

THE UNION WATER SUPPLY SYSTEM

JOINT BOARD OF MANAGEMENT

AGENDA

WEDNESDAY, AUGUST 2, 2017

COMMENCING AT 9:00 AM

IN THE COMMUNITY ROOM - KINGSVILLE ARENA

(A) Call to Order:

(B) Disclosures of Pecuniary Interest:

(C) Adoption of Minutes:

Minutes of the meeting of the Union Water Supply System Joint Board of Management Meeting held Wednesday, June 21, 2017

Pages 2 - 7

(D) Business Arising Out of the Minutes:

(E) Items for Consideration:

1. UW/21/17 dated July 28, 2017 re: Status Update of UWSS Operations & Maintenance Activities and Capital Works to July 28, 2017

Pages 8 - 10

2. UW/22/17 dated July 26, 2017 re: UWSS 2017 Mid-Year Revenue and Expenditure Report

Pages 11 - 18

3. UW/23/17 dated July 27, 2017 re: Engineering and Design - Carbon Dioxide Injection System for Raw Water pH Adjustment

Pages 19 - 28

4. UW/24/17 dated July 28, 2017 re: Payments from June 11, 2017 to July 28, 2017

Pages 29 - 37

(F) New Business:

(G) Adjournment:

(H) Date of Next Meeting: September 20, 2017 at the Kingsville Community Room of the Kingsville Arena

**THE UNION WATER SUPPLY SYSTEM
JOINT BOARD OF MANAGEMENT**

MINUTES OF MEETING

HELD JUNE 21, 2017 AT 9 AM

IN KINGSVILLE COMMUNITY ROOM - KINGSVILLE ARENA

Members Present: Deputy Mayor MacDonald (Chair); Mayor Paterson, Councillors
Dunn, Jacobs, Hammond, Verbeke - Leamington
Mayor Nelson Santos (Vice-Chair); Councillors Gaffan, Neufeld,
Patterson - Kingsville
Councillor Diemer - Lakeshore

Members Absent: Mayor McDermott - Essex

UWSS Staff: Rodney Bouchard, Union Water Supply System Manager
Christine Johnson, Recording Secretary

OCWA Staff Present: Dave Jubenville, Dale Dillen, Ken Penney

Municipal Staff Present: Shannon Belleau - Leamington

Call to Order: 9:02 am

Disclosures of Pecuniary Interest: None

Adoption of UWSS Joint Board of Management Minutes:

Minutes of the Union Water Supply System Joint Board of Management Board meeting
of May 31, 2017.

No. UW-34-17

Moved by: Mayor Paterson
Seconded by: Councillor Gaffan

That Minutes of the UWSS Joint Board of Management of the meeting of May 31,
2017 be adopted.

Carried

Business Arising Out of the Minutes:

The recording secretary notes that Councillor Dunn's name was omitted from the attendance list of the minutes. She will make the correction to note that Councillor Dunn was absent at the May 31, 2017 meeting.

Report UW/17/17 June 16, 2017 re: Status of UWSS Operations & Maintenance and Capital Works to June 16, 2017.

The Manager reviews his report with the board noting that many projects have been on the go since the last meeting. He explains that the new Municipal Drinking Water Licence (MDWL) and Drinking Water Works Permit (DWWP) have been issued by the MOECC. He further explains that UWSS/OCWA have been working with the MOECC since April to incorporate the new Province wide changes to items such as de-chlorination of waste water and also the allowance to make the DWWP and MDWL slightly more generic. This allows for old pumps (considered obsolete) to be changed out for new ones without the worry of finding exactly the same pumps. He notes that the UWSS waste lagoons had a little bit of chlorine leaving in the waste water but we are already working on reducing this number and meeting the new requirement. He indicates that the December 9th deadline to comply with the changes should not be an issue. The Board asks whether or not the UWSS still requires a Permit to Take Water (PTTW) and the Manager notes that yes UWSS still requires a PTTW but it was not up for renewal at the same time.

The Manager continues with his report noting that the new HL pump #4 has been installed, commissioned and is operational. The gear box on Clarifier #3 has been rehabilitated and should be installed today. Associated Engineering (AE) has completed additional DAF pilot testing using CO₂. The aluminum levels are higher than is recommended and AE is working to make the clarification process better. The Manager further explains that the primary results indicate that the CO₂ is readily available and lowers the pH and reduces aluminum levels. He confirms that AE is preparing a report and there is potential to have a new system in place by next year.

The Manager explains that the valve chamber #117 at the new Leamington High School location is right in the path of the "drop off" lane. The valve chamber has been assessed by Stantec Consulting Ltd and it has been determined that the chamber is not capable of handling the loads that will be going over top of the chamber. Therefore the engineering firm in charge of this project will be providing drawings to our engineers so that the chamber can be reinforced. UWSS will not bear any costs. This work is expected to be completed in a timely manner.

The Manager reports that on June 6 at approximately 2 am a watermain break occurred along the 12 inch watermain running east to west along Seacliff Drive (CR 20). He further explains that usually this isn't a problem however this location is pure sand and caused a geyser effect. He confirms that all necessary personnel responded quickly to assess and contain the problem, however the road had to be closed for approximately 2 days while repairs were made. He notes that there has been some property damage and he has referred those claims to the UWSS's insurance company. The Manager shows pictures of the events. He confirms that no boil water advisory was called.

The Manager indicates that Flowmetrix is looking at the water meter#4 for Highbury CanCo in order to determine the correct size meter required in that location.

The Manager then reports on the Essex Water Tower (EWT) rehabilitation project. He notes that OCWA Engineering Services has been retained as well as PW Makar to conduct paint testing to ensure that the new paint will adhere properly. It has been determined that the current paint layers are too thick to allow for new paint to adhere effectively. There is a possibility of the new paint shearing off. Therefore it has been recommended that full removal of the existing exterior coat is recommended which would require full encapsulation of the EWT take place. Tendering should take place prior to the next meeting and he will then report back with the results of this process. He further notes that the current budget is \$850,000 and he expects this to increase to \$1 million. He will know more information by the next meeting.

The Manager informs members of the Board of the website overhaul and demonstrates the updated design.

He notes flows are still up slightly over last year.

The Board briefly discusses testing of watermains with acoustical equipment to determine lifespan. The Manager notes that this type of work is budgeted for in the 2018 budget.

No. UW-35-17

Moved by: Councillor Dunn

Seconded by: Councillor Neufeld

That the report UW/17/17 dated June 16, 2017 re: Status Update of the UWSS Operations & Maintenance Activities and Capital Works to June 16, 2017.

Carried

Report UW/18/17 dated June 14, 2017 re: UWSS Combined Heat and Power (CHP) Cogeneration Plant Detailed Engineering Study Update

The Manager reminds members of the Board his past discussions regarding this potential project. He notes that a grant application had been submitted and up until this point had heard nothing. Recently Hydro One has contacted UWSS and is interested in this project. On June 5th of this year the Manager received notification that the UWSS has been approved for \$40,100 to conduct a study based on sharing our steam energy with a greenhouse. An Agreement has been signed and the consultant is moving ahead with this study. He feels that draft will be completed by July and can then be presented to the Board. UWSS is responsible for paying out the invoices to FVB Energy, but will in turn be reimbursed. He further notes that UWSS cannot give steam energy to the greenhouses but rather enter into an agreement.

No. UW-36-17

Moved by: Councillor Hammond

Seconded by: Councillor Gaffan

That report UW/18/17 dated June 14, 2017 re: UWSS Combined Heat and Power (CHP) Cogeneration Plant Detailed Engineering Study Update is received.

Carried

Report UW/19/17 dated June 14, 2017 re: Proposed Financial Analysis and Development of a Business Case for Restructuring UWSS into a Municipal Service Corporation

The Manager reminds members that this issue has been spoken on for many years. Over the years the Manager has spoken to Board members and other municipalities and staff on how best to move forward. He is now looking at financially restructuring the UWSS to a corporate entity to allow UWSS to obtain grants and borrowing power.

The Manager asks members to consider that UWSS is now at a point where it should consider a financial review to determine what is best. He indicates that he has spoken to the legal team and in turn the legal team spoke to various financial entities that could develop a financial case and the legal team determined that Price Waterhouse Cooper (PwC) was best suited for this project. The Manager has met with PwC and the legal team to begin initial discussions and based on those discussions it seems best to move the UWSS, with its existing assets, into a Municipal Service Corporation.

The Manager indicates that PwC will be speaking with all parties involved such as (but not limited to) the municipal staffs (including CAOs, managers, directors, etc), OCWA staff, MOECC and others deemed necessary.

This review and potential changeover to MSC will allow UWSS to transfer debt from the Municipalities back to the UWSS. At this point the Municipality of Leamington would still be used for UWSS's administration.

