



MEMORANDUM

TO: Bud Butler, WPCA Chairman

FROM: Mike Crawford

DATE: January 13, 2020

SUBJECT: Incentive Payment Summary and Cost Savings

In response to your email dated December 31, 2019, I am summarizing below and in the attachments a projection of tangible cost savings and other tasks outside the terms of our contract instituted by Aquarion Water Company (AWC) during the first three years of our service contract with the Town of New Hartford. As you noted, AWC has agreed to waive the incentive payments assuming the Town proceeds with the water and wastewater asset sale. In general, I estimate the savings identified in the Incentive Payment memoranda at about \$87,000, of which about \$69,600 is related to lower sludge management costs and \$15,000 is related to lower electrical consumption.

As you will see in the annual memoranda, AWC has also conducted a number of tasks that were not included in our scope of service, but we assisted the Town as time was available. These additional tasks represent about \$100,000 in services and include:

- NPDES Permit Support: \$15,000
- UV Disinfection Optimization Study: \$20,000
- EQ Tank Cleaning and Management: \$18,900
- GIS Mapping – Sanitary Sewers: \$20,000
- GIS Mapping – Storm Sewers: \$10,000
- Mobile Generator Coordination: \$7,500
- Paid for Training Support with Fluidyne: \$4,800
- Polymer Coordination and Pilot Testing: \$5,000

Please do not hesitate to call or email with any questions or comments. AWC appreciates the partnership that has evolved between us and we look forward to the opportunity of continuing this relationship in the future.



MEMORANDUM

TO: Bud Butler, WPCA Chairman

FROM: Mike Crawford, Derek Albertson

DATE: December 18, 2017

SUBJECT: New Hartford Wastewater Contract Operations  
Incentive Payment – Year One (September 2016 – August 2017)

As outlined in the Wastewater System Operation and Maintenance Services Agreement between the New Hartford Water Pollution Control Authority (WPCA) and Aquarion Water Company (AWC), an Incentive Payment of one third the amount of savings introduced by AWC shall be payable to AWC. The cost savings for any given year are to be compared to the baseline cost for the same expenditures for the 12-month period immediately preceding the effective date of this contract (i.e., September 1, 2015 through August 31, 2016). The cost savings are to be reviewed and agreed upon by the WPCA and AWC. This Memorandum outlines a number of cost savings for the period September 1, 2016 through August 31, 2017 (First Year of Base Contract) and serves as a preliminary synopsis for discussion purposes.

**Sludge Disposal Savings.** Sludge disposal costs were reduced during the first year of the base contract as a result of proactive gravity thickening on a daily basis, modifications to process control to reduce sludge yield and by dosing the sludge with polymer to obtain a thicker sludge for disposal. As outlined on Table 1, 53 trucks each with approximately 6,500 gallons were sent off-site for disposal at the Veolia Naugatuck facility during 2015-16 while 31 trucks were sent off-site during 2016-17 (i.e., 41 % reduction). Sludge disposal cost is \$0.12 per gallon or roughly \$780 per truck load. During this period two drums of polymer were purchased at a cost of about \$990 per drum. The net cost savings is estimated at \$15,180.

**Electrical Cost Savings.** Electrical cost savings are attributed to two process modifications: changing the process control of the SBRs based on minimum dissolved oxygen content monitoring (recommendation from Fluidyne who was contracted by AWC without charge to the WPCA) and reducing the number of UV disinfection lamps from 48 to 16 based on implementing the findings of the UV Optimization Study completed by AWC (without charge to WPCA). Table 1 summarizes the month by month kw-hr usage for the baseline and first year of the AWC contract. The estimated kw-hr savings is roughly 30,986 kw-hr (about a 9 % reduction) that represents approximately a \$5,023 cost savings.

**Chemical Cost Savings.** AWC uses bleach to control filamentous bacteria in the SBRs and reduce odors at the screenings dumpster and trash dumpster. After several months of purchasing roughly 10 gallons of bleach per month, AWC was able to stockpile about 30 gallons of off-spec bleach from another AWC operation, thus eliminating this cost. It does not appear that the previous operator purchased bleach during the baseline period. During 2016-17 it is estimated that about 10 gallons of bleach procured by AWC were used at the WPCF. The estimated unit cost of the bleach is \$2.50 per gallon representing about a \$25 cost savings.

