Item No. 7.1.4.

2021 SUMMARY REPORT WINDSOR UTILITIES COMMISSION

WINDSOR
UTILITIES
COMMISSION

Contents

Leadership + Accountability + Integrity = WUC

Success = Numbers

75,000+
Customers

$ 24.904M
Total Assets
Installed

1,177
New Water
Metres

35,072 ML
Water Delivered

16.3 KM
New Watermains


WINDSOR UTILITIES COMMISSION
ALBERT H. WEEKS
WATER TREATMENT PLANT

Renovations on water reservoir D located at the A.H. Weeks Water Treatment Plant.

Message From the Chair of the Windsor Utilities Commission, and Vice President Water Operations

On behalf of the Commissioners of the Windsor Utilities Commission (WUC), we are pleased to present to our customers and stakeholders, our 2021 annual report.

Despite the ongoing challenges that were presented by the pandemic in 2021, the WUC proudly celebrated many accomplishments, and as an organization, we are pleased that we were able to support our communities by providing them with safe, dependable, and essential water services.

This was exemplified in our ability to exceed many of our corporate metrics, especially in our investment in infrastructure to ensure its reliability. In addition, we are proud to announce that the WUC team received its 10th consecutive 100% rating by the Ministry of the Environment, Conservation and Parks during its annual audit. This past year WUC also received the Water's Next Award for its map-based solution for back-flow testing data entry. This novel solution not only improves efficiency but ultimately reduces costs.

Major capital projects, such as the revitalization of reservoir D, continued as planned. This initiative modernized a vital asset of our water system that houses 70 million litres of treated water. Its reactivation in early 2022 would not have occurred without the persistent work from all parties involved. With reservoir D and the George Avenue reservoir in service as of January 2022, this alleviates pressures on our infrastructure, while further building the capacity of the water distribution system.

In 2021, we also undertook detailed planning and testing which led to the successful reintegration of fluoride into our water system. Despite unforeseen delays due to pandemic-related global supply chain challenges, this transition was completed in January of 2022. This was the result of meticulous work by our team who ensured that all government regulations were strictly adhered to in this implementation.

The year was also a celebration of 20 years of Ozone leadership. WUC was the first to implement Ozone in water treatment within the Province of Ontario. Ozonation has become a highly accepted and often preferred standard for treating water, and it all began within Windsor Ontario. Over the years, WUC has invested in additional technological enhancements to its Ozone implementation, which has kept it best in class within this application of technology.

With the sale of District Energy Windsor in 2021 WUC has provided a financial benefit to rate payers while contributing to the economic health of our community through the new system owner.

As leaders within this organization, we commend all our employees for their hard work and dedication in 2021. As we look toward the future, WUC plans to continue to innovate and provide exemplary service to our customers as we work to ensure that residents can trust in the reliability of their water system for years to come.

Mayor Drew Dilkens
Commission Chair
Windsor Utilities
Commission

Garry Rossi
Vice President
Water Operations
ENWIN Utilities Ltd.

Mission Vision and Values

ENWIN is the accredited water system operator for the Windsor Utilities Commission (WUC). As part of the ENWIN Group of Companies, our mission is to provide safe and reliable energy and water services in a cost effective, sustainable manner.

A core premise of our Strategic Direction is that our service model is undergoing significant transformation — taking on a more decentralized, customer-centric, technologically advanced and environmentally sustainable form. Throughout 2021, we focused on this mission.

Sustainability means different things to different people. To WUC, it means ensuring that we have the human, fiscal and capital asset resources to continue to provide existing and modernized service levels to the community. We must also assess our environmental footprint to make certain that we are balanced in our use of resources.

Our Vision is to be a trusted leader in providing exceptional value and services to our customers and stakeholders. As the energy and water needs and options of our customers and our community evolve — and as signature projects and developments proceed — WUC will play a leading role in helping our city to become a smart energy centre with a reliable, potable water system.

We embrace our role in water distribution and will continue our service to community, as we continue to develop redundancy in the system to ensure water system resiliency.

Our Mission

To provide safe and reliable energy and water services in a cost effective, sustainable manner

Our Vision

To be a trusted leader in providing exceptional value and services to our customers and stakeholders

Our Core Values

Leadership, Accountability, Integrity

Mission Vision and Values

WUC = CONSIDERATION FOR STAKEHOLDERS.

Windsor Canada Utilities Ltd. and its affiliates take into account the interests of all our stakeholders, including employees, customers, suppliers, our shareholder and the communities and environment in which we operate.

WUC = VALUING EMPLOYEES.

Our strength is the quality and diverse experiences of our workforce. We will strive to hire and retain the best qualified people available and maximize their opportunities for success. We are committed to maintaining a safe, secure and healthy work environment, enriched by diversity and characterized by open communication, trust and fair treatment.

WUC = PUTTING CUSTOMERS FIRST.

Our continued success depends on the quality of our customer interactions, and we are committed to delivering value across the entire customer experience. We are honest, open and fair in our relationships with our customers. We provide reliable, responsive and innovative products and services in compliance with legislated rights and standards for access, safety, health and environmental protection.

WUC = FAIR, HONEST RELATIONSHIPS.

We are honest and fair in our relationships with our suppliers and contractors. We purchase equipment, supplies and services on the basis of merit, utilizing our professional procurement policy. We pay suppliers and contractors in accordance with agreed terms, encourage them to adopt responsible business practices, and require them to adhere to - health, safety and environmental standards when working for ENWIN.

WUC = RESPECT FOR COMMUNITY AND ENVIRONMENT.

We are committed to being responsible corporate citizens and will contribute to making the communities in which we operate better places in which to live and do business. We are sensitive to the community's needs and dedicated to protecting and preserving the environment in which we operate.

WUC = ACCOUNTABILITY.

We are financially accountable to our shareholder and to the institutions that underwrite our operations. We communicate to them all matters that are financially material to our organization. We protect our shareholder's investment and manage risks effectively. We communicate to our shareholder all matters that are material to an understanding of our corporate governance.

Construction site for water reservoir D located at the A.H. Weeks Water Treatment Plant.

WUC Introduction

In 2021, WUC produced 35,072 million litres of potable water for use by the citizens of the City of Windsor, the Town of LaSalle and the Town of Tecumseh.