The Manager notes that PwC is proposing using their Windsor rates vs Toronto rates and then he notes the timeline being suggested for potential changeover. He also confirms a \$150,000 budget funded from the reserves is needed to get this work completed.

The Board asks if this is a prelude to "source to tap" and the Manager indicates that it really it up to the Board but the future potential is there.

There is a discussion on why the Manager did not put the financial analysis out to tender. The Manager indicated that this is a very specialized service and he further noted that the UWSS legal team determined which financial service company would be best suited for providing the UWSS with the best services.

No. UW-37-17

Moved by: Mayor Paterson
Seconded by: Councillor Jacobs

That the UWSS Board approves a budget of \$150,000 to be funded from UWSS Reserves to complete a financial analysis and development of a Business Case for the restructuring of Union Water Supply System (UWSS) and associated assets into a Municipal Services Corporation under Section 203 and Ontario Regulation 599/06 of the Municipal Act 2001; and

That the UWSS Board authorizes the UWSS General Manager to retain PwC Canada (Price Waterhouse Coopers) to complete the Financial Analysis and development of the Business Case for UWSS Restructuring into Municipal Service Corporation; and Further;

That the UWSS Board directs the UWSS General Manager to consult with the Municipality of Leamington, Town of Kingsville, Town of Essex and Town of Lakeshore, as owners in common of the Union Water Supply System, to seek and secure their support as part of the financial analysis and development of a Business Case for UWSS Restructuring into a Municipal Service Corporation.

Carried

Report UW/20/17 dated June 16, 2017 re: Payments from May 19 to June 16, 2017**No. UW-38-17**

Moved by: Councillor Jacobs
Seconded by: Councillor Patterson

That report UW/20/17 dated June 16, 2017 re: Payments from May 19 to June 16, 2017 is received.

Carried

New Business:

There is none.

Adjournment

No. UW-39-17

Moved by: Councillor Patterson

Seconded by: Councillor Diemer

That the meeting adjourn at 9:54 am

Carried

Date of Next Meeting: August 2, 2017 at 9:00 am in the Kingsville Community Room, Kingsville Arena

/kmj

UW/21/17

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

From: Rodney Bouchard, Union Water Manager

Date: July 28, 2017

Re: Status Update of UWSS Operations & Maintenance Activities and Capital Works to July 28, 2017



Aim:

To inform the UWSS Board about operational and maintenance activities, capital works projects, and studies and initiatives for the Union Water Supply System since the last Board meeting on June 21, 2017.

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. Compliance: Essex Distribution system inspection report received 100% inspection rating.
3. Clarifier #3 mixer gear box, which was removed in May 2017 for repair, was rehabilitated by ASL Roteq and was reinstalled on June 26, 2017. Clarifier #3 has been put back into service.
4. Flowmetrix has provided a report on Meter #4, which is the main billing meter for Highbury CanCo. The report indicates that the meter is reading accurately. Reports for Meter #14 and #27 will be provided within the next week or so. They will also be looking at Meter #8 as well.
5. UWSS common asset transmission main valve exercising for 2017 was initiated by OCWA operations staff on June 5th, 2017. As of the date of this report, 95% of the transmission main line valves have been exercised and it is expected that the annual valve exercising program will be completed in by late August 2017.
6. US Ecology was retained to remove materials from the residuals materials pile located on that northwest corner of UWSS treatment plant property. US

Re: Status Update of UWSS Operations & Maintenance Activities and Capital Works to July 28, 2017

- Ecology removed 1300 tons of solids for disposal at their approved disposal facility.
7. Quotes were obtained from local excavating companies for the removal of solids/ cleanout of the south settling pond. Dimenna Excavating provided the lowest quote and was selected for this work. The south settling pond cleanout work will be completed in August 2017.
 8. On July 19th, 2017 UWSS met with representatives for the new Leamington District Secondary School (LDSS) construction team including Rosatti (General Contractor) and Glos (architect) and also representatives from Town of Leamington to discuss the reinforcement of UWSS Valve Chamber #117 on Oak Street so that the proposed Oak street drop off lane for the LDSS can extend over the chamber. A plan was developed and agreed upon by UWSS, OCWA, Rosatti, Glos and Town of Leamington representatives to address this issue.
 9. Associated Engineering (AE) completed further testing on UWSS raw water to evaluate the injection of carbon dioxide gas (CO₂) gas in UWSS raw water and assess the effects on coagulation, clarification and aluminum residuals. The AE study report dated July 26, 2017 indicated that the results of the testing were optimistic. Further details on the study, results and recommendations are provided in report UW23-17 dated July 27, 2017 and is included in the agenda package for the August 2nd, 2017 UWSS Board meeting.
 10. The tendering process for the Essex Water Tower (EWT) recoating project has been initiated. A mandatory site meeting for bidders was held as the EWT site on July 25, 2017. Bids for the EWT coating work are due at the OCWA ES office in Mississauga, ON on August 3rd, 2017.
 11. A draft Request for Proposal (RFP) document for the SCADA upgrade work has been prepared by Associated Engineering (AE) on behalf of UWSS. A meeting between UWSS, OCWA operations staff and AE representatives was held at the UWSS Ruthven Water Treatment Plant on July 20th, 2017 to review and revise the draft RFP document. It is anticipated that the RFP call will be issued on August 11, 2017.
 12. Price Waterhouse Coopers (PwC) has initiated the Financial Analysis that is being undertaken as part of the development of a business case for the proposed restructuring of UWSS into a Municipal Services Corporation. PwC anticipates that detailed consultations with senior staff/ administration from UWSS municipal owners and UWSS Board members will be initiated in mid to late August and completed by mid- September, 2017.

Re: Status Update of UWSS Operations & Maintenance Activities and Capital Works
to July 28, 2017

Comparative Flows for 2013 through 2017 in Millions of Imperial Gallons (for the period
1 January to July 27, 2017)

	2013	2014	2015	2016	2017
Flow to Date (MG)	1779.29	1950.14	1784.03	1959.63	1906.40
Max Day (MGD)	15.30	15.70	14.56	16.75	16.17
Min Day (MGD)	4.65	4.19	3.79	4.29	4.56
Average Day (MGD)	8.55	9.38	8.58	9.38	9.17
No of Days	208	208	208	209	208

Flows to date are down 53.23 MIG or 2.71% from last year. The 2017 flows to date are
up 2.04% 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\2017\uw21-17 operations report for aug 2 2017.docx

UW/22/17

Report

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

From: Rodney Bouchard, Union Water Manager

Date: July 26, 2017

Re: UWSS 2017 Mid-Year Revenue and Expenditure Report



Recommendation:

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

Report Highlights

- Actual potable water demand from UWSS as of June 30th, 2017 is almost 31 million gallons (approximately 1%) below the budgeted demand to this date.
- Actual potable water demand from UWSS as of June 30th, 2017 is approximately 2.4 percent above the 4-year average.
- UWSS wholesale water revenue as of June 30, 2017 is approximately \$85,000 or 1 percent less than budgeted to this date. .
- Operational and Debt Service Expenditures to date are in line with budgeted expenditures for 2017.
- The Capital Program is progressing and revisions are being proposed to the 2017 Capital Budget to account for postponements, cancellation, or adoption of new Capital Projects.

July 26, 2017 - UW/22/17

Re: UWSS 2017 Mid-Year Revenue and Expenditure Report

Background:

The UWSS Manager typically provides a mid-year update on UWSS Revenues and Expenditures as compared to the approved budget. This report provides an update on 2017 water demand, revenues and expenditures for UWSS up to June 30, 2017.

Discussion:

The following provides brief details on the status of actual potable water demand, wholesale rate revenue, operational expenditures, and capital expenditures from January 1, 2017 to June 30, 2017.

Potable Water Demand:

As of June 30, 2017, UWSS potable water demand was 1.569 billion Imperial gallons (gallon), which represents a 31 million gallon or 1 percent decrease from budgeted water demand to this date.

Wholesale Rate Revenue:

As a result of the increase in potable water demand, UWSS wholesale rate revenue as of June 30, 2017 is approximately \$85,000 less than budgeted to this date.

Total UWSS Revenue:

The total UWSS revenue as of June 30th, 2017, which includes wholesale rate revenue, investment income revenue, and lease revenue from telecommunications companies is approximately \$4.376 million. This represents \$46,000 decrease from budgeted amount to date.

Operational and Fixed Expenditures:

Operational and Fixed Expenditures include costs associated with the OCWA Operations and Maintenance contract; administrative costs for UWSS including employee salaries and benefits; electricity and natural gas costs; and debt servicing costs.

