also includes a letter sent to Ontario Municipal Drinking Water System Owners/Operators from the Deputy Chief Drinking Water Inspector dated May 3, 2017. In this letter, it is recommended that facilities routinely affected by Harmful Algal Blooms (HAB) should begin weekly monitoring from June 1st to the end of October in addition to notifying the ministry, the local Medical Officer of Health and the local Conservation Authority that a bloom has been observed. If the owner/operator observes a HAB in their area of responsibility, the monitoring plan should be increased to daily sampling. It is recommended that SOP OCWA-C6-12 be updated to include this more recent guidance from the ministry. In addition, all operational staff should review the updated SOP as well as the guidance in Appendix C so they are prepared for the next algal bloom. During this plant upset, the plant filter aid supply could not keep up with demand. The operating authority has since put a protocol in place to keep more filter aid on hand and to place an order as soon as the supply drops to six jugs.

2. During the physical inspection, the solids residue pile was observed on the north end of the property, adjacent to the waste residual settling/storage ponds. Operating Authority staff indicated that the solid residue had been dredged from the ponds over approximately the past 20 years and mainly consists of carbon and aluminum sulphate from filter backwash and clarifier blow off. Elevation profiles of the residual pile indicate that surface runoff would predominantly flow to the south into a ditch that drains into the Union Water Drain. This municipal drain flows to an inlet catch basin and then underground and outlets into a natural waterway, the Albert Gunning Drain, and then to Lake Erie. As recommended in the last inspection report, UWSS began monitoring TSS in the Union Water Drain at the north end of the residual pile on a monthly basis in March 2017. TSS ranged from below detection in June to 28mg/L in April. No samples could be collected in July and December as the drain was dry and/or frozen. During the inspection, a black substance was visible on the ground (under the snow) adjacent to the residual pile. The owner confirmed that they were storing unused activated carbon on the site for use as road cover and that they were planning on disposing it in a landfill if it was not used for the road bed.The long term storage of the residual pile is of concern, as well as the potential offsite impact from the runoff. Although UWSS currently has a plan to landfill the residual material over the next number of years, and has started to do so in the past few years at a significant cost, ongoing discussions with the ministry to determine the best option for disposal are underway. UWSS is currently trying to secure a long-term, non-restrictive agreement with a landfill to take the residual material for daily cover at a reduced cost. This option was used in 2013 but they ran into capacity issues at the landfill. In the meantime, the ministry has amended the current license to include monitoring conditions for the runoff of the residual pile. This includes monthly grab samples at four sites within the surrounding drains (Influent stream of the

Other Inspection Findings

municipal Union Water Drain, Influent stream of the OCWA Drain, Point of discharge from the south end of the residual waste pile, and Point of discharge from the west end of the residual waste pile) for analysis of both TSS and aluminum (filtered and unfiltered). These samples should be collected during or after a rain or precipitation event, or when flow at these sites permits an adequate and representative sample. In addition, due to concerns with offsite impacts, it is recommended that the activated carbon currently onsite is removed and any future storage of activated carbon be limited to enclosed storage containers. Further consultation can be provided by the ministry to assess disposal options and monitoring sites.

- **The following items are noted as being relevant to the Drinking Water System:**

  3. During previous inspections, two large cracks were observed on the floor of the maintenance shop located above the below-grade powdered activated carbon slurry tanks. It was noted during the inspection that the two cracks have been filled.

  4. UWSS has plans underway to install a carbon dioxide raw water pH adjustment system. The current raw water pH ranges from 7.06 to 8.72, with an average of 8.05. The optimal pH for both coagulants (DelPAC and Hyperion) is closer to 7, so this updgrade is being implemented to decrease the raw water pH to optimize the coagulant performance and to reduce the aluminum residual. It is anticipated that approval will be sought from the ministry in the spring of 2018 and the project could be constructed by September 2018, at which time calibration and testing can begin.