**Ultraviolet Light Disinfection Optimization Cost Savings.** AWC completed an UV Disinfection Optimization Study during the winter and spring of 2017 in an effort to demonstrate acceptable bacteriological inactivation using fewer UV lamps and to make the case for eliminating the existing

NPDES permit requirement for UV intensity. The findings of the study showed that at reduced flow rates only 16 lamps (instead of 48 lamps used during the baseline period) were required to obtain the necessary inactivation. Further, the report was shared with CTDEEP and the UV intensity requirement was eliminated from the updated NPDES permit. While the majority of the cost savings are associated with the energy reductions already noted, secondary cost reductions will be realized due to the need for fewer lamps, ballast, and instrumentation and control monitoring being required in the future. Although there is secondary cost savings associated with the process modifications implemented, the cost savings are not readily quantifiable and therefore no cost savings are included as part of this incentive payment calculation.

**NPDES Permit Renewal Cost Savings.** Beginning in February AWC staff prepared the NPDES permit renewal application for the WPCA. The cost for a consultant to prepare such a permit renewal package can range from \$10,000 to \$15,000. AWC personnel prepared this permit renewal as time allowed throughout February, March and April. During this period the WPCA was charged a nominal amount of overtime when staff met with CTDEEP in Hartford and when time was expended beyond normal work hours. The estimated cost charged to the WPCA was \$1,510, thus representing about an \$8,500 cost savings. AWC does not propose to include this cost saving as part of the incentive payment calculation.

**Analytical Testing Savings.** At the outset of the AWC contract, four commercial laboratories were contacted to obtain quotes for providing analytical services, including the incumbent – Phoenix Laboratory. Table 2 provides a summary of the obtained quotes and compares these costs to the baseline costs in place during 2015-16. The estimated cost savings is \$750 due to a reduced unit cost negotiated for E. coli analysis.

**Equalization Tank Cleaning.** At the outset of the AWC contract it was observed that significant legacy solids had accumulated in the post SBR Equalization (EQ) tank over the past six years. AWC drained the tank on several occasions and attempted to remove as much solids from the tanks as possible without entering the tank. The results were modest and it was identified that a confined space entry would be required. The lowest quote to complete the tank cleaning were \$7,000. AWC personnel attended and were certified in confined space entry, borrowed health and safety equipment from other AWC operations, and rented the necessary pressure washer and miscellaneous equipment to complete the tank cleaning. The estimated cost for equipment rental and nominal overtime to complete this task was about \$700, thus representing a \$6,300 cost savings. AWC does not propose to include this cost saving as part of the incentive payment calculation.

After you have time to review the above and the attached tables, please let me know if there is a convenient time for us to meet to discuss this preliminary summary. AWC is delighted to partner with the WPCA and we look forward to continuing our relationship with the Town and the WPCA.

**Table 1. Sludge Trucks and Electricity Inventory - New Hartford WPCF**

Month	SLUDGE TRUCKS				ELECTRICITY		
	Baseline				kw-hr		Average \$/kw-hr
	2014 - 2015	2015 - 2016	2016 - 2017		2015 - 2016	2016 - 2017	
September	1	4	5		26,496	22,656	\$ 3,737.22 \$ 0.16
October	0	4	2		27,456	26,112	\$ 4,174.51 \$ 0.16
November	3	5	3		31,488	25,152	\$ 4,213.10 \$ 0.17
December	9	5	1		35,591	32,448	\$ 5,168.74 \$ 0.16
January	12	4	4		42,816	34,560	\$ 5,412.48 \$ 0.16
February	10	4	2		37,824	35,712	\$ 5,591.60 \$ 0.16
March	10	4	4		32,835	32,832	\$ 5,346.49 \$ 0.16
April	6	6	4		36,480	34,560	\$ 5,461.29 \$ 0.16
May	4	4	3		22,848	23,616	\$ 3,800.14 \$ 0.16
June	5	4	1		26,304	26,496	\$ 4,344.38 \$ 0.16
July	5	5	1		26,880	24,000	\$ 3,890.35 \$ 0.16
August	5	4	1		24,384	22,272	\$ 3,844.58 \$ 0.17
Monthly Avg	5.8	4.4	2.6		30,950	28,368.0	\$ 4,582.07 \$ 0.162
Total Annual	70	53	31		371,402	340,416	\$ 54,984.88
Sept 2015 - August 2016			53		Sept 2015 - August 2016	371,402	
Sept 2016 - August 2017			31		Sept 2016 - August 2017	340,416	
Truck Reduction			22		kw-hr Reduction	30,986	
Cost per Truck			\$780		\$/kw-hr	\$ 0.162	
Cost Reduction			\$ 17,160		Cost Reduction	\$ 5,023	
Number of Drums Polymer			2				
Cost per Drum			\$990				
Polymer Cost			\$1,980				
NET SAVINGS			\$ 15,180		NET SAVINGS	\$ 5,023	