As of June 30, 2017, Operational and Fixed expenditures were approximately \$3.355 million, which is about \$75,000 less than budgeted to this date. This is mainly a result of lower electricity usage/ costs than predicted. Other than these items, it is the UWSS General Manager's opinion that operational and fixed expenditures for this period are in line with the approved 2017 UWSS Budget.

July 26, 2017 - UW/22/17

Re: UWSS 2017 Mid-Year Revenue and Expenditure Report

Capital Expenditures:

As of June 30th, 2017, approximately \$374,000 of the approved \$2,895,000 capital budget for 2017 had been expended. Details on capital expenditures are provided in the tables that are attached to this report.

It should be noted that some capital projects have been completed but final invoices have yet to be received and, thus are not accounted for in this mid-year report. The larger approved Capital Budget items such as SCADA System Upgrade (\$1,250,000) and Essex Water Tower Rehabilitation (\$850,000) are still in the tendering or request for proposal (RFP) stage. These projects will be awarded and initiated in mid August 2017. Many of the other lower value approved 2017 capital projects are scheduled for Fall 2017, thus the reason that capital expenditures to date are low.

Adjustments are being proposed to the 2017 Capital Program Budget such as the following:

- An increase in the budget for the Essex Water Tower rehabilitation. The current approved budget is \$850,000 and this was based on previous tower inspection reports that indicated that the water tower could likely be overcoated and not require full exterior coating removal. However, additional paint thickness, paint adhesion, and lead testing conducted on the tower as part of the current works indicate that removal of existing exterior coating will be needed thus requiring full encapsulation of the water tower. Based on available industry information, this will increase the costs by approximately 20 percent. As such, an increase of \$200,000 in the budget, for a total budget of \$1,050,000 is likely necessary.
- Additional CO₂ pH adjustment testing was conducted on raw water as part of the post-dissolved air flotation (DAF) pilot study. The result of this testing indicated that CO₂ would effectively reduce the raw water pH from 8.2 (existing average) to 6.5-7.2 which would significantly improve coagulant effectiveness and reduce aluminium residuals to below the guideline levels. It is proposed that preliminary design and engineering of a CO₂ injection system for raw water pH adjustment would be initiated immediately in August 2017 and construction of the system would be completed in 2018 budget year. Estimated cost for CO₂ injection system pre-design and engineering is estimated at \$130,000.
- SCADA upgrade project has an approved budget of \$1,250,000 for 2017. This work is currently in the RFP process and a SCADA system integrator will be selected in September 2017. This work will be completed in tasks. It is anticipated that only one third of the project will actually be completed in 2017 and the remainder will be completed in 2018. As such, only one-third to one-half of the budget will be required in 2017. The General

July 26, 2017 - UW/22/17

Re: UWSS 2017 Mid-Year Revenue and Expenditure Report

Manager proposes that the budget for SCADA system upgrade be split between 2017 and 2018 fiscal years. Thus for 2017, capital expenditures for this work are estimated to be \$500,000.

The proposed adjustments to the 2017 Capital Program Budget will likely results in the budget being reduced to by up to \$450,000 from the current approved budget of \$2,895,000.

The General Manager will report back to the Board on further capital budget adjustments once tenders for the Essex Water Tower rehabilitation and proposals for the SCADA system upgrades have been received and evaluated.

The following provides an overview of the UWSS budget status for the 2016 Budget year, as of June 30th, 2016.

Table 1: 2016 UWSS Mid-Year Revenue Versus Operational Expenditures

Budget Item	Approved Budget (at mid-year point)	Actual as of June 30 th , 2016	Variance
Total Revenue	\$4,421,000	\$4,375,000	(\$46,000)
Operational Expenditures	(\$2,374,000)	(\$2,299,000)	\$75,000
Debt Service	(\$1,056,000)	(\$1,056,000)	\$0
<i>Operational Surplus/(Deficit)</i>	<i>\$991,000</i>	<i>\$1,020,000</i>	<i>\$29,000</i>

Conclusions:

It is the UWSS General Manager's opinion that this report provides an accurate status of the UWSS 2017 revenues and expenditures as of June 30, 2017.

Respectfully submitted,



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

Attachments:

Filename: t:\union wtr\reports to board\2017\uw22-17 2017 mid-year revenue and expenditure report.july 26, 2017.docx

UNION WATER SUPPLY SYSTEM JOINT BOARD OF MANAGEMENT
2017 Mid-Year Variance Report
Flows and Revenue

Flow Metering Location	2017	2017	2017
	Approved Budget	As of June 30, 2017	Percent of Budgeted Demand
Essex PUC	175,000,000	85,841,319	49%
Gosfield N. Twsp	120,000,000	68,858,462	57%
Gosfield S. Twsp	1,070,000,000	575,744,655	54%
Highbury CanCo	165,000,000	83,913,027	51%
Kingsville PUC	140,000,000	68,734,286	49%
Leamington PUC	1,430,000,000	633,231,149	44%
Lakeshore	100,000,000	52,823,077	53%
Total Flow:	3,200,000,000	1,569,145,974	49%
Rate 1 Flow	3,035,000,000	1,485,232,947	49%
Rate 1	\$2.72	\$2.72	
Rate 1 Revenue	\$8,255,200	\$4,039,834	49%
Rate 2 Flow	0	0	
Rate 2	\$0.00	\$0.00	
Rate 2 Revenue	\$0.00	\$0.00	
Rate 3 Flow	0	0	
Rate 3 Revenue	\$0	\$0	
Highbury CanCo Flow	165,000,000	83,913,027	51%
Highbury CanCo Rate	\$2.00	\$2.00	
Highbury CanCo Revenue	\$330,000	\$167,826	51%
Lifecycle Rate	\$0.24	\$0.24	
	\$768,000	\$376,595	49%
Total Revenue	\$8,585,200	\$4,207,660	49%

UNION WATER SUPPLY SYSTEM JOINT BOARD OF MANAGEMENT

2017 Approved Budget - Mid Year Variance Report
Budget Summary

	2017	2017	2017
	Approved Budget	As of June 30, 2017	Percent of Approved Budget
<u>Water Flows</u>			
<u>REVENUE</u>			
Senior Government Grants	\$0	\$0	-
Wholesale Rate Billings	\$8,585,200	\$4,207,660	49%
Investment Income	\$232,000	\$156,244	67%
Sundry revenue	\$24,000	\$11,624	48%
TOTAL REVENUES	\$8,841,200	\$4,375,528	49%
<u>OPERATING EXPENDITURE</u>			
General Administration	\$476,946	\$317,940	67%
Miscellaneous Legal/Professional fees	\$20,000	\$4,037	20%
OCWA Operating Contract	\$2,766,240	\$1,340,434	48%
Programs and Studies	\$235,000	\$144,672	62%
Electricity and Natural Gas	\$1,250,000	\$491,871	39%
TOTAL OPERATING EXPENDITURES	\$4,748,187	\$2,298,955	48%
Debt Service	\$2,294,701	\$1,055,562	46%
TOTAL DEBT SERVICE EXPENDITURES	\$2,294,701	\$1,055,563	46%
<u>CAPITAL EXPENDITURE</u>			
Capital Repair, Maintenance & Upgrade Works	\$2,895,000	\$374,319	13%
New Capital Works	\$0	\$0	-
Contingency			
TOTAL CAPITAL EXPENDITURES	\$2,895,000	\$374,319	13%
NET SURPLUS/(DEFICIT)	-\$1,096,688	\$646,691	-

UNION WATER SUPPLY SYSTEM JOINT BOARD OF MANAGEMENT
2017 Approved Budget Mid-Year Variance Report
Operations and Debt Detail