  5. To address the concerns for future residual material from the waste lagoons, UWSS is proposing to inject a polymer into the waste stream before it is discharged to the lagoon, in order to improve the settling capacity and increase the density of the sludge. This should assist with the excavation of residuals from the pond as well as the drying process of those residuals. In addition, construction of a staging and drying pad for the excavated residual materials is planned, including drains for collecting the residual liquids and redirecting them back to the waste ponds. The dried residual materials would then be transported to a disposal facility.

NON-COMPLIANCE WITH REGULATORY REQUIREMENTS AND ACTIONS REQUIRED

This section provides a summary of all non-compliance with regulatory requirements identified during the inspection period, as well as actions required to address these issues. Further details pertaining to these items can be found in the body of the inspection report.

1. **Continuous monitoring of each filter effluent line was not being performed for turbidity.**

   Action(s) Required:

   All reporting requirements were met when continuous turbidity monitoring was interrupted. No further actions are required.

2. **All required notifications of adverse water quality incidents were not immediately provided as per O. Reg. 170/03 16-6.**

   Action(s) Required:

   OCWA SOP-C7-07 Reporting Adverse Water Quality Incident and OCWA SOP-C8-03 Coagulant Feed Failure were reviewed by all staff by October 19, 2017. No further actions are required.

SUMMARY OF RECOMMENDATIONS AND BEST PRACTICE ISSUES

This section provides a summary of all recommendations and best practice issues identified during the inspection period. Details pertaining to these items can be found in the body of the inspection report. In the interest of continuous improvement in the interim, it is recommended that owners and operators develop an awareness of the following issues and consider measures to address them.

1. The following issues were also noted during the inspection:

Recommendation:

SIGNATURES

Inspected By:

Emily Awad

Signature: (Provincial Officer)

Reviewed & Approved By:

Marc Bechard

Signature: (Supervisor)

Review & Approval Date:

Note: This inspection does not in any way suggest that there is or has been compliance with applicable legislation and regulations as they apply or may apply to this facility. It is, and remains, the responsibility of the owner and/or operating authority to ensure compliance with all applicable legislative and regulatory requirements.

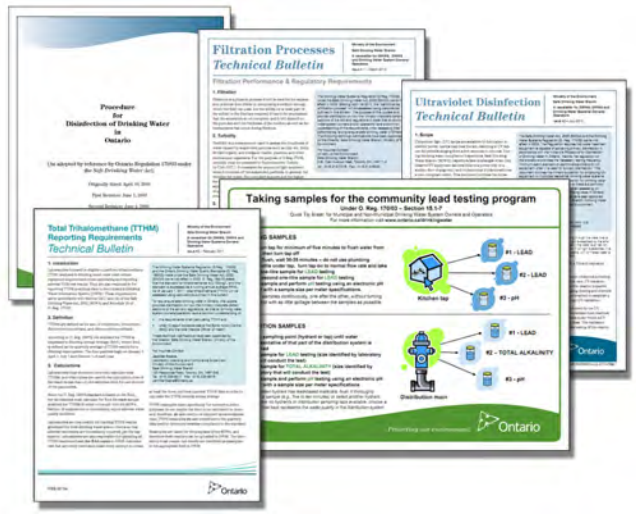
Stakeholder Appendix

Key Reference and Guidance Material for Municipal Residential Drinking Water Systems

Many useful materials are available to help you operate your drinking water system. Below is a list of key materials owners and operators of municipal residential drinking water systems frequently use.

To access these materials online click on their titles in the table below or use your web browser to search for their titles. Contact the Public Information Centre if you need assistance or have questions at 1-800-565-4923/416-325-4000 or **picemail.moe@ontario.ca**.

For more information on Ontario's drinking water visit **www.ontario.ca/drinkingwater** and email **drinking.water@ontario.ca** to subscribe to drinking water news.