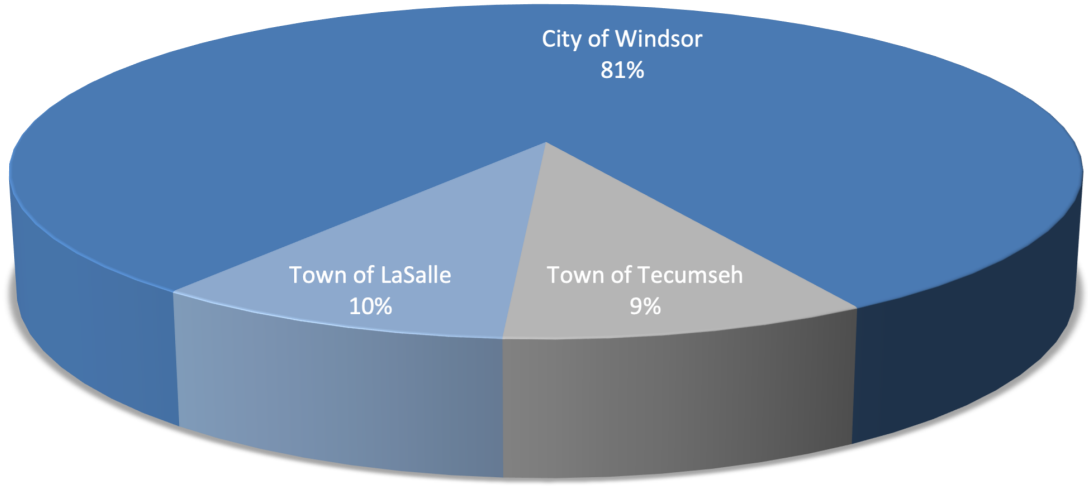
The summary contained in Appendix A, Table 1 (page 31), provides a detailed breakdown of the monthly production rates. The volume of water transferred to the Town of LaSalle and the Town of Tecumseh is also provided.

Under the Municipal Drinking Water License and Ontario Reg. 170/03 there are a number of Schedules that outline the requirements for compliance with the Safe Drinking Water Act (SDWA). This report highlights the requirements of the applicable section of the regulation, along with a statement of compliance or, if applicable, specific areas of non-compliance with the schedule requirements.

2021 Total Treated Water by Municipality

Volumes reported in megalitres (ML)

Town of Lasalle	3303	9.42%
Town of Tecumseh	3269	9.32%
City of Windsor	28500	81.26%



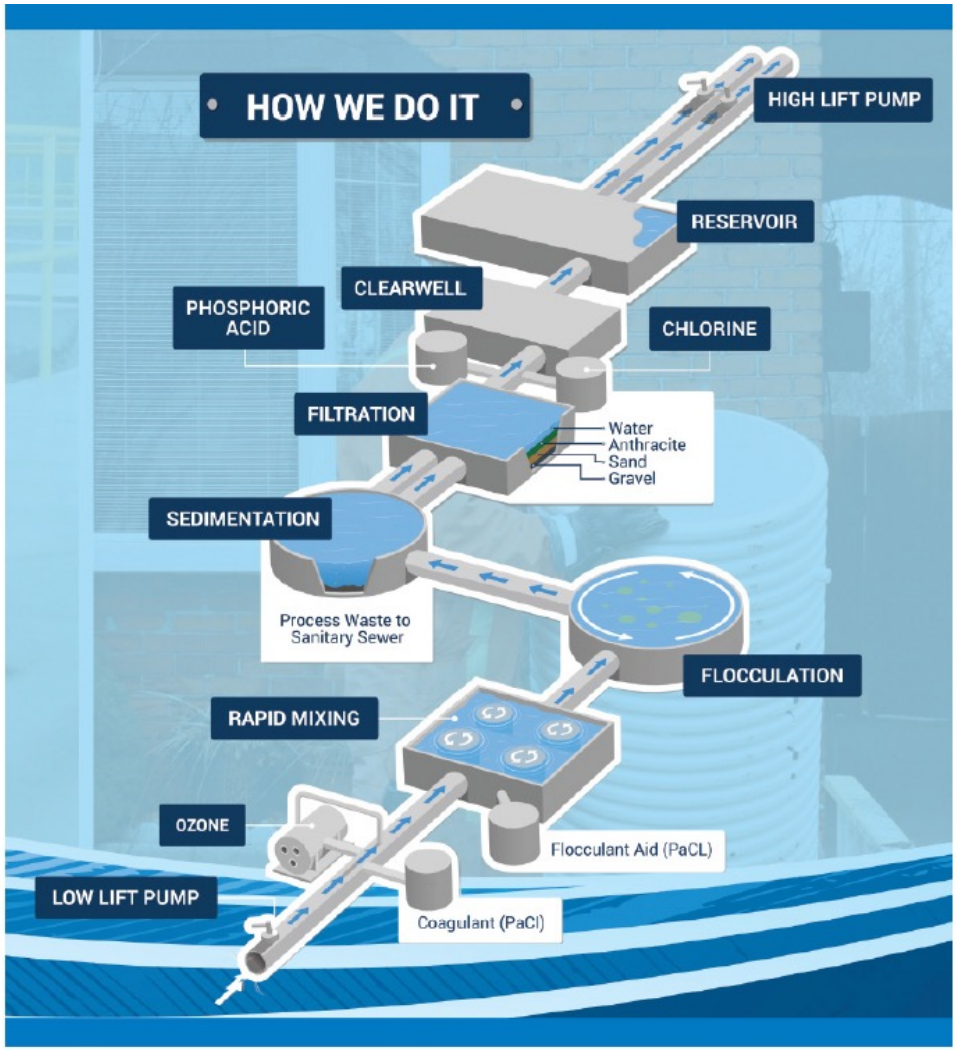
Treatment Equipment

O.Reg 170/04, Schedule 1 dictates that the owner of a drinking water system shall ensure that approved water treatment equipment, as specified in the Drinking Water Works Permit, is provided and is in operation whenever water is being supplied for potable use.

Further, the regulation requires that the equipment be operated in a manner that achieves its design capabilities and that only certified operators carry out operation of the system.