<u>Number</u>	<u>Account Description</u>	2017 Approved Budget	2017 As of June 30, 2017	2017 Percent of Approved Budget
<u>REVENUE ACCOUNTS</u>				
FEES REVENUE				
0700-3700	Wholesale Rate Billings	\$8,585,200	\$4,207,660	49%
		\$8,585,200	\$4,207,660	49%
MISCELLANEOUS REVENUES				
0700-4100	Investment Income (Operations)	\$232,000	\$156,244	67%
0700-3999	Sundry revenue	\$24,000	\$11,624	48%
		\$256,000	\$167,868	66%
	TOTAL REVENUES :	\$8,841,200	\$4,375,528	49%
<u>EXPENDITURE ACCOUNTS</u>				
WAGES AND BENEFITS				
0700-5000	Salaried	\$166,500	\$82,847	50%
	Part time	\$0	\$0	-
0700-5200 to 5210	Benefits - Full time	\$47,696	\$24,549	51%
	Benefits - Part time	\$0	\$0	-
		\$214,196	\$107,396	50%
OFFICE OVERHEAD, RENTS AND SERVICES				
0700-7010	Office supplies	\$2,000	\$418	21%
0700-7015	Board expenses	\$1,000	\$0	0%
0700-7020	Dues, Memberships, Subsc	\$3,500	\$5,371	153%
0700-7030	Travel & Mileage	\$2,500	\$799	32%
0700-7040	Training	\$5,000	\$2,763	55%
0700-7050	Conferences	\$5,000	\$2,863	57%
0700-7052	Meeting Expenses	\$2,000	\$840	42%
0700-7070	Uniforms/Clothing	\$500	\$0	0%
0700-7950	Legal/Professional fees	\$20,000	\$4,037	20%
0700-7959-002070	Audit Fees	\$15,000	\$6,500	43%
0700-6750	Property Taxes	\$145,000	\$141,819	98%
0700-7080 & 7085	Operational Purchases/Maint.	\$15,000	\$12,609	84%
0700-7090	Sundry	\$1,000	\$0	0%
0700-7090	Leamington Assistance	\$30,000	\$30,000	100%
0700-7110	Communications	\$1,500	\$319	21%
0700-7120	Postage & Courier	\$500	\$98	20%
0700-7130	Advertising & Promotion	\$7,000	\$0	0%
0700-7140	Insurance	\$15,000	\$0	0%
0700-7130	Donations & Grants	\$4,000	\$3,000	75%
0700-7230 to 7290	Office equipment Purchases/Maint.	\$7,250	\$3,145	43%
		\$282,750	\$214,581	76%
0700-6720	OCWA Operating Union	\$2,766,240	\$1,340,434	48%
0700-7410 & 7420	Electricity and Natural Gas	\$1,250,000	\$491,871	39%
		\$4,016,240	\$1,832,305	46%
0700-7989-002070	Operational Programs & Studies	\$235,000	\$144,672	62%
<u>Un-Budgeted Expenditures</u>				
	Schiller Drain - Kingsville Levy	\$0		
	Water Main Repairs	\$0		
	TOTAL OPERATIONAL EXPENDITURES:	\$4,748,186	\$2,298,954	48%
NET OPERATIONAL SURPLUS/(DEFICIT)		\$4,093,014	\$2,076,574	51%
<u>DEBT SERVICE</u>				
0700-6000 & 6100	Sun Life Debt Obligation	\$2,294,701	\$1,055,562	46%
0700-6000 & 6100	Woodslee Credit Union			
0700-6000 & 6100	OSIFA			
0700-6010 & 6110	Leamington WM			
	TOTAL DEBT SERVICE:	\$2,294,701	\$1,055,562	46%
SURPLUS/(DEFICIT) AFTER DEBT		\$1,798,313	\$1,021,011	-

**Union Water Supply System
2017 Approved Budget - Mid Year Variance Report
2017 Capital Expenditures**

<u>Item Description</u>	2017 Approved Budget	As of June 30, 2016	Budget Remaining	Percent of Budget Expended	Notes
<u>STUDIES/PROGRAMS</u>					
Water Demand/Usage Investigations/Studies	\$25,000	\$12,532	\$12,468	50%	New monitoring instrumentation to be ordered in August 2017
Water Quality (CWN, etc.)	\$35,000	\$31,590	\$3,410	90%	Distribution System Corrosion monitoring continuing to end of year
Dissolved Air Flotation Pilot Testing and Preliminary Engineering	\$125,000	\$100,550	\$24,450	80%	Final Report on DAF/ CO2 Testing being completed by Consultant
Energy Audit / Optimization	\$50,000	\$0	\$50,000	0%	Low Lift Energy Monitoring to be implemented with OCWA in Fall 2017
UWSS Restructuring Financial Analysis and Business Case	\$150,000	\$0	\$150,000	0%	Price Waterhouse Coopers have initiated the Financial Analysis
Total Studies/Programs	\$385,000	\$144,672	\$240,328	38%	
<u>CAPITAL WORKS/ MAJOR MAINTENANCE</u>					
Low Lift Pump #5 Major Maintenance	\$35,000	\$0	\$35,000	0%	This budget to be reallocated to LL Pump #2; new LL Pump #2 needed
Carbon Scrubber Construction	\$40,000	\$0	\$40,000	0%	On-hold
Microstrainer Floors	\$20,000	\$0	\$20,000	0%	PO issued to Gillett's for microstrainer floor construction; September work
Filter Meter Replacements (Year 3 of 3 Year Program)	\$15,000	\$18,100	-\$3,100	121%	Completed
Filter Media Replacement -Filters 5 and 7	\$140,000	\$115,559	\$24,441	83%	Completed
Turbidity Meter Replacements (Year 3 of 3 year Program)	\$25,000	\$13,632	\$11,368	55%	Two additional Turbidity meters to be purchased early fall 2017
Chlorine Analyzer Replacements (Year 2 of 2 year Program)	\$20,000	\$18,269	\$1,731	91%	Completed
High Lift Pump #4 Rehabilitation	\$45,000	\$31,539	\$13,461	70%	Completed
High Lift Compressor #1 Replacement	\$15,000	\$11,719	\$3,281	78%	Completed
Window Replacements - Treatment Plant (Year 3 of 3 Year Program)	\$25,000	\$24,046	\$954	96%	Completed
Front Foyer/Entrance Upgrades	\$75,000	\$0	\$75,000	0%	On-hold
Waste Lagoon Excavation - south lagoon	\$100,000	\$0	\$100,000	0%	PO issued to Dimenna; work to be completed in August 2017
Lagoon Residuals Materials Management	\$100,000	\$99,986	\$14	100%	Completed
Security System Install	\$30,000	\$0	\$30,000	0%	On-hold; will be completed during SCADA system install work
Essex Water Tower Rehabilitation (interior and exterior)	\$850,000	\$0	\$850,000	0%	Tender call issued; tenders to be received August 3rd, 2017.
Distribution System Valves and Components	\$60,000	\$30,808	\$29,192	51%	Valve Exercising and improvements underway
Master Water Meter Replacements/Upgrades	\$50,000	\$6,027	\$43,973	12%	Meters #14 & #27 to be replaced in August; Meters #5 and #8 in Fall 2017
SCADA System Upgrade - Complete new system	\$1,250,000	\$4,633	\$1,245,367	0%	Request for Proposal document complete. RFP Call to be issued August 7, 2017
Total Capital Works/ Major Maintenance	\$2,895,000	\$374,319	\$2,520,681	13%	
TOTAL STUDIES , CAPITAL and MAINTENANCE	\$3,280,000	\$518,991	\$2,761,009	16%	

Report

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

From: Rodney Bouchard, Union Water Manager

Date: July 27, 2017

Re: Engineering and Design - Carbon Dioxide Injection System for Raw Water pH Adjustment



Recommendation:

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

And further, that the Board approves a budget of \$125,000 to be funded from the UWSS Operating Funds Reserve for the undertaking of Conceptual & Detailed Design and Engineering Services for the installation of a Carbon Dioxide (CO₂) injection system for raw water pH adjustment;

And further, that the UWSS Board authorizes the UWSS General Manager to undertake a direct negotiation with Associated Engineering for CO₂ injection system design and engineering services.

Background:

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

Treatment related capital improvements have included the following:

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

Treatment process evaluations have consisted of the following:

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

In 2016, Union Water retained Associated Engineering (AE) to review treated water quality trends following changes made at the Ruthven Water Treatment Plant (Plant) to the coagulant type and dose. AE's work included bench-scale testing for coagulant optimization and complete water modelling to reduce the potential for corrosion the distribution system. In their study report, AE noted that alternative coagulants such as Aluminum Chlorohydrate (ACH) and Polyaluminum Chlorides (PACLs) can improve the treated water quality in regards to turbidity removal, alkalinity, and enhanced organics reduction. However, high residual aluminum concentrations and an increase in chloride to sulphate mass ratios (CSMR) in treated water (a corrosion potential indicator), indicated that the coagulant dose needs to be further optimized to meet turbidity reduction, aluminum residual and CSMR objectives. In its coagulant evaluation study AE indicated that raw water pH adjustment may be needed to optimize coagulation conditions, reduce aluminum residuals and minimize corrosion potential in the distribution system water.

In 2017, UWSS retained AE to conduct pilot-scale testing to evaluate the feasibility of dissolved air flotation (DAF) as a clarification alternative. The preliminary results from this study indicated that through a multi-stage pre-treatment process that includes both a flotation (DAF) and settling (existing up-flow clarifiers) component, DAF would be a feasible clarification process. Further, these preliminary results also indicated that pH adjustment of raw water could improve the effectiveness of the existing pre-treatment process as well as the proposed multi-stage pre-treatment process.