PUBLICATION TITLE	PUBLICATION NUMBER
Taking Care of Your Drinking Water: A Guide for Members of Municipal Councils	7889e01
FORMS: Drinking Water System Profile Information, Laboratory Services Notification, Adverse Test Result Notification Form	7419e, 5387e, 4444e
Procedure for Disinfection of Drinking Water in Ontario	4448e01
Strategies for Minimizing the Disinfection Products Trihalomethanes and Haloacetic Acids	7152e
Total Trihalomethane (TTHM) Reporting Requirements Technical Bulletin (February 2011)	8215e
Filtration Processes Technical Bulletin	7467
Ultraviolet Disinfection Technical Bulletin	7685
Guide for Applying for Drinking Water Works Permit Amendments, Licence Amendments, Licence Renewals and New System Applications	7014e01
Certification Guide for Operators and Water Quality Analysts	
Guide to Drinking Water Operator Training Requirements	9802e
Taking Samples for the Community Lead Testing Program	6560e01
Community Sampling and Testing for Lead: Standard and Reduced Sampling and Eligibility for Exemption	7423e
Guide: Requesting Regulatory Relief from Lead Sampling Requirements	6610
Drinking Water System Contact List	7128e
Technical Support Document for Ontario Drinking Water Quality Standards	4449e01

Principaux guides et documents de référence sur les réseaux résidentiels municipaux d'eau potable

De nombreux documents utiles peuvent vous aider à exploiter votre réseau d'eau potable. Vous trouverez ci-après une liste de documents que les propriétaires et exploitants de réseaux résidentiels municipaux d'eau potable utilisent fréquemment.

Pour accéder à ces documents en ligne, cliquez sur leur titre dans le tableau ci-dessous ou faites une recherche à l'aide de votre navigateur Web. Communiquez avec le Centre d'information au public au 1 800 565-4923 ou au 416 325-4000, ou encore à **picemail.moe@ontario.ca** si vous avez des questions ou besoin d'aide.

Pour plus de renseignements sur l'eau potable en Ontario, consultez le site **www.ontario.ca/eaupotable** ou envoyez un courriel à **drinking.water@ontario.ca** pour suivre l'information sur l'eau potable.

TITRE DE LA PUBLICATION	NUMÉRO DE PUBLICATION
Prendre soin de votre eau potable – Un guide destiné aux membres des conseils municipaux	7889f01
Renseignements sur le profil du réseau d'eau potable, Avis de demande de services de laboratoire, Formulaire de communication de résultats d'analyse insatisfaisants et du règlement des problèmes	7419f, 5387f, 4444f
Marche à suivre pour désinfecter l'eau potable en Ontario	4448f01
Strategies for Minimizing the Disinfection Products Thrihalomethanes and Haloacetic Acids (en anglais seulement)	7152e
Total Trihalomethane (TTHM) Reporting Requirements: Technical Bulletin (février 2011) (en anglais seulement)	8215e
Filtration Processes Technical Bulletin (en anglais seulement)	7467
Ultraviolet Disinfection Technical Bulletin (en anglais seulement)	7685
Guide de présentation d'une demande de modification du permis d'aménagement de station de production d'eau potable, de modification du permis de réseau municipal d'eau potable, de renouvellement du permis de réseau municipal d'eau potable et de permis pour un nouveau réseau	7014f01
Guide sur l'accréditation des exploitants de réseaux d'eau potable et des analystes de la qualité de l'eau de réseaux d'eau potable	
Guide sur les exigences relatives à la formation des exploitants de réseaux d'eau potable	9802f
Prélèvement d'échantillons dans le cadre du programme d'analyse de la teneur en plomb de l'eau dans les collectivités	6560f01
Échantillonnage et analyse du plomb dans les collectivités : échantillonnage normalisé ou réduit et admissibilité à l'exemption	7423f
Guide: Requesting Regulatory Relief from Lead Sampling Requirements (en anglais seulement)	6610
Liste des personnes-ressources du réseau d'eau potable	7128f
Document d'aide technique pour les normes, directives et objectifs associés à la qualité de l'eau potable en Ontario	4449f01

Inspection Rating Record

Ministry of the Environment - Inspection Summary Rating Record (Reporting Year - 2017-2018)

DWS Name:	UNION AREA WATER SUPPLY SYSTEM
DWS Number:	210000853
DWS Owner:	Union Water System Joint Board Of Management (Leamington, Kingsville, Essex, Lakeshore)
Municipal Location:	Kingsville
Regulation:	O.REG 170/03
Category:	Large Municipal Residential System
Type Of Inspection:	Focused
Inspection Date:	January 16, 2018
Ministry Office:	Windsor Area Office