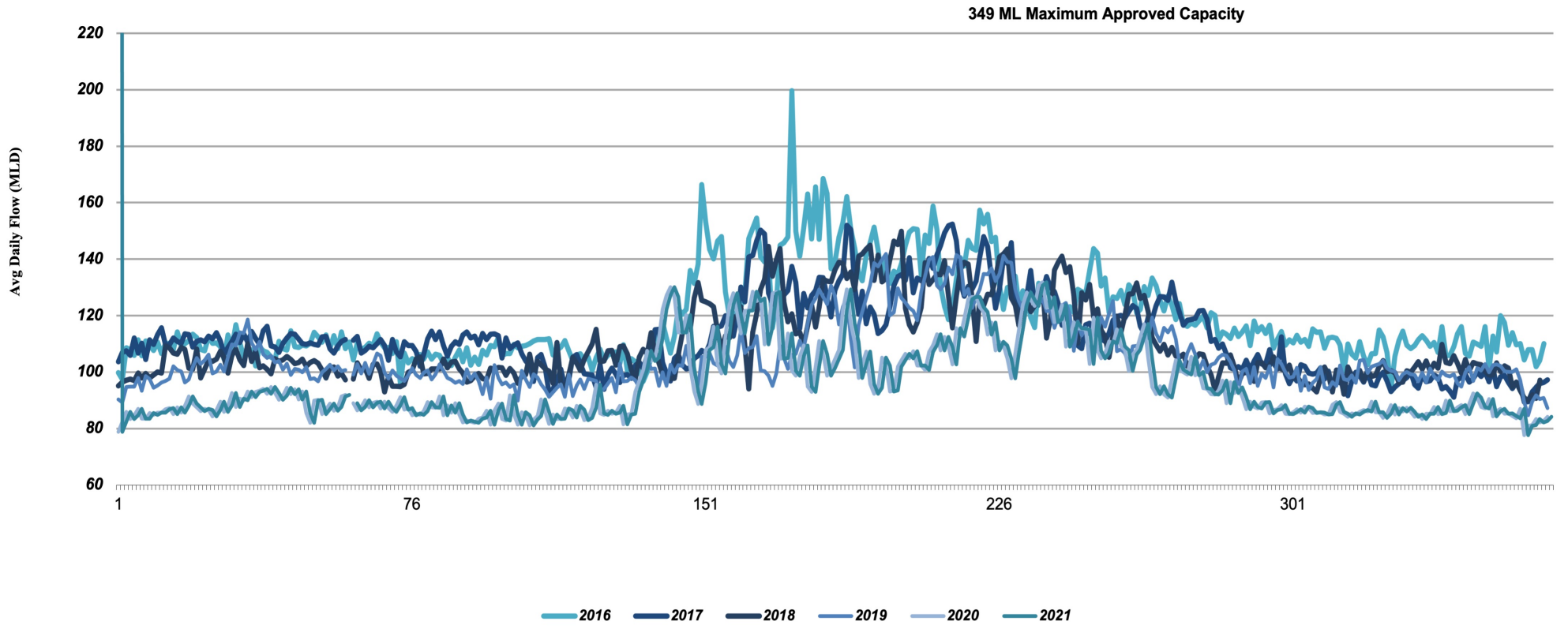
In the calendar year 2021, WUC complied fully with this section of the regulations.

Chart 3 (page 13) depicts WUC's average daily water flow for the 2016-2021 calendar years. Of particular note is the approved 349 ML daily maximum treatment capacity of WUC's treatment plants. As illustrated in the chart, WUC is operating well within the approved limits of its license and permit.



Treatment Equipment

Chart 3: 2016-2021 Volume of Approved Capacity (349 ML Maximum Approved Capacity)



Operational Checks Sampling & Testing

O.Reg 170/03, Schedule 6 outlines:

- The frequency of sampling and equipment checks;
- The requirement for chlorine residual testing to be carried out at the time microbiological samples are collected;
- The location at which samples are to be collected;
- The form of sampling to be undertaken and the requirements for continuous monitoring equipment; and
- Clarification of how samples are to be handled and recorded, and the need for an appropriately accredited laboratory to carry out the sample analysis.

In the calendar year 2021, WUC complied fully with this section of the regulations.

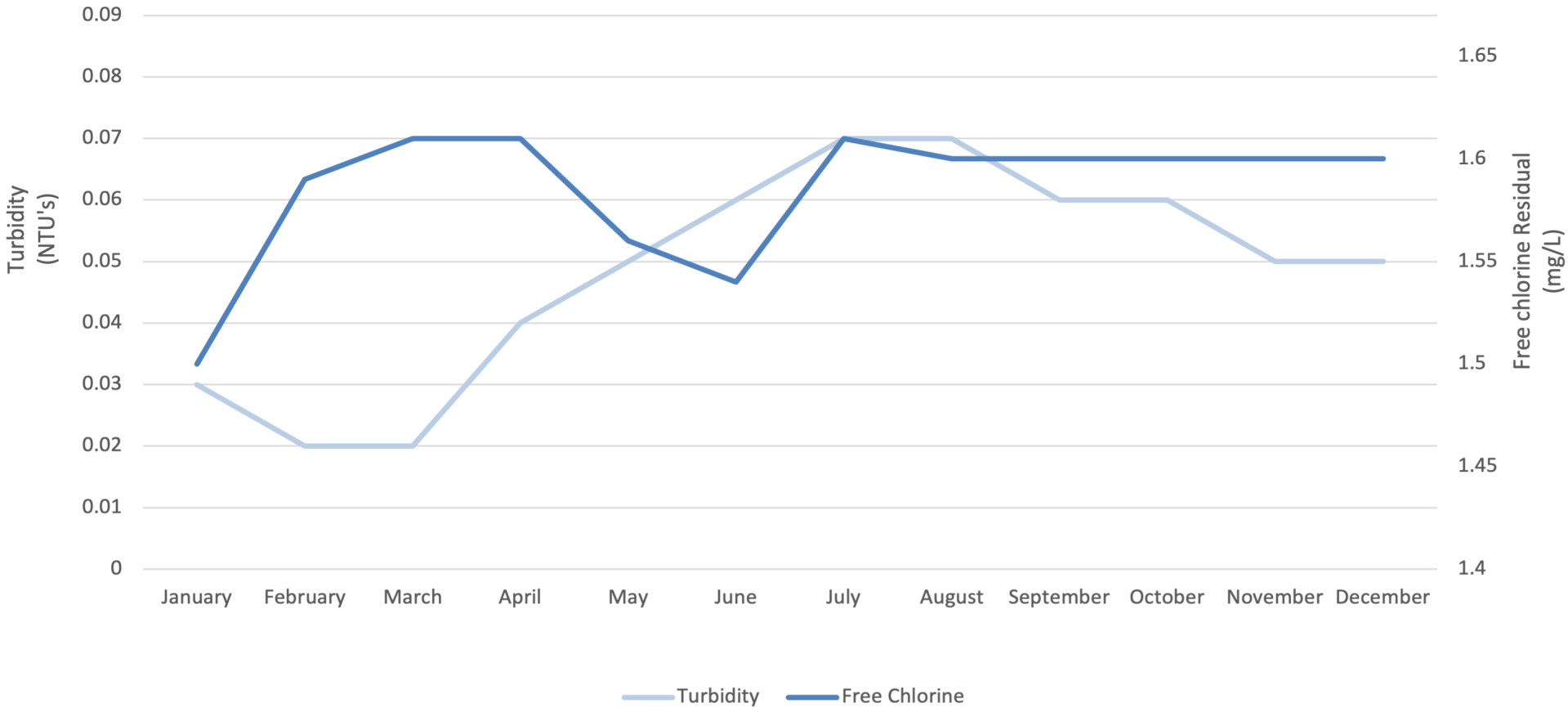
Operational Checks

O.Reg 170/03, Schedule 7 specifies the requirements for continuous monitoring of equipment for free chlorine residual and turbidity, and the required location for this equipment. The regulation dictates the requirement for regular collection and analysis of samples by an appropriately certified individual. Chart 4 (page 15) summarizes the results for the parameters mentioned above.