Discussion:

As a follow up to the Spring 2017 DAF pilot testing, AE conducted additional testing on the raw water to explore a carbon dioxide (CO₂) pH adjustment system to help improve the existing coagulant and flocculation processes at the Plant. Lowering the pH was also expected to decrease the aluminum residual in the treated water. The CO₂ bench testing was completed using two different coagulants for clarification; DelPAC2020, which is currently used as the primary coagulant at the Plant; and HyperION, which is a coagulant that is occasionally used at the Plant for clarifier startup or clarification enhancement.

July 27, 2017 - UW/23/17

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Re: Engineering and Design - Carbon Dioxide Injection System for Raw Water pH Adjustment

The results of the CO₂ pH adjustment bench testing showed that the coagulation/flocculation process can be improved with pH adjustment. The following results and observations were noted:

- For DeIPAC, aluminum residuals are greatly reduced to well below the operational guideline of 0.1 mg/L when dosed at optimized pH (pH 6.5). For HyperION, aluminum residuals remain low regardless of pH.
- Turbidity removal is enhanced with an optimized pH.
- DeIPAC and HyperION had comparable turbidity removal under a settling strategy
- DeIPAC had better turbidity removal than HyperION under a flotation strategy
- Settling performance slightly better than flotation performance. For high turbidity event (raw water turbidity = 550 NTU), Settling appeared to have slight better turbidity removals than flotation (with the exception of DeIPAC at pH 6.5).
- Post-treatment chemical treatment to increase finished water pH is not expected to be required since most of the CO₂ should off-gas during the treatment process thus resulting in a pH increase to a level similar to that currently observed in plant treated water.

The AE DAF/CO₂ study report also provided the following recommendations:

- The continued use of DeIPAC at the Ruthven WTP is recommended due to the plant's familiarity with the product and overall treatment performance. (It was noted that HyperION produced a very dilute sludge causing the lagoons to fill up rapidly when HyperION was tested in a full-scale plant trial over a one month period last summer).
- To reduce the aluminum residual in treated water when using DeIPAC, it is recommended to implement a CO₂ pH adjustment system to optimize the coagulation process. This will be beneficial to current Plant operations using the existing settling strategy (up-flow clarifiers) and will also be useful in the future if the main clarification strategy is changed to flotation (i.e. DAF).
- The CO₂ injection system should be sized to reduce the raw water pH from 8.15 down to 6.5 (for DeIPAC) at the average plant flow of 47 million litres per day (ML/d) or 10.5 million Imperial gallons per day (Igalpd).

Based on the results of the CO₂ pH adjustment study, the UWSS General Manager proposes to retain Associated Engineering to complete conceptual design and

July 27, 2017 - UW/23/17

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Re: Engineering and Design - Carbon Dioxide Injection System for Raw Water pH Adjustment

engineering services for the installation of a CO₂ injection system for raw water pH adjustment.

Financial Impact:

The UWSS General Manager has requested a proposal from Associated Engineering to for conceptual design and engineering services for the CO₂ raw water pH adjustment system. This proposal was solicited solely from Associated Engineering for the following reasons:

- Associated Engineering assisted UWSS with on-site studies for the residuals management system, the coagulant strategy and corrosion evaluation, DAF pilot study and CO₂ pH adjustment bench scale testing. As such, Associated Engineering is very familiar with existing UWSS treatment operations & process and water quality concerns/issues.
- UWSS General Manager proposes to get this work initiated immediately with the intent of have the installation of the CO₂ injection system completed before the onset of Summer 2018. Due to their familiarity with the UWSS treatment system, Associated Engineering is best suited to help UWSS get this work completed within the proposed timeline.

A copy of the Associated Engineering preliminary proposal for this work dated July 27, 2017 is attached to this report.

Based on their Fee Letter/Proposal, Associated Engineering proposes to complete the design and engineering services for the CO₂ injection system for raw water pH adjustment at a cost of \$108,473 + HST. The UWSS General Manager proposes a budget of \$125,000 for this work. This proposed budget includes a 15% contingency allowance for unplanned or unforeseen costs.

The budget of \$125,000 for this work would be funded from the UWSS Reserves. Sufficient funds are available in the UWSS Operating Fund reserves to support this work.

Closing Comments:

Based on the results of the CO₂ raw water pH adjustment bench scale testing, the UWSS General Manager believes that the installation of a CO₂ injection system for lowering of raw water pH would be beneficial for the UWSS treatment process as it would achieve the following:

- Improve coagulant performance and thus enhance the clarification process; this would likely result in a reduction in coagulant use and thus also decrease the amount of residuals solids generated. Improved coagulant performance would

July 27, 2017 - UW/23/17

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Re: Engineering and Design - Carbon Dioxide Injection System for Raw Water pH Adjustment

likely also improve filter performance as less coagulant particles/ turbidity would be carried over to the filters.

- Address the existing issue with elevated aluminum levels in treated water that occurs from the use of a PACL coagulant such as DeIPAC2020 in warm temperature raw water such as Lake Erie water in summer. Other coagulants such as HyperION and Alum have been shown to not increase aluminum levels in water in the UWSS treatment process; however HyperION has demonstrated significant increase in residuals materials generation and variable performance in the existing upflow clarification process and Alum has also demonstrated significant residuals materials generation and poor performance in cold water (winter conditions).
- Would also improve coagulant performance and clarification efficiency for a DAF system, which is currently being proposed for UWSS in the near future.

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

Respectfully submitted,



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

Attachments.

Filename: t:\union wtr\reports to board\2017\uw23-17 - preliminary design and engineering - carbon dioxide injection system for raw water ph adjustment.docx

July 27, 2017
File: TOR_P_2017.664

Rodney Bouchard, P.Geo.
General Manager
Union Water Supply System (UWSS)
P.O. Box 340
1615 Union Avenue
Ruthven, ON N0P 2G0

**Re: UNION WATER SUPPLY SYSTEM - CO₂ PH ADJUSTMENT SYSTEM IMPLEMENTATION
SCOPE / FEE LETTER**

Dear Mr. Bouchard:

Associated Engineering (AE) is pleased to submit a proposal to assist Union Water in providing engineering services, project management and contract management during the design, construction and warranty phases to implement a new carbon dioxide (CO₂) pH adjustment system at the Ruthven WTP.

Union Water has expressed a desire to implement a carbon dioxide (CO₂) pH adjustment system to help improve the existing coagulant and flocculation processes, stabilize the water chemistry (corrosion control), and reduce aluminum residuals in the treated water. CO₂ is a cost-effective, readily available, self-buffering method of adjusting pH and eliminates the need for on-site acid storage and handling associated with other types of pH control systems.

AE will prepare a preliminary design report, contract drawings and specifications for the new CO₂ pH adjustment system, assist Union Water secure the required permits and approvals, prepare the tender package, provide tendering services and provide engineering services during the construction and warranty phases.

The design elements will include civil/structural, process, electrical and instrumentation and controls. Power will be provided to the new equipment from an existing MCC in the Plant. A new PLC panel will be designed to accommodate the new equipment and instruments. This new PLC panel will connect to the existing Plant SCADA network. The control system programming scope of work will be included in the Construction Tender.

As a preliminary design concept, the CO₂ storage tank could be installed outside on a new concrete pad along the north wall of the workshop/microstrainer room with associated equipment and instrumentation stored inside the microstrainer room.

We have prepared the following proposed workplan for your review and consideration.

July 27, 2017
Rodney Bouchard, P.Geo.
Union Water Supply System (UWSS)
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PROPOSED WORKPLAN

Our proposed workplan for the project includes:

- Task 1 – Preliminary Design
- Task 2 – Detailed Design
- Task 3 – Tender Assistance
- Task 4 – Construction Services
- Task 5 – Overall Project Management & Internal QA/QC

TASK 1 – PRELIMINARY DESIGN

- Review background data and system requirements submitted by Union Water
- Conduct site visit to the Ruthven WTP to confirm configuration and layout of treatment processes
Design CO₂ system requirements and sizing
- Prepare terms of reference for a Geotech consultant (to be retained by Union Water), coordinate with Geotech consultant and review Geotech Report
- Develop preliminary layout, process narrative and P&ID drawings
- Develop preliminary cost estimates
- Prepare a Preliminary Design Brief which will include the design parameters, location, preliminary cost estimates and desktop studies
- Confirm required permits and approvals (Building Permit / MOE)

Meetings:

- PM 01 - Project Initiation / discussion of bench scale testing (teleconference)
- PM 02 – Review of Draft Preliminary Design Brief (1/2 day workshop at the Plant)

Deliverables:

- Meeting minutes / comment logs
- Preliminary Design Brief (Draft and Final)