TABLE 2. ANALYTICAL COST ANALYSIS SUMMARY - NEW HARTFORD WPCF (AUGUST 2016)

	PHOENIX LABS			AQUA LABS			MICRO-BAC			PHOENIX BASELINE		
	Cost per Analysis	Number of Sample/Year	Total Cost	Cost per Analysis	Number of Sample/Year	Total Cost	Cost per Analysis	Number of Sample/Year	Total Cost	Cost per Analysis	Number of Sample/Year	Total Cost
<u>Conventional/Non-Conventional Parameters for DMR</u>												
Biochemical Oxygen Demand(5)	\$ 17.50	104	\$ 1,820.00	\$ 20.00	104	\$ 2,080.00	\$ 20.00	104	\$ 2,080.00	\$ 17.50	104	\$ 1,820.00
Total Suspended Solids	\$ 10.00	104	\$ 1,040.00	\$ 10.00	104	\$ 1,040.00	\$ 12.00	104	\$ 1,248.00	\$ 10.00	104	\$ 1,040.00
Total Nitrogen	Calculated	64	\$ -	Calculated	64	\$ -	Calculated	64	\$ -	Calculated	64	\$ 1,152.00
Ammonia as Nitrogen	\$ 18.00	64	\$ 1,152.00	\$ 17.00	64	\$ 1,088.00	\$ 15.00	64	\$ 960.00	\$ 18.00	64	\$ 1,152.00
Nitrate as Nitrogen	\$ 9.00	64	\$ 576.00	\$ 10.00	64	\$ 640.00	\$ 10.00	64	\$ 640.00	\$ 9.00	64	\$ 576.00
Nitrite as Nitrogen	\$ 9.00	64	\$ 576.00	\$ 10.00	64	\$ 640.00	\$ 10.00	64	\$ 640.00	\$ 9.00	64	\$ 576.00
Total Kjeldahl Nitrogen	\$ 19.00	64	\$ 1,216.00	\$ 17.00	64	\$ 1,088.00	\$ 20.00	64	\$ 1,280.00	\$ 19.00	64	\$ 1,216.00
Ortho-Phosphate	\$ 10.00	24	\$ 240.00	\$ 10.00	24	\$ 240.00	\$ 12.00	24	\$ 288.00	\$ 10.00	24	\$ 240.00
Total Phosphorus	\$ 14.00	24	\$ 336.00	\$ 15.00	24	\$ 360.00	\$ 15.00	24	\$ 360.00	\$ 14.00	24	\$ 336.00
Alkalinity	\$ 10.00	24	\$ 240.00	\$ 10.00	24	\$ 240.00	\$ 12.00	24	\$ 288.00	\$ 10.00	24	\$ 240.00
E Coli	\$ 15.00	30	\$ 450.00	\$ 20.00	30	\$ 1,040.00	\$ 15.00	30	\$ 780.00	\$ 40.00	30	\$ 1,200.00
Dissolved Oxygen	NA	NA	-	NA	NA	-	NA	NA	-	NA	NA	-
pH	NA	NA	-	NA	NA	-	NA	NA	-	NA	NA	-
Settleable Solids	NA	NA	-	NA	NA	-	NA	NA	-	NA	NA	-
Temperature	NA	NA	-	NA	NA	-	NA	NA	-	NA	NA	-
Turbidity	NA	NA	-	NA	NA	-	NA	NA	-	NA	NA	-
UV Intensity	NA	NA	-	NA	NA	-	NA	NA	-	NA	NA	-
Subtotal Wet Chemistry			\$ 7,616.00			\$ 8,456.00			\$ 8,564.00			\$ 8,396.00
<u>Acute Aquatic Toxicity Testing</u>												
<u>Metals</u>												
Total Aluminum	\$ 8.00	4	\$ 32.00	\$ 7.00	4	\$ 28.00	\$ 7.00	4	\$ 28.00	\$ 8.00	4	\$ 32.00
Total Antimony	\$ 8.00	4	\$ 32.00	\$ 7.00	4	\$ 28.00	\$ 7.00	4	\$ 28.00	\$ 8.00	4	\$ 32.00