In the calendar year 2021, WUC complied fully with this section of the regulations.

Operational Checks Sampling & Testing

Chart 4: 2021 Operational Trends



Operational Checks Sampling & Testing

Microbiological Sampling and Testing

O.Reg 170/03, Schedule 10 provides the requirements for sampling and testing of microbiological parameters.

The schedule states that for large municipal systems serving a population of more than 100,000 people, the required monthly frequency of sampling is 100 distribution samples, plus one additional sample for every 10,000 people served, with at least three samples being taken in each week.

Each of these samples are to be tested for Escherichia Coli and total coliform, with a requirement that at least 25 per cent of the samples be tested for general bacteria population, expressed as colony counts on a heterotrophic plate count. Windsor's required sampling frequency is 130 samples monthly.

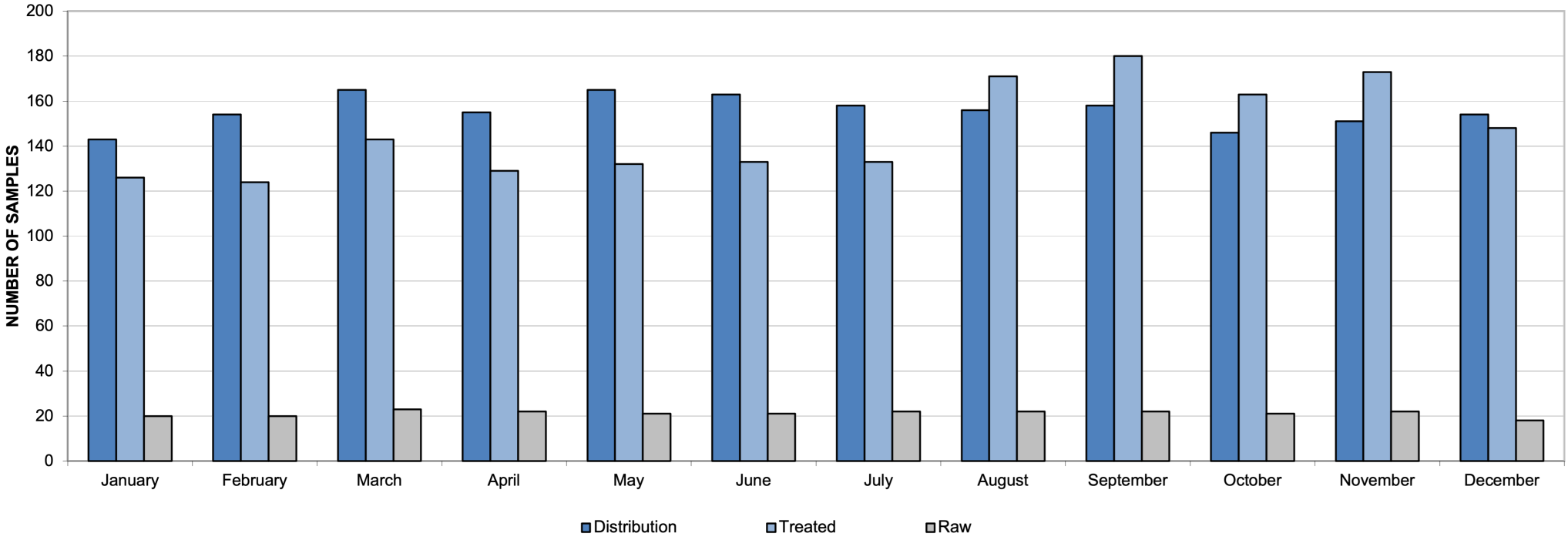
In 2021, 1,868 samples were collected and analyzed: an average of 156 samples per month. Approximately 49 per cent of the distribution samples were also analyzed for heterotrophic plate count. In addition, each sample was tested for free chlorine residual at the time the sample was taken.

Schedule 10 states that a treated water sample must be taken at least once per week and tested for Escherichia Coli, total coliform and general bacteria population, expressed as colony counts on a heterotrophic plate count. Windsor's treated water samples were generally collected on a daily basis and were tested by an accredited third-party laboratory.

The schedule further states that a raw water sample must be taken at least once per week, before any treatment is applied to the water, and that the sample be tested for Escherichia Coli and total coliform. Samples were collected and tested on average five days per week. Chart 5 (page 17) indicates the number of samples taken on a monthly basis.

Operational Checks Sampling & Testing

Chart 5: Microbiological Sample Count



Operational Checks Sampling & Testing

Chemical Sampling and Testing

O.Reg 170/04, Schedule 13 provides the requirements for sample collection and testing for a variety of chemical components in drinking water. Additionally, it lists the Maximum Acceptable Concentration (MAC) for each component. The requirements are outlined below, along with the status of Windsor's sampling program.

Inorganics

One sample must be collected and tested every 12 months if the source is surface water and tested for every parameter set out in Schedule 23. (See page 20 for Table 13.2).

In 2021, ENWIN, on behalf of WUC, collected and tested samples for every parameter set out in Schedule 23 on a quarterly basis.

Organics

One sample must be collected and tested every 12 months, if the source is surface water, and tested for every parameter set out in Schedule 24. (See pages 21-23 for Table 13.3)

In 2021, ENWIN, on behalf of WUC, ENWIN collected samples and tested for every parameter set out in Schedule 24 on a quarterly basis.

Trihalomethane (THM's)

For any system that provides chlorination, one distribution sample must be collected and tested for trihalomethanes every three months. (See pages 21-23 for Table 13.3)

ENWIN, on behalf of WUC, collected samples and tested for trihalomethanes on a quarterly basis.