TASK 2 – DETAILED DESIGN

- Prepare 60% design package (civil/structural (1), process (2), electrical (3), I&C (8) drawings, PCN, specifications, cost estimate)
- Prepare 95% design package (civil/structural (1), process (2), electrical (3), I&C (8) drawings, PCN, specifications, cost estimate)
- Prepare tender package (civil/structural (1), process (2), electrical (3), I&C (8) drawings, PCN, specifications, cost estimate)
- Assist Union Water to prepare, submit and coordinate applications for applicable permits and approvals

July 27, 2017
Rodney Bouchard, P.Geo.
Union Water Supply System (UWSS)
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Meetings:

- PM 03 – Review of 60% detailed design package (1/2 workshop at the Plant)
- PM 04 – Review of 95% detailed design package (1/2 day workshop at the Plant)

Deliverables:

- Design Package Submission (60% and 95%)
- Tender Package Submission
- Permits and Approval Application Packages

TASK 3 –TENDER SERVICES

- Coordinate with Union Water issuing invitations to Tender
- Attend and assist Union Water during the bidder's meeting (onsite at the Plant)
- Coordinate, review and answer bidder's questions, prepare and issue addenda during tendering period
- Assist Union Water in evaluating Tender submissions and prepare a recommendation for award

Meetings:

- PM 05 – Review draft RFP package with Union Water (teleconference)
- PM 06 – Attend and assist Union Water during bidder's meeting

Deliverables:

- Proposal documents (Draft and Final)
- Addenda answering bidder's questions
- Bid analysis and recommendation for award

TASK 4 – CONSTRUCTION SERVICES

- Review shop drawings and provide construction administration during construction period (assumed 16-week construction duration)
- Conduct site inspections (1 day biweekly during construction period)
- Attend FAT testing in GTA (1 equipment and 1 software)
- Attend SAT testing onsite (1 equipment and 1 software)
- Attend System Start-up and Commissioning (3 days)
- Provide construction administration support during commissioning and warranty period
- Develop O&M manuals and record drawings

Deliverables:

- O&M Manuals and Record Drawings

July 27, 2017
Rodney Bouchard, P.Geo.
Union Water Supply System (UWSS)
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TASK 5 – OVERALL PROJECT MANAGEMENT & INTERNAL QA/QC

- General project management including project coordination and invoicing
- Conduct internal QA/QC reviews throughout the project

PROPOSED TEAM

We propose the following Associated Engineering personnel for this assignment:

Project Manager:	Vincent LaPlante, P.Eng.
Process Designer:	Chris Keung, MASc.
Engineering Support:	Stephen Tang, MASc.
Structural Engineer	Paul Shi, P.Eng.
Electrical Engineer:	Kerri Hildebrandt, P.Eng.
I&C Advisor:	Behnood Salehi, P. Eng.
QA/QC Lead Advisor:	Roman Gluzman, P. Eng.

Technical discipline staff (including designers) will assist the proposed team in completing the various project tasks and conducting QA/QC reviews, as needed.

SCHEDULE

We will begin work as soon as we receive an authorization to proceed. The assignment is anticipated to proceed as follows:

- Preliminary Design - 1 month
- Detailed Design – 2 months
- Tendering & Award – 1 month
- Construction – 4 months
- Post Construction – 2 years

July 27, 2017
 Rodney Bouchard, P.Geo.
 Union Water Supply System (UWSS)
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ENGINEERING FEES

Our proposed fee for this assignment is a lump sum amount of \$108,473 including disbursements and excluding HST. External laboratory test costs are assumed to be covered by Union Water separately.

Task No.	Task	Budget
1.0	Preliminary Design	\$17,982
2.0	Detailed Design	\$30,253
3.0	Tender Services	\$9,892
4.0	Construction Services	\$38,342
5.0	Project Management and Internal QA/QC	\$12,005

SUMMARY

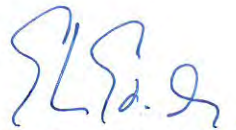
Thank you for the opportunity to assist Union Water with this exciting project. If you wish to discuss further, please contact me at your convenience.

Yours truly,



Vincent Laplante, P.Eng.
 Project Manager

VL/ck



Elia Edwards, M.A.Sc., P.Eng.
 Division Manager - Water

UW/24/17

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

From: Rodney Bouchard, Union Water Manager

Date: July 28, 2017

Re: Payments for the UWSS from June 11 to July 28, 2017



Aim:

To provide the Board with a copy of payments made by the Union Water Supply System from June 11 to July 28, 2017.

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\2017\uw24-17 payments june 11 to july 28, 2017.docx



Vendor : 001410 To PT00000118
 Batch : All
 Department : All

Cheque Print Date : 15-Jun-2017 To 16-Jun-2017
 Bank : 07 To 08
 Class : All

Vendor Invoice	Vendor Name Description	Batch	Inv Date	Inv Due Date	Amount
G.L. Account	CC1 CC2 CC3 GL Account Name				
DEPARTMENT 0700 Union Water System					
030515 CUETS FINANCIAL					
BURGER KING LUNCH - CANECT CONF.		311	02-May-2017	15-Jun-2017	
70-5-0700-7050	002070 002001 Conferences				10.40
CHELSEA-060 ROOM - CDN. WATER MUN. NETWORK MTG		311	16-May-2017	15-Jun-2017	
70-5-0700-7050	002070 002002 Conferences				361.01
CHELSEA-PAR PARKING - BLUE CITIES CONF.		311	18-May-2017	15-Jun-2017	
70-5-0700-7050	002070 002009 Conferences				13.56
COMPARK-MA PARKING - PWC MTG		311	30-May-2017	15-Jun-2017	
70-5-0700-7030	002070 002009 Travel & Mileage				6.00
CY BY MARRIC ROOM - BLUE CITIES CONF-MACDONALD		313	18-May-2017	15-Jun-2017	
70-5-0700-7050	002070 002002 Conferences				461.68
CY BY MARRIC ROOM - BLUE CITIES WORKSHOP/CONF		311	18-May-2017	15-Jun-2017	
70-5-0700-7050	002070 002002 Conferences				467.27
70-5-0700-7050	002070 002002 Conferences				118.38
ENTERPRISE- CAR RENTAL		311	05-May-2017	15-Jun-2017	
70-5-0700-7050	002070 002009 Conferences				370.98
ENTERPRISE- VEHICLE RENTAL - OWWA CONF.		311	11-May-2017	15-Jun-2017	
70-5-0700-7050	002070 002009 Conferences				186.79
MARRIOTT-16: ROOM - ONT.WATER WORKS ASSOC. CONF.		311	11-May-2017	15-Jun-2017	
70-5-0700-7050	002070 002002 Conferences				475.38
ONROUTE-19€ GAS - RENTAL CAR - CANECT CONF		311	02-May-2017	15-Jun-2017	
70-5-0700-7050	002070 002009 Conferences				91.20
ONROUTE-26€ GAS - CAR RENTAL - OWWA CONF.		311	08-May-2017	15-Jun-2017	
70-5-0700-7050	002070 002009 Conferences				66.78
PETRO-51597€ GAS - RENTAL CAR - OWWA CONF		311	11-May-2017	15-Jun-2017	
70-5-0700-7050	002070 002009 Conferences				30.00
080250 HYDRO ONE NETWORKS INC					
200141677460 MAY/17 HYDRO - RUTHVEN WATER TREATMENT PLANT		311	07-Jun-2017	15-Jun-2017	
70-5-0700-7420	002073 Electricity				54,478.00
200141680692 MAY/17 HYDRO - LOW LIFT		311	07-Jun-2017	15-Jun-2017	
70-5-0700-7420	002073 Electricity				28,815.48
70-5-0700-7420	002073 Electricity				-5.14
200152134969 MAY/17 HYDRO - METER#17		311	07-Jun-2017	15-Jun-2017	
70-5-0700-7420	002073 Electricity				36.10
70-5-0700-7420	002073 Electricity				-2.56
180325 RICOH CANADA INC					
SCO91558132 COPIES - APR26-MAY30		311	31-May-2017	15-Jun-2017	
70-5-0700-7010	002070 002060 Office Supplies				81.10
190185 SGS CANADA INC. ENVIRONMENTAL SERVICES					
11062241 WATER QUALITY STUDIES CORROSION-KINGSVILLE		311	30-May-2017	15-Jun-2017	
70-5-0700-7989	002075 Operational Programs & Studies				98.31
11062261 WATER QUALITY STUDIES CORROSION-LEAMINGTON		311	30-May-2017	15-Jun-2017	
70-5-0700-7989	002075 Operational Programs & Studies				98.31
11062284 WATER QUALITY STUDIES CORROSION-UWSS		311	30-May-2017	15-Jun-2017	
70-5-0700-7989	002075 Operational Programs & Studies				971.80
11062286 WATER QUALITY STUDIES CORROSION-LAKESHORE		311	30-May-2017	15-Jun-2017	
70-5-0700-7989	002075 Operational Programs & Studies				196.62
11062292 WATER QUALITY STUDIES CORROSION-ESSEX		311	30-May-2017	15-Jun-2017	
70-5-0700-7989	002075 Operational Programs & Studies				98.31