Total Arsenic	\$ 8.00	4	\$ 32.00	\$ 7.00	4	\$ 28.00	\$ 7.00	4	\$ 28.00	\$ 8.00	4	\$ 32.00
Total Beryllium	\$ 8.00	4	\$ 32.00	\$ 7.00	4	\$ 28.00	\$ 7.00	4	\$ 28.00	\$ 8.00	4	\$ 32.00
Total Cadmium	\$ 8.00	4	\$ 32.00	\$ 7.00	4	\$ 28.00	\$ 7.00	4	\$ 28.00	\$ 8.00	4	\$ 32.00
Hexavalent Chromium	\$ 25.00	4	\$ 100.00	\$ 10.00	4	\$ 40.00	\$ 20.00	4	\$ 80.00	\$ 25.00	4	\$ 100.00
Total Chromium	\$ 8.00	4	\$ 32.00	\$ 7.00	4	\$ 28.00	\$ 7.00	4	\$ 28.00	\$ 8.00	4	\$ 32.00
Total Copper	\$ 8.00	4	\$ 32.00	\$ 7.00	4	\$ 28.00	\$ 7.00	4	\$ 28.00	\$ 8.00	4	\$ 32.00
Total Cyanide	\$ 20.00	4	\$ 80.00	\$ 20.00	4	\$ 80.00	\$ 20.00	4	\$ 80.00	\$ 20.00	4	\$ 80.00
Amenable Cyanide	\$ 23.00	4	\$ 92.00	\$ 20.00	4	\$ 80.00	\$ 25.00	4	\$ 100.00	\$ 23.00	4	\$ 92.00
Total Iron	\$ 8.00	4	\$ 32.00	\$ 7.00	4	\$ 28.00	\$ 7.00	4	\$ 28.00	\$ 8.00	4	\$ 32.00
Total Lead	\$ 8.00	4	\$ 32.00	\$ 7.00	4	\$ 28.00	\$ 7.00	4	\$ 28.00	\$ 8.00	4	\$ 32.00
Total Mercury	\$ 17.50	4	\$ 70.00	\$ 25.00	4	\$ 100.00	\$ 15.00	4	\$ 60.00	\$ 17.50	4	\$ 70.00
Total Nickel	\$ 8.00	4	\$ 32.00	\$ 7.00	4	\$ 28.00	\$ 7.00	4	\$ 28.00	\$ 8.00	4	\$ 32.00
Total Selenium	\$ 8.00	4	\$ 32.00	\$ 7.00	4	\$ 28.00	\$ 7.00	4	\$ 28.00	\$ 8.00	4	\$ 32.00
Total Silver	\$ 8.00	4	\$ 32.00	\$ 7.00	4	\$ 28.00	\$ 7.00	4	\$ 28.00	\$ 8.00	4	\$ 32.00
Total Thallium	\$ 8.00	4	\$ 32.00	\$ 7.00	4	\$ 28.00	\$ 7.00	4	\$ 28.00	\$ 8.00	4	\$ 32.00
Total Zinc	\$ 8.00	4	\$ 32.00	\$ 7.00	4	\$ 28.00	\$ 7.00	4	\$ 28.00	\$ 8.00	4	\$ 32.00
<u>Other Parameters</u>												
Total Phenols	\$ 20.00	4	\$ 80.00	\$ 25.00	4	\$ 100.00	\$ 25.00	4	\$ 100.00	\$ 20.00	4	\$ 80.00
Total Chlorine Residual	\$ 10.00	4	\$ 40.00	\$ 5.00	4	\$ 20.00	\$ 15.00	4	\$ 60.00	\$ 10.00	4	\$ 40.00
Subtotal Metals/Acute Toxicity			\$ 910.00			\$ 812.00			\$ 872.00			\$ 910.00
<u>Toxicity Testing</u>												
NOAEL Static 48-hr Acute D. Pulex	\$ -	4	\$ -	\$ -	4	\$ -	\$ -	4	\$ -	\$ -	4	\$ -
NOAEL Static 48-hr Acute Pimephales	\$ -	4	\$ -	\$ -	4	\$ -	\$ -	4	\$ -	\$ -	4	\$ -
Subtotal Toxicity Testing			\$ -			\$ -			\$ -			\$ -
Subtotal Acute Aquatic Toxicity			\$ 910.00			\$ 812.00			\$ 872.00			\$ 910.00