Operational Checks Sampling & Testing

Bromates

For the system that provide ozonation, as primary disinfection, one treated water sample must be collected monthly, from each Water Treatment Plant. (See below for Table 13.1)

Table 13.1 – Bromate Sample Results – Annual Report

Table 13.2 – Inorganics, Lead, Nitrates, and Sodium Sample Results – Annual Report

Lead

One sample must be collected and tested every 12 months for Lead. (See page 20 for Table 13.2)

In 2021, ENWIN, on behalf of WUC, collected samples and tested for lead in a treated water sample and a distribution sample on a quarterly basis.

Table 13.1 – Bromate Sample Results

Date of legal instrument issued	Parameter	Date Sampled	Running Annual Average Result	Unit of Measure
MDWL 025-101	Bromate - Treated	1-Jan-21 to 31-Dec-21	**0.006**	mg/L
MDWL 025-101	Bromate - Distribution	1-Jan-21 to 31-Dec-21	**0.005**	mg/L

Operational Checks Sampling & Testing

Nitrates and Nitrites

The owner of a drinking water system (WUC) and the operating authority for the system (ENWIN) must ensure that at least one water sample is taken every three months and tested for nitrate and nitrite. (See right for Table 13.2)

In 2021, ENWIN, on behalf of WUC, collected samples and tested for nitrates and nitrites on a quarterly basis.

Sodium

Schedule 13 stipulates that at least one water sample is taken every 60 months and tested for sodium. (See right for Table 13.2)

In 2021, ENWIN, on behalf of WUC, last collected and sampled for sodium on January 6, 2021.

Table 13.2 - Inorganics, Lead, Nitrates, and Sodium Sample Results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedence
Antimony	13-Oct-21	0.00050 <MDL	mg/L	NO
Arsenic	13-Oct-21	0.0010 <MDL	mg/L	NO
Barium	13-Oct-21	0.019	mg/L	NO
Boron	13-Oct-21	0.013	mg/L	NO
Cadmium	13-Oct-21	0.000090 <MDL	mg/L	NO
Chromium	13-Oct-21	0.0050 <MDL	mg/L	NO
*Lead	13-Oct-21	0.0005 <MDL	mg/L	NO
Mercury	13-Oct-21	0.00010 <MDL	mg/L	NO
Selenium	13-Oct-21	0.0020 <MDL	mg/L	NO
Sodium	6-Jan-21	8.12	mg/L	NO
Uranium	13-Oct-21	0.00010 <MDL	mg/L	NO
Fluoride	6-Jan-21	0.07	mg/L	NO
Nitrite	13-Oct-21	0.010 <MDL	mg/L	NO
Nitrate	13-Oct-21	0.69	mg/L	NO

Operational Checks Sampling & Testing

Table 13.3 - Organics, THM's and HAA's Sample Results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedence
Alachlor	13-Oct-21	0.00050 <MDL	mg/L	NO
Atrazine + N-dealkylated metobolites	13-Oct-21	0.001 <MDL	mg/L	NO
Azinphos-methyl	13-Oct-21	0.0020 <MDL	mg/L	NO
Benzene	13-Oct-21	0.0001 <MDL	mg/L	NO
Benzo(a)pyrene	13-Oct-21	0.0000050 <MDL	mg/L	NO
Bromoxynil	13-Oct-21	0.00050 <MDL	mg/L	NO
Carbaryl	13-Oct-21	0.005 <MDL	mg/L	NO
Carbofuran	13-Oct-21	0.005 <MDL	mg/L	NO
Carbon Tetrachloride	13-Oct-21	0.00010 <MDL	mg/L	NO
Chlorpyrifos	13-Oct-21	0.001 <MDL	mg/L	NO
Diazinon	13-Oct-21	0.001 <MDL	mg/L	NO
Dicamba	13-Oct-21	0.001 <MDL	mg/L	NO
1,2-Dichlorobenzene	13-Oct-21	0.00020 <MDL	mg/L	NO
1,4Dichlorobenzene	13-Oct-21	0.00020 <MDL	mg/L	NO
1,2-Dichloroethane	13-Oct-21	0.00020 <MDL	mg/L	NO
1,1-Dichloroethylene (vinylidene chloride)	13-Oct-21	0.00010 <MDL	mg/L	NO
Dichloromethane	13-Oct-21	0.00050 <MDL	mg/L	NO
2,4-Dichlorophenol	13-Oct-21	0.00025 <MDL	mg/L	NO
2,4-Dichlorophenoxy acetic acid (2,4-D)	13-Oct-21	0.001 <MDL	mg/L	NO
Diclofop-methyl	13-Oct-21	0.00090 <MDL	mg/L	NO

Operational Checks Sampling & Testing

Table 13.3 - Organics, THM's and HAA's Sample Results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedence
Dimethoate	13-Oct-21	0.0025 <MDL	mg/L	NO
Diquat	13-Oct-21	0.007 <MDL	mg/L	NO
Diuron	13-Oct-21	0.010 <MDL	mg/L	NO
Glyphosate	13-Oct-21	0.010 <MDL	mg/L	NO
Haloacetic Acids (HAA5)	13-Oct-21	Avg.	mg/L	NO
(Note: show latest running annual average)				
Q1 2021 = <0.0053 mg/L	6-Jan-21	<0.0050		
Q2 2021 = <0.0050 mg/L	7-Apr-21			
Q3 2021 = <0.0050 mg/L	8-Jul-21			
Q4 2021 = <0.0050 mg/L	13-Oct-21			
Malathion	13-Oct-21	0.0050 <MDL	mg/L	NO
MCPA	13-Oct-21	0.010 <MDL	mg/L	NO
Metolachlor	13-Oct-21	0.00050 <MDL	mg/L	NO
Metribuzin	13-Oct-21	0.0050 <MDL	mg/L	NO
Monochlorobenzene	13-Oct-21	0.00010 <MDL	mg/L	NO
Paraquat	13-Oct-21	0.001 <MDL	mg/L	NO
Pentachlorophenol	13-Oct-21	0.00050 <MDL	mg/L	NO