Vendor : 001410 To PT00000118
 Batch : All
 Department : All

Cheque Print Date : 15-Jun-2017 To 16-Jun-2017
 Bank : 07 To 08
 Class : All

Vendor Invoice	Vendor Name Description				Batch Invc Date	Invc Due Date	Amount
G.L. Account	CC1 CC2 CC3 GL Account Name						
DEPARTMENT 0700 Union Water System							
190755 SUN LIFE ASSURANCE COMPANY OF CANADA							
JUN-17	UNION WATER LOAN 3724:1				311 01-Jun-2017	15-Jun-2017	
70-5-0700-6000	002020 006901			Debenture Principal			103,247.08
70-5-0700-6100	002010 006901			Debenture Interest			126,222.98
230060 WATECH SERVICES INC							
3508	RESERVOIR #1 INSPECTION				311 30-May-2017	15-Jun-2017	
70-7-0700-8745	700040			Treatment Plant			5,198.00
230440 WILLIS BUSINESS LAW							
100380	LEGAL FEES - RESTRUCTURING				311 31-May-2017	15-Jun-2017	
70-5-0700-7950	002070 002400			Professional Services			2,392.78
Department Totals :							324,586.60



Vendor : 001410 To PT00000118
 Batch : All
 Department : All

Cheque Print Date : 22-Jun-2017 To 23-Jun-2017
 Bank : 07 To 08
 Class : All

Vendor Invoice	Vendor Name Description				GL Account Name	Batch Invc Date	Invc Due Date	Amount
G.L. Account	CC1	CC2	CC3					
DEPARTMENT 0700 Union Water System								
010103 ASSOCIATED ENGINEERING (ONT) LTD								
522552	DAF PILOT STUDY					329 27-Apr-2017	22-Jun-2017	
70-5-0700-7989	002070			Operational Programs & Studies				12,277.90
080250 HYDRO ONE NETWORKS INC								
200208899066	MAY/17 HYDRO - METER #16					329 14-Jun-2017	22-Jun-2017	
70-5-0700-7420	002073			Electricity				102.62
70-5-0700-7420	002073			Electricity				-7.26
70-5-0700-7420	002073			Electricity				1.44
130838 MUNICIPALITY OF LEAMINGTON								
530-17700 JUN	TAXES - LEAM. WATER TOWER					329 21-Jun-2017	22-Jun-2017	
70-5-0700-6750	002072			Property Tax				851.72
210120 UNION GAS LTD								
MAY-JUN17 17	626.498M3 GAS - COTTAM BOOSTER STN					329 12-Jun-2017	22-Jun-2017	
70-5-0700-7410	002073			Gas				220.24
Department Totals :								13,446.66



Vendor : 001410 To PT00000134
 Batch : All
 Department : All

Cheque Print Date : 13-Jul-2017 To 14-Jul-2017
 Bank : 07 To 08
 Class : All

Vendor Invoice	Vendor Name Description	Batch	Inv Date	Inv Due Date	Amount
G.L. Account	CC1 CC2 CC3 GL Account Name				
DEPARTMENT 0700	Union Water System				
010103 ASSOCIATED ENGINEERING (ONT) LTD					
522775	CO2 PH BENCH TESTING	382	23-Jun-2017	13-Jul-2017	
70-5-0700-7989	002070 Operational Programs & Studies				11,528.03
010156 AUSTIN ROOFING & WATERPROOFING					
2017-576	VC 26 - REPAIRS	382	20-Jun-2017	13-Jul-2017	
70-7-0700-8750	002203 Watermains				7,345.00
020120 BELL MOBILITY CELLULAR					
514877178-JUI	MONTHLY CELL CHARGES	364	01-Jul-2017	13-Jul-2017	
70-5-0700-7110	002070 002083 Telecommunications Usage				88.14
030515 CUETS FINANCIAL					
DELTA - 0410	ROOM - UNIV. OF WATERLOO	382	22-Jun-2017	13-Jul-2017	
70-5-0700-7050	002070 002002 Conferences				240.89
ENTERPRISE-	CAR RENTAL - APGO ANNUAL MTG	382	14-Jun-2017	13-Jul-2017	
70-5-0700-7050	002070 002009 Conferences				81.45
PARKING-LON	PARKING - MTG WITH PWC-UWSS RESTRUCTURING	382	27-Jun-2017	13-Jul-2017	
70-5-0700-7052	002070 Meeting Expenses				6.00
PO SAIGON-JL	LUNCH MTG - VALVE CHAMBER PROJECT	382	26-Jun-2017	13-Jul-2017	
70-5-0700-7052	002070 Meeting Expenses				22.60
70-5-0700-7052	002070 Meeting Expenses				4.00
STAPLES-JUN	JUMP DRIVES	382	15-Jun-2017	13-Jul-2017	
70-5-0700-7010	002070 002060 Office Supplies				32.10
UNITED TAXI-	TAXI - UNIV. OF WATERLOO	382	22-Jun-2017	13-Jul-2017	
70-5-0700-7050	002070 002009 Conferences				14.50
VERNONS-MA	LUNCH - OCWA BUDGET MTG	382	31-May-2017	13-Jul-2017	
70-5-0700-7052	002070 Meeting Expenses				29.38
70-5-0700-7052	002070 Meeting Expenses				5.88
ZEHRS - JUN2	COOKIES, CREAM, NAPKINS - MEETING	382	21-Jun-2017	13-Jul-2017	
70-5-0700-7052	002070 Meeting Expenses				10.48
70-5-0700-7052	002070 Meeting Expenses				2.47
ZEHRS - MAY3	COOKIES - MEETING	382	31-May-2017	13-Jul-2017	
70-5-0700-7052	002070 Meeting Expenses				8.49
050003 E.L.K. ENERGY INC					
40010915-MAY	1221KWH - ESSEX WATER TOWER	382	01-Jul-2017	13-Jul-2017	
70-5-0700-7420	002073 Electricity				-17.35
70-5-0700-7420	002073 Electricity				245.02
40047150-MAY	344KWH - METER#9	382	01-Jul-2017	13-Jul-2017	
70-5-0700-7420	002073 Electricity				-5.84
70-5-0700-7420	002073 Electricity				82.48
51976611-MAY	KINGSVILLE WATER TOWER	382	01-Jul-2017	13-Jul-2017	
70-5-0700-7420	002073 Electricity				302.44
70-5-0700-7420	002073 Electricity				-19.01
70-5-0700-7420	002073 Electricity				789.31
90006300-MAY	17,520KWH - COTTAM BOOSTER STN	382	01-Jul-2017	13-Jul-2017	
70-5-0700-7420	002073 Electricity				3,666.85
050120 ENVIRONMENTAL SERVICES INC					
34073	RESIDUAL WASTE - TREATMENT LAGOONS	382	23-Jun-2017	13-Jul-2017	
70-7-0700-8745	700180 Treatment Plant				6,789.32
34078	RESIDUAL WASTE - TREATMENT LAGOON	382	26-Jun-2017	13-Jul-2017	
70-7-0700-8745	700180 Treatment Plant				21,255.32