<u>Residuals (Sludge) Testing</u>												
<u>Metals</u>												
Total Arsenic	\$ 8.00	1	\$ 8.00	\$ 10.00	1	\$ 10.00	\$ 7.00	1	\$ 7.00	\$ 8.00	1	\$ 8.00
Total Beryllium	\$ 8.00	1	\$ 8.00	\$ 10.00	1	\$ 10.00	\$ 7.00	1	\$ 7.00	\$ 8.00	1	\$ 8.00
Total Cadmium	\$ 8.00	1	\$ 8.00	\$ 10.00	1	\$ 10.00	\$ 7.00	1	\$ 7.00	\$ 8.00	1	\$ 8.00
Total Chromium	\$ 8.00	1	\$ 8.00	\$ 10.00	1	\$ 10.00	\$ 7.00	1	\$ 7.00	\$ 8.00	1	\$ 8.00
Total Copper	\$ 8.00	1	\$ 8.00	\$ 10.00	1	\$ 10.00	\$ 7.00	1	\$ 7.00	\$ 8.00	1	\$ 8.00
Total Lead	\$ 8.00	1	\$ 8.00	\$ 10.00	1	\$ 10.00	\$ 7.00	1	\$ 7.00	\$ 8.00	1	\$ 8.00
Total Mercury	\$ 17.50	1	\$ 17.50	\$ 10.00	1	\$ 10.00	\$ 15.00	1	\$ 15.00	\$ 17.50	1	\$ 17.50
Total Nickel	\$ 8.00	1	\$ 8.00	\$ 10.00	1	\$ 10.00	\$ 7.00	1	\$ 7.00	\$ 8.00	1	\$ 8.00
Total Zinc	\$ 8.00	1	\$ 8.00	\$ 10.00	1	\$ 10.00	\$ 7.00	1	\$ 7.00	\$ 8.00	1	\$ 8.00
<u>Other Parameters</u>												
Total Solids	\$ 11.00	1	\$ 11.00	\$ 10.00	1	\$ 10.00	\$ 15.00	1	\$ 15.00	\$ 11.00	1	\$ 11.00
Total Fixed Solids	\$ 10.50	1	\$ 10.50	\$ 10.00	1	\$ 10.00	\$ 20.00	1	\$ 20.00	\$ 10.50	1	\$ 10.50
Total Volatile Solids	\$ 14.00	1	\$ 14.00	\$ 10.00	1	\$ 10.00	\$ 20.00	1	\$ 20.00	\$ 14.00	1	\$ 14.00
Polychlorinated Biphenyls	\$ 58.00	1	\$ 58.00	\$ 70.00	1	\$ 70.00	\$ 60.00	1	\$ 60.00	\$ 58.00	1	\$ 58.00
Total Nitrogen (*)	Calculated	1	\$ -	Calculated	1	\$ -	Calculated	1	\$ -	Calculated	1	\$ -
Ammonia as Nitrogen (*)	\$ 18.00	1	\$ 18.00	\$ 20.00	1	\$ 20.00	\$ 15.00	1	\$ 15.00	\$ 18.00	1	\$ 18.00
Nitrate as Nitrogen (*)	\$ 9.00	1	\$ 9.00	\$ 12.00	1	\$ 12.00	\$ 10.00	1	\$ 10.00	\$ 9.00	1	\$ 9.00
Nitrite as Nitrogen (*)	\$ 9.00	1	\$ 9.00	\$ 12.00	1	\$ 12.00	\$ 10.00	1	\$ 10.00	\$ 9.00	1	\$ 9.00
Total Kjeldahl Nitrogen (*)	\$ 19.00	1	\$ 19.00	\$ 20.00	1	\$ 20.00	\$ 20.00	1	\$ 20.00	\$ 19.00	1	\$ 19.00
pH	\$ 5.00	1	\$ 5.00	\$ 5.00	1	\$ 5.00	\$ 15.00	1	\$ 15.00	\$ 5.00	1	\$ 5.00
Subtotal Sludge Testing Cost			\$ 235.00			\$ 258.00			\$ 256.00			\$ 235.00
TOTAL ANALYTICAL COSTS			\$ 8,791.00			\$ 9,527.00			\$ 9,692.00			\$ 9,541.00
OTHER COSTS (Delivery, etc.)			\$ -	\$ 50.00	52	\$ 2,600.00			\$ -			\$ -
TOTAL COSTS			\$ 8,791.00			\$ 12,127.00			\$ 9,692.00			\$ 9,541.00