Operational Checks Sampling & Testing

Table 13.3 - Organics, THM's and HAA's Sample Results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedence
Phorate	13-Oct-21	0.00050 <MDL	mg/L	NO
Picloram	13-Oct-21	0.0050 <MDL	mg/L	NO
Polychlorinated Biphenyls (PCB)	13-Oct-21	0.00005 <MDL	mg/L	NO
Prometryne	13-Oct-21	0.00025 <MDL	mg/L	NO
Simazine	13-Oct-21	0.0010 <MDL	mg/L	NO
THM (Note: show latest running annual average)		Avg.	mg/L	NO
Q1 2021 = 0.0052 mg/L	6-Jan-21	0.0095		
Q2 2021 = 0.00835 mg/L	7-Apr-21			
Q3 2021 = 0.0105 mg/L	8-Jul-21			
Q4 2021 = 0.0138 mg/L	13-Oct-21			
Terbofos	13-Oct-21	0.00050 <MDL	mg/L	NO
Tetrachlorethylene	13-Oct-21	0.00010 <MDL	mg/L	NO
2,3,4,6-Tetrachlorophenol	13-Oct-21	0.00050 <MDL	mg/L	NO
Triallate	13-Oct-21	0.0010 <MDL	mg/L	NO
Trichloroethylene	13-Oct-21	0.00010 <MDL	mg/L	NO
2,4,6-Trichlorophenol	13-Oct-21	0.00050 <MDL	mg/L	NO
Trifluralin	13-Oct-21	0.0010 <MDL	mg/L	NO
Vinyl Chloride	13-Oct-21	0.00020 <MDL	mg/L	NO

Operational Checks Sampling & Testing

Sample & Testing: Lead

The Municipal Drinking Water License requires 60 samples annually to monitor corrosion control effectiveness. Sample locations include private, non-private and distribution. Each of these samples are to be tested for lead.

A total of 145 lead sample locations were collected and tested in 2021: 81 private and non-private samples and 53 samples in distribution. Due to COVID-19, lead samples were collected from an outside tap. The change to collect from an outside tap instead of the kitchen tap has been approved by the Ministry of Environment, Conservations and Parks (MECP). This change has been incorporated in our Municipal Drinking Water Licence.

In the calendar year 2021, WUC complied fully with the requirements of the License.

Reporting Test Results

If a sample collected and tested indicates an adverse result, as outlined in the regulations, the owner of a drinking water system must report the result to the Medical Officer of Health (MOH) and the Spills Action Centre (SAC) of the Ministry of Environment, Conservations and Parks (MECP). If an observation other than an adverse test result indicates that a drinking water system is directing water that may not be adequately disinfected to users of the water system, the observation must be reported to the MOH and the SAC.

If a report is required under this section, a verbal report must be provided to the MOH by speaking directly to a person at the Windsor Essex County Health Unit (WECHU) or the designated on-call representative. In addition, a verbal report must be provided to the Ministry by contacting the SAC.

These verbal reports of adverse water conditions must be verified by written notice within 24 hours to the MOH and the SAC specifying the nature of the adverse result, actions being taken or observation and what corrective action is being taken. Within seven days of resolution of a problem, a follow up written notice is to be provided outlining the resolution that gave rise to the adverse result report.

In 2021, there was one adverse incident requiring notification of the MOH and the SAC. Details are as follows:

- Total Coliform result of 1 CFU/100mL at George Avenue Pumping Station.
- Notification was made to the MOH and the SAC.
- Chart 6 (page 26) presents the number of Adverse Water Quality Incidents from 2012-2021.

Operational Checks Sampling & Testing

Corrective Action

This schedule outlines required corrective action to be followed with the determination of an adverse result requiring notification.

In all cases, the required corrective action was followed, as directed by the Medical Officer of Health.

Summary Report for Municipalities

Not later than March 31 of each year, a summary report must be prepared for the preceding calendar year and submitted to members of municipal council and members of a municipal services board, if one exists.

The submission of this report fulfills the requirement for this section of the regulations.

Summarizing tables are attached for review:

Table 1 - 2021 Treated Water Volume (page 31)

Table 2 – 2021 Volume as a Percentage of Approved Plant Capacity (pages 32-33)

Table 3 - 2021 Microbiological Sample Count (page 34)

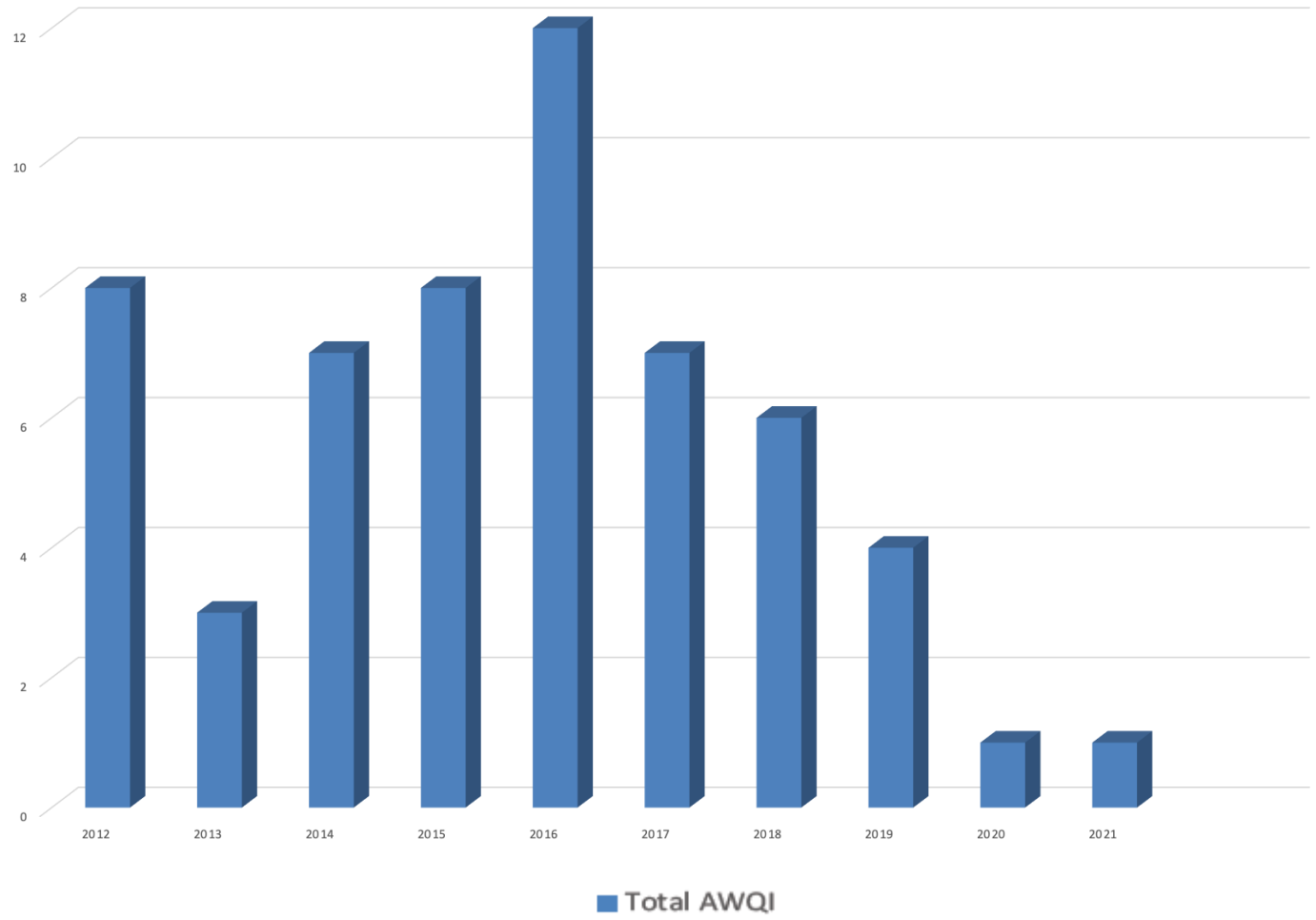
Table 4 - 2021 Distribution Chlorine Residuals (page 35-36)