Maximum Question Rating: 455

Inspection Module	Non-Compliance Rating
Capacity Assessment	0 / 30
Treatment Processes	0 / 60
Operations Manuals	0 / 28
Logbooks	0 / 14
Certification and Training	0 / 42
Water Quality Monitoring	0 / 103
Reporting & Corrective Actions	21 / 66
Treatment Process Monitoring	21 / 112
TOTAL	**42 / 455**

Inspection Risk Rating	**9.23%**

FINAL INSPECTION RATING:	**90.77%**

Inspection Rating Record Generated On 19-MAR-18 (Inspection ID: 1-F93SZ).

Ministry of the Environment - Detailed Inspection Rating Record (Reporting Year - 2017-2018)

DWS Name:	UNION AREA WATER SUPPLY SYSTEM
DWS Number:	210000853
DWS Owner:	Union Water System Joint Board Of Management (Leamington, Kingsville, Essex, Lakeshore)
Municipal Location:	Kingsville
Regulation:	O.REG 170/03
Category:	Large Municipal Residential System
Type Of Inspection:	Focused
Inspection Date:	January 16, 2018
Ministry Office:	Windsor Area Office

Non-compliant Question(s)	Question Rating
Reporting & Corrective Actions	
Were all required verbal notifications of adverse water quality incidents immediately provided as per O. Reg. 170/03 16-6?	21
Treatment Process Monitoring	
If the drinking-water system obtains water from a surface water source and provides filtration, is continuous monitoring of each filter effluent line being performed for turbidity?	21
TOTAL QUESTION RATING	42

Maximum Question Rating: 455

Inspection Risk Rating	**9.23%**
FINAL INSPECTION RATING:	**90.77%**

Inspection Rating Record Generated On 19-MAR-18 (Inspection ID: 1-F93SZ).

Harmful Algal Bloom Guidance Material

The following is a list of possible operational modifications. Any modifications should be discussed with the SDWB Approvals Engineers prior to taking place.

- Preliminary mechanical treatment such as strainers and screens must be cleaned frequently to remove any trapped algae.

- Oxidative processes applied before the filtration step has the potential to break and release toxins from algae. Therefore, consideration will be given to minimize or eliminate oxidative processes before the filtration process. The oxidative processes commonly used would include chlorination at the intake, potassium permanganate addition, ozonation, etc. These oxidative processes used after the removal of intact algae through the filtration process would help oxidise and remove dissolved algal toxins effectively.

- Dissolved air flotation (DAF) process keeps the algae intact and lifts it to the top of the surface. DAF process removes algae effectively.

- Treatment plants where solid contact clarifiers are employed, operators will consider removing floating scum (rich in algae) frequently while maintaining proper sludge blankets in the reaction compartment.

- Rapid removal of settled sludge (containing large amounts of algae) in the sedimentation process would help avoid re-suspension of the sludge and prevent the release of toxins from cell death.

- Usually, carbon with a high percentage of pores (2-50nm) is best in adsorbing algae toxins. Some treatment plants use powdered activated carbon (PAC) addition and granular activated carbon (GAC) filters seasonally for taste and odour episodes only. These plants must consider using these treatment processes for toxin removal.

- Since filters would become clogged quickly as a result of algae than the normal operations, filters need to be back washed frequently. However, due consideration must be given to back washing/ filter ripening/ filter to waste steps without compromising effluent turbidity quality and filter performance.

- Treatment plants that practice recycling effluent from filter back wash waste water treatment processes to the front end of the plant must monitor the effluent quality and ensure that toxins are not concentrated through the recycling process.

- Treatment plants that discharge filter back wash water directly into a receiver without undergoing any treatment must be monitor the discharge.