(\*) - Required if sludge to be ultimately disposed via composting or land application.



**AQUARION**  
Water Company

*Stewards of the Environment™*

## MEMORANDUM

**TO:** Bud Butler, Town of New Hartford WPCA Chairman

**FROM:** Mike Crawford, P.E.- Program Director  
Derek Albertson, CTDEEP Class IV Operator- Chief Operator

**DATE:** September 28, 2018

**SUBJECT:** New Hartford Wastewater Contract Operations  
Incentive Payment – Year 2 (September 2017 – August 2018)

As outlined in the *2016 Wastewater System Operation and Maintenance Services Agreement* (Base Contract) between the New Hartford Water Pollution Control Authority (WPCA) and Aquarion Water Company of Connecticut (AWC), an Incentive Payment of one-third the amount of savings produced by AWC operations shall be payable to AWC. The cost savings for any given year are to be compared to the baseline cost for the same Water Pollution Control Facility (WPCF) expenditures for the 12-month period immediately preceding the effective date of this contract (September 1, 2015 through August 31, 2016). The cost savings are to be reviewed and agreed upon by the WPCA and AWC. This Memorandum outlines a number of cost savings for the period September 1, 2017 through August 31, 2018 (Second Year of Base Contract) and serves as a preliminary synopsis for discussion purposes. It is noted that AWC has agreed to waive the Incentive Payments upon the successful asset purchase of the New Hartford water and wastewater systems.

**Sludge Disposal Savings.** Sludge disposal costs were reduced more significantly during the second year of the Base Contract as a result of proactive gravity thickening on a daily basis, modifications to process control to reduce sludge yield, and adequate dosing of the sludge with a cationic polymer to accomplish sludge volume reduction. As outlined on Table 1, 53 trucks each with approximately 6,500 gallons were sent off-site for disposal at the Veolia Naugatuck facility during 2015-16 while 14 trucks were sent off-site during 2016-17 (a 74 % reduction). Sludge disposal cost is \$0.12 per gallon or roughly \$780 per truck load. During this period six drums of polymer were purchased at a cost of about \$990 per drum. The net cost savings is estimated at \$24,480.

**Electrical Cost Savings.** Electrical cost savings are attributed to two process modifications: changing the process control of the SBRs based on minimum dissolved oxygen content monitoring (recommendation from Fluidyne who was contracted by AWC without charge to the WPCA) and reducing the number of UV disinfection lamps from 48 to 16 based on implementing the findings of the UV Optimization Study completed by AWC (without charge to WPCA). Table 1 summarizes the month by month kw-hr usage for the baseline and first year of the AWC contract. The estimated kw-hr savings is 31,000 kw-hr that represents approximately a \$5,023 cost savings. [Note: these savings are assumed the same as 2016-17 and should be audited based on actual electrical usage and unit costs.]

**Analytical Testing Savings.** At the outset of the AWC contract, four commercial laboratories were contacted to obtain quotes for providing analytical services, including the incumbent – Phoenix Laboratory. Table 2 provides a summary of the obtained quotes and compares these costs to the baseline costs in place during 2015-16. The estimated cost savings is \$750 due to a reduced unit cost negotiated for E. coli analysis.