Table 5 - 2021 Operational Parameters (page 37-38)

A copy of Schedule 23 (Inorganic Test Parameters) and Schedule 24 (Organic Test Parameters) are attached for information, as previously submitted and as required by the regulation. (pages 39-40)

Operational Checks Sampling & Testing

Chart 6: Adverse Water Quality Incidents



Capital Renewal Program

Water Meter Replacement Program

The goal of WUC's Water Meter Replacement Program is to replace all damaged, frozen, defective, aging and obsolete water meters, in residential and industrial, commercial and institutional (ICI) settings.

New meters provide benefits that include:

- Increased accuracy in billing for our customers;
- Improved efficiency in meter reading, as reads can be obtained via radio frequency (RF); and
- Enhanced ability to identify the sources and manage the causes of non-revenue water, thereby limiting revenue loss for both WUC and its ratepayers.

WUC installed 1,177 new meters in 2021. A very small number of non-RF meters remained in the field at year end. The remaining meters are either located in vacant properties or conditions at the customer site require additional attention prior to replacement. These replacements will be coordinated with customers on a case-by-case basis going forward.

At year end, the average age of WUC's total meter population is four years. For ICIs only, the average age is 7.6.

All meter reading routes are now using the drive-by (RF) method to collect meter data. Aside from the exceptions noted, the Water Meter Replacement Program is now considered complete.

New water meter installation for residential homes.

Capital Renewal Program

Watermain Replacement Program

The 2021 WUC capital renewal program involved the replacement of approximately 16.3 km of existing cast and ductile iron watermains, as well as water services, with new PVC pipelines and polyethylene/copper tubing, respectively.

Water services are typically replaced from the new main to the property line. The projects included watermains that no longer provided adequate service, and which were deemed to have the highest risk to public health.

The MECP and Ontario Fire Codes (OFC) mandate minimum levels of performance required for hydrants throughout the water distribution system. In 2021, 108 water hydrants were installed.

WUC capital projects, such as renewal of cast iron watermain, are prioritized based on a scoring system algorithm. A point score is assigned to the seven criteria listed below to determine the priority of the project.

The higher the risk to public health and safety, the higher the score, hence, the higher the priority status assigned. The algorithm uses the following priority:

- Anticipated percentage or total number of lead services;
- Deficient hydrant spacing;
- Low fire flow;
- Pipe diameter;
- Breaks per 100m with an emphasis on recency;
- Disturbed water per 100m; and
- Age (life cycle of pipe type).

New water hydrant installation in the City of Windsor at 5050 Southwood Lakes Boulevard.

Capital Renewal Program

Reservoirs

Reservoir “D’ Rehabilitation

Rehabilitation Engineering work was completed, and the project was tendered and awarded. Construction began midyear and was nearing completion at the end of 2021 with anticipated completion early in 2022. The rehabilitation work generally included concrete repairs on the interior and exterior, waterproofing and insulating of the roof, miscellaneous repairs and installation of interior baffles. Approximate capital expenditure $3,800,000.

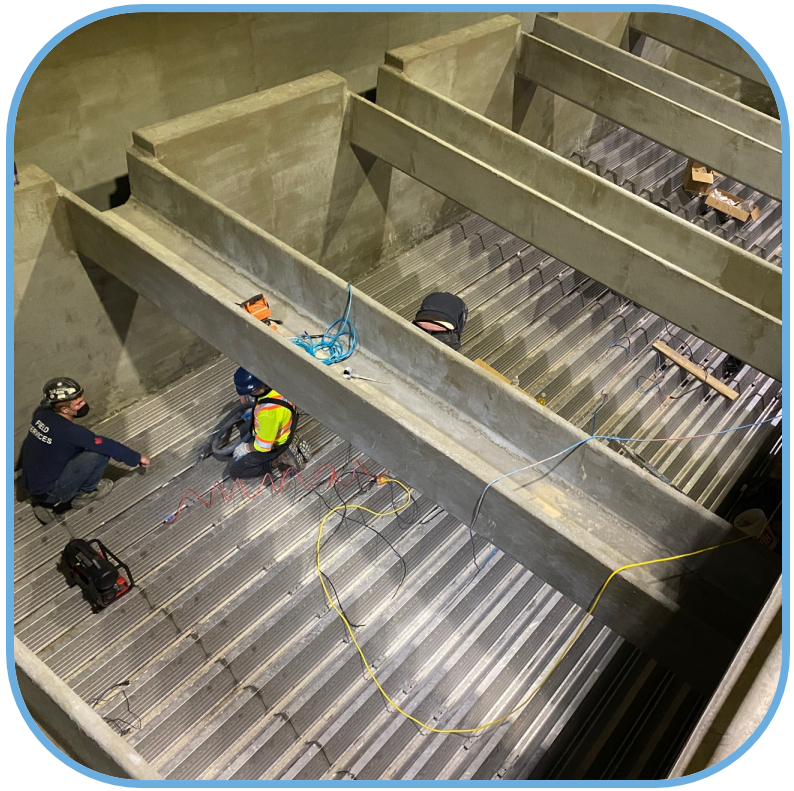
Reservoir D returned to service on February 16, 2022.

Filter Bed Rehabilitation - Filter #7 & Filter #8

ENWIN completed rehabilitation of Filter #7 in January 2021 and Filter #8 in April 2021 at the A.H. Weeks WTP including removal of the existing plastic underdrain system, waterproof coating of the filter beds and walls, installation of new stainless-steel underdrains and installation of new anthracite and sand filter media. The new underdrain system and media will increase the overall filter performance.