Ministry of the Environment and Climate Change

Safe Drinking Water Branch

Director's Office
2nd floor
40 St. Clair Ave West
Toronto ON M4V 1M2

Ministère de l'Environnement et de l'Action en matière de changement climatique

Direction du contrôle de la qualité de l'eau potable
Bureau du directeur
2e étage
40, avenue St. Clair Ouest
Toronto (Ontario) M4V 1M2

Ontario

May 3, 2017

Ontario Municipal Drinking Water System Owners/Operators,

The Ministry of the Environment and Climate Change (MOECC) remains committed to working with you and other partners over the summer months to better understand the impact of environmental factors that contribute to harmful algal blooms (HABs) in our provincial lakes, rivers and inland waterbodies.

The purpose of this letter is to remind you of the importance of proactively monitoring your source water supplies for the presence of HABs which may contain blue-green algae (cyanobacteria). Considering that the onset of a bloom may be rapid and unexpected, it is imperative that all blooms be regarded as potentially toxic.

As such, I am requiring municipal drinking water system (MRDWS) owners/operators to be extremely diligent with:

- Ensuring that your systems are operating efficiently;
- Developing and implementing HAB Monitoring Plans (i.e. sample collection, testing, notification and reporting); and,
- Ensuring that MRDWS staff are aware and trained in HAB response at their location.

Those MRDWS that are historically affected by HABs every summer season should begin weekly monitoring from June 1st to the end of October, 2017. Monitoring actions should include, but are not limited to:

- Directly observing source water approaching and standing at system intakes for HABs;
- Assessing algal bloom movements in the Great Lakes at: https://www.glerl.noaa.gov/res/HABs_and_Hypoxia/
- Diligently collecting raw and finished water samples for total microcystin testing at a licensed laboratory;
- Notifying the Ministry, the local Medical Officer of Health (and the local Conservation Authority, if applicable) that a bloom has been observed in order that actions are taken to protect the public.

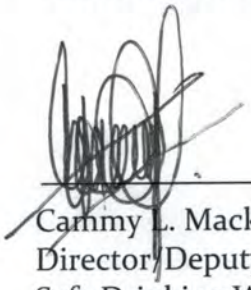
On a weekly basis (or otherwise directed from Ministry staff), MRDWS owners/operators should collect one raw water sample from the affected water body and one finished (treated) water sample from the distribution. The raw water sample should be collected at the intake or as close to it as possible to obtain a representative sample. Ideally, the finished (treated) water sample should be collected where routine THM samples are taken as free residual chlorine may reduce microcystin levels depending on the water pH. In the event that this is not possible, samples may be taken collected where convenient.

If the system owner/operator observes a HAB in their area of responsibility, the monitoring plan should change to a daily basis.

All samples must be submitted to laboratories that are licensed to perform the enzyme-linked immunosorbent assay (ELISA) test for total microcystin. If an ELISA test result for total microcystin meets or exceeds 1.5 µg/L in finished (treated) water, the hired testing laboratory shall immediately forward the samples to the Ministry's Laboratory Services Branch (LaSB) for confirmatory microcystin-LR testing. The LaSB is the only licensed laboratory to perform this complex analyses and supports this important initiative by covering the charge for testing.

Should the LaSB detect a result that meets or exceeds the Ontario Drinking Water Quality Standard (ODWQS) of 1.5 µg/L for microcystin-LR, they will immediately notify the MOECC Spills Action Centre (SAC), the drinking water system owner/operator and the local Medical Officer of Health as per the *Safe Drinking Water Act (2002)*.

Although to date, there has never been an reported microcystin-LR exceedance in Ontario drinking water, this monitoring program is precautionary in nature and serves to assess the presence of cyanobacteria and treatment efficacy of the system in the event an HAB is observed. In addition, weekly analyses of the treated water will serve to provide assurance to the public that their drinking water continues to be safe and of high quality.



Cammy L. Mack
Director/Deputy Chief Drinking Water Inspector
Safe Drinking Water Branch

cc: MOECC staff
Licensed Laboratories

UW/09/18

Report

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

From: Rodney Bouchard, Union Water Manager

Date: March 28, 2018

Re: Revision to Schedule C (Proportional Water Consumption and System Interests) of UWSS Transfer Order

Purpose:

To provide the Board with a revision to Schedule C (Proportional Water Consumption & System Interests) of the UWSS Transfer Order.