**Equalization (EQ) Tank Cleaning.** As part of normal operations, the EQ tanks are drained and cleaned. Prior to the work, AWC received a \$7,000 quote for tank cleaning. AWC personnel attended and were certified in confined space entry, borrowed health and safety equipment from other AWC operations, and rented the necessary pressure washer and miscellaneous equipment to complete the tank cleaning. The estimated cost for equipment rental and nominal overtime to complete this task was about \$700, thus representing a \$6,300 cost savings. AWC does not propose to include this cost saving as part of the incentive payment calculation.

**GIS Mapping.** By using the Town's existing GIS base map, and gathering GPS data for key infrastructure, an interactive geographic information system (GIS) framework was established. Specifically, the GIS mapping was produced for gathering, managing, and analyzing data associated with the wastewater, potable water and storm water systems. The estimated cost of performing the aforementioned work is \$20,000 for the wastewater system mapping. AWC does not propose to include this cost saving as part of the incentive payment calculation.

After you have time to review the above and the attached tables, please let me know if there is a convenient time for us to meet to discuss this preliminary summary. AWC is delighted to partner with the WPCA and we look forward to continuing our relationship with the Town and the WPCA.

**Table 1. Sludge Trucks and Electricity Inventory - New Hartford WPCF (Year 2)**

<u>Month</u>	<b>SLUDGE TRUCKS</b>			<b>ELECTRICITY (kw-hr)</b>		
	Baseline			Baseline		
	<u>2015 - 2016</u>	<u>2016 - 2017</u>	<u>2017 - 2018</u>	<u>2015 - 2016</u>	<u>2017 - 2018</u>	<u>2017 - 2018</u>
September	4	5	1	-	-	-
October	4	2	1	-	-	-
November	5	3	0	-	-	-
December	5	1	2	-	-	-
January	4	4	2	-	-	-
February	4	2	1	-	-	-
March	4	4	2	-	-	-
April	6	4	1	-	-	-
May	4	3	2	-	-	-
June	4	1	1	-	-	-
July	5	1	0	-	-	-
August	4	1	1	-	-	-
<b>Monthly Avg</b>	4.4	2.6	1.2	-	-	-
<b>Total Annual</b>	53	31	14	371,402	340,416	-
<b>Baseline:</b>	Sept 2015 - August 2016	Sept 2016 - August 2017	Sept 2017 - August 2018	Sept 2015 - August 2016	Sept 2016 - August 2017	Sept 2017 - August 2018
	53	14	14	371,402	340,416	371,402
	Truck Reduction	39		kw-hr Reduction		30,986
	Cost per Truck	\$780		\$/kw-hr		\$0.16
	Cost Reduction	\$ 30,420		Cost Reduction		\$ 5,020
	Number of Drums Polymer	6				
	Cost per Drum	\$990				
	Polymer Cost	\$5,940				
<b>NET SAVINGS</b>	\$	24,480		<b>NET SAVINGS</b>	\$	5,020



## MEMORANDUM

**TO:** Bud Butler, Town of New Hartford WPCA Chairman

**FROM:** Mike Crawford, P.E.- Program Director

**DATE:** August 28, 2019

**SUBJECT:** New Hartford Wastewater Contract Operations  
Incentive Payment – Year 3 (September 2018 – August 2019)

As outlined in the *2016 Wastewater System Operation and Maintenance Services Agreement* (Base Contract) between the New Hartford Water Pollution Control Authority (WPCA) and Aquarion Water Company of Connecticut (AWC), an Incentive Payment of one-third the amount of savings produced by AWC operations shall be payable to AWC. The cost savings for any given year are to be compared to the baseline cost for the same Water Pollution Control Facility (WPCF) expenditures for the 12-month period immediately preceding the effective date of this contract (September 1, 2015 through August 31, 2016). The cost savings are to be reviewed and agreed upon by the WPCA and AWC. This Memorandum outlines a number of cost savings for the period September 1, 2018 through August 31, 2019 (Third Year of Base Contract) and serves as a preliminary synopsis for discussion purposes. It is noted that AWC has agreed to waive the Incentive Payments upon the successful sale of the New Hartford water and wastewater systems.

**Sludge Disposal Savings.** Sludge disposal costs were reduced more significantly during the third year of the Base Contract. As outlined on Table 1, 53 trucks each with approximately 6,500 gallons were sent off-site for disposal at the Veolia Naugatuck facility during 2015-16 while 10 trucks were sent off-site during 2018-19 (81 % reduction). Sludge disposal cost is \$0.12 per gallon or roughly \$780 per truck load. During this period four drums of polymer were purchased at a cost of about \$990 per drum. The net cost savings is estimated at \$29,580.