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Vendor Invoice	Vendor Name Description	Batch	Inv Date	Inv Due Date	Amount
G.L. Account	CC1 CC2 CC3 GL Account Name				
DEPARTMENT 0700 Union Water System					
34086	RESIDUAL WASTE - TREATMENT LAGOON	382	27-Jun-2017	13-Jul-2017	
70-7-0700-8745	700180 Treatment Plant				11,420.07
34098	RESIDUAL WASTE - TREATMENT LAGOONS	382	28-Jun-2017	13-Jul-2017	
70-7-0700-8745	700180 Treatment Plant				20,129.84
34116	RESIDUAL WASTE - TREATMENT LAGOONS	382	29-Jun-2017	13-Jul-2017	
70-7-0700-8745	700180 Treatment Plant				17,970.41
34126	RESIDUAL WASTE - TREATMENT LAGOONS	382	30-Jun-2017	13-Jul-2017	
70-7-0700-8745	700180 Treatment Plant				3,119.65
34139	RESIDUAL WASTE - TREATMENT LAGOONS	382	04-Jul-2017	13-Jul-2017	
70-7-0700-8745	700180 Treatment Plant				3,633.23
34143	RESIDUAL WASTE - TREATMENT LAGOONS	382	05-Jul-2017	13-Jul-2017	
70-7-0700-8745	700180 Treatment Plant				12,398.09
34144	RESIDUAL WASTE - TREATMENT LAGOONS	382	06-Jul-2017	13-Jul-2017	
70-7-0700-8745	700180 Treatment Plant				14,158.34
060975 FVB ENERGY INC					
I005375	CHP - PROJECT	382	31-Mar-2017	13-Jul-2017	
70-5-0700-7989	002070 Operational Programs & Studies				3,559.50
I005516	CHP - PROJECT	382	31-May-2017	13-Jul-2017	
70-5-0700-7989	002070 Operational Programs & Studies				6,659.71
080250 HYDRO ONE NETWORKS INC					
200141680894	MAY/17 HYDRO - LEAMINGTON WATER TOWER	382	27-Jun-2017	13-Jul-2017	
70-5-0700-7420	002073 Electricity				617.50
70-5-0700-7420	002073 Electricity				-43.71
200141681706	MAY/17 HYDRO - METER#2	382	26-Jun-2017	13-Jul-2017	
70-5-0700-7420	002073 Electricity				40.67
70-5-0700-7420	002073 Electricity				-2.88
200141682009	MAY/17 HYDRO - ALBUNA WATER TOWER	382	28-Jun-2017	13-Jul-2017	
70-5-0700-7420	002073 Electricity				423.93
70-5-0700-7420	002073 Electricity				-30.02
200141683019	MAY/17 HYDRO - METER#3	382	27-Jun-2017	13-Jul-2017	
70-5-0700-7420	002073 Electricity				-2.92
70-5-0700-7420	002073 Electricity				41.20
200141683120	MAY/17 HYDRO - METER#5	382	28-Jun-2017	13-Jul-2017	
70-5-0700-7420	002073 Electricity				-2.63
70-5-0700-7420	002073 Electricity				37.21
200141683423	MAY/17 HYDRO - METER#6	382	27-Jun-2017	13-Jul-2017	
70-5-0700-7420	002073 Electricity				-2.51
70-5-0700-7420	002073 Electricity				35.54
200141683524	MAY/17 HYDRO - METER#8	382	26-Jun-2017	13-Jul-2017	
70-5-0700-7420	002073 Electricity				35.18
70-5-0700-7420	002073 Electricity				-2.49
200141687362	MAY/17 HYDRO - METER#22	382	26-Jun-2017	13-Jul-2017	
70-5-0700-7420	002073 Electricity				-2.40
70-5-0700-7420	002073 Electricity				33.95
200141687766	MAY/17 HYDRO - METER#29	382	26-Jun-2017	13-Jul-2017	
70-5-0700-7420	002073 Electricity				35.41
70-5-0700-7420	002073 Electricity				-2.50
200141687867	MAY/17 HYDRO - METER#24	382	26-Jun-2017	13-Jul-2017	
70-5-0700-7420	002073 Electricity				-2.35
70-5-0700-7420	002073 Electricity				33.21



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Vendor Invoice	Vendor Name Description				GL Account Name	Batch Invc Date	Invc Due Date	Amount	
G.L. Account	CC1	CC2	CC3						
DEPARTMENT 0700 Union Water System									
130610 MOIR									
IN00081837	DAF (EXTRA)					382 08-Jun-2017	13-Jul-2017		
70-5-0700-7989	002070				Operational Programs & Studies			2,325.54	
IN00081841	DAF (EXTRA)					382 09-Jun-2017	13-Jul-2017		
70-5-0700-7989	002070				Operational Programs & Studies			2,325.54	
150365 ONTARIO CLEAN WATER AGENCY									
INV000095536	JUN/17 OPER&MTCE					382 30-Jun-2017	13-Jul-2017		
70-5-0700-6720	002071				OCWA Operating Contract			223,405.71	
990644 PRO-BID CONTRACTORS LTD									
1809	ROAD#2 CHAMBER REPAIR					382 16-Jun-2017	13-Jul-2017		
70-7-0700-8750	002202				Watermains			23,197.68	
180325 RICOH CANADA INC									
SCO91597611	COPIER CONTRACT - MAY4-JUN30					382 30-Jun-2017	13-Jul-2017		
70-5-0700-7010	002070 002060				Office Supplies			89.09	
190185 SGS CANADA INC. ENVIRONMENTAL SERVICES									
11070438	WATER QUALITY STUDIES CORROSION-ESSEX					382 29-Jun-2017	13-Jul-2017		
70-5-0700-7989	002075				Operational Programs & Studies			98.31	
11070466	WATER QUALITY STUDIES CORROSION-KINGSVILLE					382 29-Jun-2017	13-Jul-2017		
70-5-0700-7989	002075				Operational Programs & Studies			98.31	
11070481	WATER QUALITY STUDIES CORROSION-UWSS					382 29-Jun-2017	13-Jul-2017		
70-5-0700-7989	002075				Operational Programs & Studies			791.00	
11070483	WATER QUALITY STUDIES CORROSION-LAKESHORE					382 29-Jun-2017	13-Jul-2017		
70-5-0700-7989	002075				Operational Programs & Studies			98.31	
11070484	WATER QUALITY STUDIES CORROSION-LEAMINGTON					382 29-Jun-2017	13-Jul-2017		
70-5-0700-7989	002075				Operational Programs & Studies			98.31	
230420 WILL INSURANCE BROKERS LTD									
0608252	INSURANCE RENEWAL					382 02-Jun-2017	13-Jul-2017		
70-5-0700-7140	002070				Insurance - Liability			7,334.28	
230440 WILLIS BUSINESS LAW									
6073	LEGAL FEES - RESTRUCTURING					382 30-Jun-2017	13-Jul-2017		
70-5-0700-7950	002070 002400				Professional Services			3,629.81	
230685 WIRED SOLUTIONS									
13668	YEARLY WEB HOSTING FEE					382 20-Jun-2017	13-Jul-2017		
70-5-0700-7110	002070 002080				Telecommunications Usage			257.64	
Department Totals :									410,545.71



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Vendor Invoice	Vendor Name Description				GL Account Name	Batch Invc Date	Invc Due Date	Amount
G.L. Account	CC1	CC2	CC3					
DEPARTMENT 0700 Union Water System								
080250 HYDRO ONE NETWORKS INC								
200141677460	JUN/17 HYDRO - RUTHVEN WATER TREATMENT					397 07-Jul-2017	20-Jul-2017	
70-5-0700-7420	002073 Electricity							83,687.66
200141680692	JUN/17 HYDRO - LOW LIFT					397 07-Jul-2017	20-Jul-2017	
70-5-0700-7420	002073 Electricity							-5.71
70-5-0700-7420	002073 Electricity							46,544.55
200152134969	JUN/17 HYDRO - METER#17					397 07-Jul-2017	20-Jul-2017	
70-5-0700-7420	002073 Electricity							34.63
70-5-0700-7420	002073 Electricity							-2.46
190755 SUN LIFE ASSURANCE COMPANY OF CANADA								
JUL-17	JUL/17 UNION WATER LOAN 3724:1					397 01-Jul-2017	20-Jul-2017	
70-5-0700-6100	002010 006901 Debenture Interest							125,315.60
70-5-0700-6000	002020 006901 Debenture Principal							127,101.46
210120 UNION GAS LTD								
JUN-JUL17 17	75.939M3 GAS - COTTAM BOOSTER STATION					397 12-Jul-2017	20-Jul-2017	
70-5-0700-7410	002073 Gas							47.47
230710 WOLSELEY CANADA INC								
5525196	REPAIR CLAMP - RD#2-METER PIT#15 COUPLING					397 01-Jun-2017	20-Jul-2017	
70-7-0700-8750	002202 Watermains							1,075.31
Department Totals :								383,798.51



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 Class : All

Vendor Invoice	Vendor Name Description				GL Account Name	Batch Invc Date	Invc Due Date	Amount
G.L. Account	CC1	CC2	CC3					
DEPARTMENT 0700 Union Water System								
994296 CADUCEON ENTERPRISES INC								
17-9694 - OCV	CO2 BENCH TESTING					406 30-Jun-2017	27-Jul-2017	
70-5-0700-7989	002070			Operational Programs & Studies				3,421.08
080250 HYDRO ONE NETWORKS INC								
200208899066	JUN/17 HYDRO - METER#16					406 14-Jul-2017	27-Jul-2017	
70-5-0700-7420	002073			Electricity				101.60
70-5-0700-7420	002073			Electricity				-7.19
190635 STANTEC CONSULTING LTD								
1189684	VALVE CHAMBER INVESTIGATION					406 17-Jul-2017	27-Jul-2017	
70-5-0700-7950	002070	002401		Professional Services				356.66
210120 UNION GAS LTD								
JUN-JUL17 20:	59.303M3 GAS - RUTHVEN WTP					406 21-Jul-2017	27-Jul-2017	
70-5-0700-7410	002073			Gas				97.56
Department Totals :								3,969.71