Background:

The proportion of the UWSS that each municipality owns for the purposes of financial statements is governed by Schedule C of the UWSS Transfer Order. The original system interest was based on 1998 volumes. Schedule C provides that the system interest is to be updated every four years on the basis of the previous four years' flows.

At the UWSS Board meeting of January 18, 2017 the UWSS General Manager presented the following system interest update to cover the years from 2017 through 2020, which were subsequently endorsed by the UWSS Board.

Municipality	Average Water Consumption (MIG/Year)	Proportional System Interest
The Corporation of the Municipality of Leamington	1,623	50.32%
The Corporation of the Town of Kingsville	1,309	40.57%
The Corporation of the Town of Essex	192	5.95%
The Corporation of the Town of Lakeshore	102	3.16%

However, as part of year-end review and audit preparation for UWSS 2017 fiscal year-end by Leamington finance staff (on behalf of UWSS), a calculation error was noted in regards to the 2017-2021 system interest. The system interest for 2017-2021 was revised accordingly and reviewed with the Auditors retained to complete the UWSS audit for 2017 financials.

Recommendation

Based on the information included in this report, the UWSS General Manager provides the following recommendations to the UWSS Board:

1. That UWSS system interests in Schedule C of the Transfer Order for period of 2017-2021 are revised and updated as follows:

Municipality	Proportional System Interest
The Corporation of the Municipality of Leamington	50.55%
The Corporation of the Town of Kingsville	40.33%
The Corporation of the Town of Essex	5.97%
The Corporation of the Town of Lakeshore	3.15%

2. That the municipalities of Leamington, Kingsville, Essex and Lakeshore be informed of this update to Schedule C of the UWSS Transfer Order. This update will apply from January 1, 2017 to December 31, 2020.

Respectfully submitted,

Rodney Bouchard, Manager
Union Water Supply System Joint Board of Management
rb/kmj
Filename: t:\union wtr\reports to board\2018\uw09-18 - revised system interest.docx

UW/10/18

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

From: Rodney Bouchard, Union Water Manager

Date: March 29, 2018

Re: Payments for the UWSS from February 17 to March 29, 2018

Aim:

To provide the Board with a copy of payments made by the Union Water Supply System from February 17 to March 29, 2018

Recommendation:

For information purposes.

Respectfully submitted,

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

Filename: t:\union wtr\reports to board\2018\uw10-18 payments march 29, 2018.docx

Vendor : 0011450 To PT00000151
Batch : All
Department : All
Cheque Print Date : 12-Feb-2018 To 22-Feb-2018
Bank : 07 To 08
Class : All