**Electrical Cost Savings.** Electrical cost savings are attributed to two process modifications: changing the process control of the SBRs based on minimum dissolved oxygen content monitoring (recommendation from Fluidyne who was contracted by AWC without charge to the WPCA) and reducing the number of UV disinfection lamps from 48 to 16 based on implementing the findings of the UV Optimization Study completed by AWC (without charge to WPCA). The estimated kw-hr savings is 31,000 kw-hr that represents approximately a \$5,023 cost savings. [Note: these savings are assumed the same as 2016-17 and should be audited based on actual electrical usage and unit costs.]

**Analytical Testing Savings.** At the outset of the AWC contract, four commercial laboratories were contacted to obtain quotes for providing analytical services, including the incumbent – Phoenix Laboratory. The estimated cost savings is \$750 due to a reduced unit cost negotiated for E. coli analysis.

**Equalization (EQ) Tank Cleaning.** As part of normal operations, the EQ tanks are drained and cleaned. Prior to the work, AWC received a \$7,000 quote for tank cleaning. AWC personnel attended and were certified in confined space entry, borrowed health and safety equipment from other AWC operations, and rented the necessary pressure washer and miscellaneous equipment to complete the tank cleaning. The estimated cost for equipment rental and nominal overtime to complete this task was about \$700, thus representing a \$6,300 cost savings. AWC does not propose to include this cost saving as part of the incentive payment calculation.

**GIS Mapping.** By using the Town's existing GIS base map, and gathering GPS data for key infrastructure, an interactive geographic information system (GIS) framework was established. Specifically, the GIS mapping was produced for gathering, managing, and analyzing data associated with the wastewater, potable water and storm water systems. The estimated cost of performing the aforementioned work is \$10,000 for the storm water system mapping that has been completed to date. AWC does not propose to include this cost saving as part of the incentive payment calculation.

After you have time to review the above and the attached tables, please let me know if there is a convenient time for us to meet to discuss this preliminary summary. AWC is delighted to partner with the WPCA and we look forward to continuing our relationship with the Town and the WPCA.

**Table 1. Sludge Trucks and Electricity Inventory - New Hartford WPCF (Year 3)**

<u>Month</u>	<b>SLUDGE TRUCKS</b>				<b>ELECTRICITY (kw-hr)</b>			
	<b>Baseline</b>				<b>Baseline</b>			
	<u>2015 - 2016</u>	<u>2016 - 2017</u>	<u>2017 - 2018</u>	<u>2018 - 2019</u>	<u>2015 - 2016</u>	<u>2017 - 2018</u>	<u>2017 - 2018</u>	<u>2017 - 2018</u>
					<b>ASSUMED EQUAL TO 2016 - 2017 SAVINGS</b>			
September	4	5		0	-	-	-	-
October	4	2		1	-	-	-	-
November	5	3		1	-	-	-	-
December	5	1		1	-	-	-	-
January	4	4		1	-	-	-	-
February	4	2		1	-	-	-	-
March	4	4		1	-	-	-	-
April	6	4		1	-	-	-	-
May	4	3		1	-	-	-	-
June	4	1		1	-	-	-	-
July	5	1		1	-	-	-	-
August	4	1		0	-	-	-	-
<b>Monthly Avg</b>	4.4	2.6	1.17	0.83	-	-	-	-
<b>Total Annual</b>	53	31	14	10	371,402	340,416	-	-
<b>Baseline:</b>	Sept 2015 - August 2016	Sept 2017 - August 2018	53	53	Sept 2015 - August 2016	Sept 2016 - August 2017	371,402	340,416
	Truck Reduction		39	43	kw-hr Reduction		30,986	
	Cost per Truck		\$780	\$780	\$/kw-hr		\$0.16	
	Cost Reduction		\$ 30,420	\$ 33,540	Cost Reduction		\$ 5,020	
	Number of Drums Polymer		6	4				
	Cost per Drum		\$990	\$990				
	Polymer Cost		\$5,940	\$3,960				
<b>NET SAVINGS</b>			\$ 24,480	\$ 29,580	<b>NET SAVINGS</b>		\$ 5,020	