Vendor / Invoice	Vendor Name / Description	CC1	CC2	CC3	GL Account Name	Batch	Invc Date	Invc Due Date	Amount
DEPARTMENT 0700	Union Water System								
020120	**BELL MOBILITY CELLULAR**								
514877178-FEI	MONTHLY CELL PHONES					72	01-Feb-2018	15-Feb-2018	
70-5-0700-7110		002070	002083		Telecommunications Usage				110.74
514877178-JAI	MONTHLY CELL PHONE					72	01-Jan-2018	15-Feb-2018	
70-5-0700-7110		002070	002083		Telecommunications Usage				70.06
030515	**CUETS FINANCIAL**								
CHUCKS-1779	BUSINESS LUNCH					75	18-Jan-2018	15-Feb-2018	
70-5-0700-7052		002070			Meeting Expenses				17.90
70-5-0700-7052		002070			Meeting Expenses				4.00
PRAC-32906	APGO DUES					75	08-Jan-2018	15-Feb-2018	
70-5-0700-7020		002070			Dues, Memberships and Subscriptions				474.60
080250	**HYDRO ONE NETWORKS INC**								
200141677460	JAN/18 HYDRO - RUTHVEN WATER TREATMENT					75	06-Feb-2018	15-Feb-2018	
70-5-0700-7420		002073			Electricity				45,575.47
200141680692	JAN/18 HYDRO - LOW LIFT					75	06-Feb-2018	15-Feb-2018	
70-5-0700-7420		002073			Electricity				21,732.69
70-5-0700-7420		002073			Electricity				-4.89
200141680894	JAN/18 HYDRO - LEAMINGTON WATER TOWER					75	01-Feb-2018	15-Feb-2018	
70-5-0700-7420		002073			Electricity				-30.76
70-5-0700-7420		002073			Electricity				434.41
200141681706	JAN/18 HYDRO - METER#2					75	01-Feb-2018	15-Feb-2018	
70-5-0700-7420		002073			Electricity				-3.82
70-5-0700-7420		002073			Electricity				54.02
200141682009	JAN/18 HYDRO - ALBUNA WATER TOWER					75	01-Feb-2018	15-Feb-2018	
70-5-0700-7420		002073			Electricity				-134.44
70-5-0700-7420		002073			Electricity				1,898.94
200141683019	JAN/18 HYDRO - METER#3					75	01-Feb-2018	15-Feb-2018	
70-5-0700-7420		002073			Electricity				-3.54
70-5-0700-7420		002073			Electricity				50.06
200141683120	JAN/18 HYDRO - METER#5					75	01-Feb-2018	15-Feb-2018	
70-5-0700-7420		002073			Electricity				48.00
70-5-0700-7420		002073			Electricity				-3.40
200141683423	JAN/18 HYDRO - METER#6					75	01-Feb-2018	15-Feb-2018	
70-5-0700-7420		002073			Electricity				-3.33
70-5-0700-7420		002073			Electricity				47.13
200141683524	JAN/18 HYDRO - METER#8					75	01-Feb-2018	15-Feb-2018	
70-5-0700-7420		002073			Electricity				-3.24
70-5-0700-7420		002073			Electricity				45.75
200141687362	JAN/18 HYDRO - METER#22					75	01-Feb-2018	15-Feb-2018	
70-5-0700-7420		002073			Electricity				-2.35
70-5-0700-7420		002073			Electricity				33.14
200141687766	JAN/18 HYDRO - METER#29					75	01-Feb-2018	15-Feb-2018	
70-5-0700-7420		002073			Electricity				48.77
70-5-0700-7420		002073			Electricity				-3.45
200141687867	JAN/18 HYDRO - METER#24					75	01-Feb-2018	15-Feb-2018	
70-5-0700-7420		002073			Electricity				-2.35
70-5-0700-7420		002073			Electricity				33.17
200152134969	JAN/18 HYDRO - METER#17					75	06-Feb-2018	15-Feb-2018	
70-5-0700-7420		002073			Electricity				-3.03
70-5-0700-7420		002073			Electricity				42.71

Vendor : 0011450 To PT00000151
Batch : All
Department : All
Cheque Print Date : 12-Feb-2018 To 22-Feb-2018
Bank : 07 To 08
Class : All

Vendor / Invoice	Vendor Name / Description	CC1	CC2	CC3	GL Account Name	Batch	Invc Date	Invc Due Date	Amount
DEPARTMENT 0700	Union Water System								
200208899066	JAN/18 HYDRO - METER#16					88	13-Feb-2018	22-Feb-2018	
70-5-0700-7420		002073			Electricity				-12.67
70-5-0700-7420		002073			Electricity				178.90
150416	**ONTARIO MUNICIPAL WATER ASSOCIATION**								
2018-M-001	2018 OMWA MEMBERSHIP					88	01-Feb-2018	22-Feb-2018	
70-5-0700-7020		002070			Dues, Memberships and Subscriptions				734.50
180325	**RICOH CANADA INC**								
SCO91851042	COPIER CONTRACT - DEC30-JAN30					88	31-Jan-2018	22-Feb-2018	
70-5-0700-7010		002070			Office Supplies				88.25
210120	**UNION GAS LTD**								
JAN-FEB18 17	1456.834M3 GAS - COTTAM BOOSTER STATION					75	09-Feb-2018	15-Feb-2018	
70-5-0700-7410		002073			Gas				449.99
							Department Totals :		**71,961.93**

Vendor : 0011450 To PT00000151
Batch : All
Department : All
Cheque Print Date : 12-Mar-2018 To 22-Mar-2018
Bank : 07 To 08
Class : All

Vendor / Invoice	Vendor Name / Description	CC1	CC2	CC3	GL Account Name	Batch	Invc Date	Invc Due Date	Amount
DEPARTMENT 0700	Union Water System								
010103	**ASSOCIATED ENGINEERING (ONT) LTD**								
523908	SCADA UPGRADES					141	13-Mar-2018	22-Mar-2018	
70-5-0700-7989		002075			Operational Programs & Studies				4,751.88
523909	DAF PILOT STUDY					141	13-Mar-2018	22-Mar-2018	
70-5-0700-7989		002075			Operational Programs & Studies				3,380.62
523910	PH ADJUSTMENT					141	13-Mar-2018	22-Mar-2018	
70-5-0700-7989		002075			Operational Programs & Studies				4,092.63
030515	**CUETS FINANCIAL**								
ENTERPRISE-	CAR RENTAL - MEETINGS IN LONDON&TORONTO					117	31-Jan-2018	13-Mar-2018	
70-5-0700-7030		002070			Travel & Mileage				164.47
ESSO-NGW85	FUEL - CAR RENTAL					117	31-Jan-2018	13-Mar-2018	
70-5-0700-7030		002070			Travel & Mileage				36.45
ONROUTE-101	FUEL - CAR RENTAL					117	30-Jan-2018	13-Mar-2018	
70-5-0700-7030		002070			Travel & Mileage				61.70
ZEHRS-FEB21	COOKIES, CREAM, CUPS					117	21-Feb-2018	13-Mar-2018	
70-5-0700-7052		002070			Meeting Expenses				14.44
050194	**ESSEX FREE PRESS LIMITED**								
64123	EWT - ADVERTISEMENT					141	13-Mar-2018	22-Mar-2018	
70-5-0700-7130		002070			Advertising & Promotion				629.00
080250	**HYDRO ONE NETWORKS INC**								
200141677460	FEB/18 HYDRO - RUTHVEN WATER TREATMENT					141	08-Mar-2018	22-Mar-2018	
70-5-0700-7420		002073			Electricity				46,581.34
200141680692	FEB/18 HYDRO - LOW LIFT					141	08-Mar-2018	22-Mar-2018	
70-5-0700-7420		002073			Electricity				-4.83
70-5-0700-7420		002073			Electricity				23,264.01
200152134969	FEB/18 HYDRO - METER#17					141	08-Mar-2018	22-Mar-2018	
70-5-0700-7420		002073			Electricity				-2.86
70-5-0700-7420		002073			Electricity				40.42
200208899066	FEB/18 HYDRO - METER#16					141	15-Mar-2018	22-Mar-2018	
70-5-0700-7420		002073			Electricity				-12.01
70-5-0700-7420		002073			Electricity				169.65
130620	**MONARCH OFFICE SUPPLY INC**								
071355	2" BINDER					141	06-Feb-2018	22-Mar-2018	
70-5-0700-7010		002070			Office Supplies				11.29
071368	STAMP PAD, INDEX TABS, NOTEBOOK, HILIGHTERS, ETC					141	06-Feb-2018	22-Mar-2018	
70-5-0700-7010		002070			Office Supplies				61.14
075441	HANGING FOLDERS, BLUE PAPER					141	28-Feb-2018	22-Mar-2018	
70-5-0700-7010		002070			Office Supplies				64.94
560457	RET'D 2" BINDER					141	16-Feb-2018	22-Mar-2018	
70-5-0700-7010		002070			Office Supplies				-11.29
190755	**SUN LIFE ASSURANCE COMPANY OF CANADA**								
MAR-18	MAR/18 UNION WATER LOAN 3724:1					141	01-Mar-2018	22-Mar-2018	
70-5-0700-6100		002010	006901		Debenture Interest				120,580.75
70-5-0700-6000		002020	006901		Debenture Principal				41,360.09
210120	**UNION GAS LTD**								
FEB-MAR18 17	1112.110M3 GAS - COTTAM BOOSTER STN					141	12-Mar-2018	22-Mar-2018	
70-5-0700-7410		002073			Gas				354.21

Department Totals : 245,588.04