A.J. Brian and J.F. Cook Fuel System Upgrades

ENWIN removed the existing below grade diesel fuel tanks at both the A.J. Brian and J.F. Cook facilities and installed a new fuel system at J. F. Cook. The new system, replacing the existing outdated fuel system, and its safety measures, provides compliance with the current TSSA regulation and MECP recommendations. Construction was completed in early 2021.



Rehabilitation of Filter #8 at the A.H. Weeks Water Treatment Plant.

Capital Renewal Program

Fluoride Implementation - Pipe Loop Study

As part of the overall fluoride implementation project, ENWIN continued the fluoride pipe loop study utilizing the existing pipe loop at A. H. Weeks WTP with the goal of studying possible interference, if any, with the effectiveness of the existing corrosion control plan. The study will continue after fluoride is introduced into the distribution system for approximately 10 months for monitoring purposes. In early 2021, ENWIN contracted Jacobs Engineering for the detailed design of the permanent fluoride dosing system which is still underway. ENWIN also opted to construct a temporary dosing system to begin the dosing of fluoride into the distribution system ahead of completion of the permanent dosing system. The temporary dosing system began operating January 12, 2022.

Water SCADA Network Upgrade

ENWIN engaged the service of Rockwell for the design and implementation of an upgraded SCADA Network at the A. H. Weeks WTP. The project will update and improve the current SCADA network infrastructure adding increased security measures in line with current industry best practice. Installation of the new network was scheduled for 2021 but has been delayed due to supply chain shortages and is scheduled to be completed in summer 2022.

Ozone Power Supply Unit (PSU) Upgrade

ENWIN procured the services of Suez Water Technologies to begin the refurbishment of two of the Ozone Generator Power Supply Units (PSU). The current PSU components for Ozone Gen. #1 and #2 are at end of life and in need of replacement. Suez began design and procurement of the relevant components with expected delivery in early 2022. The refurbishment will take place once design is completed, and all components have been delivered in early 2022.

Temporary Fluoride Dousing System operational at the A.H. Weeks Water Treatment Plant.

Appendix A - Operational Charts

Windsor Utilities Commission
Table 1 – 2021 Treated Water Volume

MONTH	TOTAL PUMPED M.L. (Windsor / Las/Tec)	TOWN OF LASALLE M.L.	TOWN OF TECUMSEH M.L.	City of Windsor M.L
JANUARY	2,673	120	206	2,346
FEBRUARY	2,536	210	188	2,138
MARCH	2,698	236	205	2,257
APRIL	2,544	242	213	2,089
MAY	3,120	269	291	2,560
JUNE	3,365	414	330	2,621
JULY	3,266	328	301	2,637
AUGUST	3,650	437	390	2,823
SEPTEMBER	3,173	328	387	2,458
OCTOBER	2,811	236	281	2,294
NOVEMBER	2,576	229	246	2,101
DECEMBER	2,659	253	231	2,175
TOTAL	**35,072**	**3,303**	**3,269**	**28,500**
AVERAGE	**2,923**	**275**	**272**	**2,375**

Note: Volumes reported in megalitres (ML)

Appendix A - Operational Charts

Table 2 - 2021 Volume as a Percentage of Approved Plant Capacity

Date	January		February		March		April		May		June	
	Average Daily Flow (MLD)	Plant Capacity %	Average Daily Flow (MLD)	Plant Capacity %	Average Daily Flow (MLD)	Plant Capacity %	Average Daily Flow (MLD)	Plant Capacity %	Average Daily Flow (MLD)	Plant Capacity %	Average Daily Flow (MLD)	Plant Capacity %
1	78.9	23%	90.6	26%	88.9	25%	82.1	24%	87.4	25%	116.1	33%
2	82.4	24%	90.0	26%	86.5	25%	83.5	24%	95.5	27%	102.7	29%
3	85.9	25%	93.2	27%	87.6	25%	83.9	24%	85.3	24%	99.6	29%
4	83.4	24%	91.1	26%	90.0	26%	86.2	25%	84.8	24%	112.8	32%
5	84.7	24%	93.0	27%	87.4	25%	81.4	23%	86.3	25%	123.8	35%
6	86.9	25%	93.4	27%	89.1	26%	86.5	25%	85.3	24%	128.0	37%
7	83.5	24%	94.0	27%	89.6	26%	88.8	25%	85.6	25%	120.4	34%
8	83.5	24%	92.3	26%	87.0	25%	83.3	24%	88.1	25%	113.7	33%
9	85.5	25%	94.8	27%	89.6	26%	82.8	24%	81.4	23%	121.7	35%
10	84.8	24%	92.5	27%	87.3	25%	91.8	26%	85.0	24%	121.8	35%
11	85.6	25%	90.1	26%	85.9	25%	85.0	24%	85.2	24%	128.4	37%
12	85.6	25%	91.6	26%	88.2	25%	81.4	23%	92.9	27%	125.1	36%
13	86.8	25%	94.4	27%	91.1	26%	85.7	25%	96.8	28%	126.1	36%
14	87.3	25%	92.2	26%	86.6	25%	84.7	24%	100.7	29%	109.9	31%
15	85.1	24%	93.9	27%	87.3	25%	81.1	23%	107.6	31%	116.0	33%
16	87.5	25%	90.3	26%	84.7	24%	83.3	24%	103.9	30%	127.8	37%
17	85.7	25%	93.2	27%	85.4	24%	84.4	24%	105.1	30%	128.3	37%
18	88.0	25%	85.5	24%	84.8	24%	90.3	26%	111.9	32%	104.7	30%
19	91.3	26%	82.0	24%	86.1	25%	85.9	25%	122.2	35%	104.9	30%
20	88.8	25%	90.0	26%	89.4	26%	81.6	23%	127.2	36%	113.6	33%
21	87.5	25%	90.1	26%	87.5	25%	85.0	24%	130.1	37%	100.4	29%
22	86.2	25%	85.0	24%	87.3	25%	83.4	24%	126.6	36%	98.8	28%
23	86.9	25%	86.8	25%	91.3	26%	83.5	24%	114.1	33%	105.7	30%
24	86.6	25%	88.9	25%	84.7	24%	87.1	25%	114.1	33%	109.5	31%
25	84.3	24%	86.3	25%	88.1	25%	86.4	25%	120.2	34%	94.8	27%
26	86.6	25%	87.6	25%	85.6	25%	83.9	24%	101.7	29%	92.9	27%
27	89.5	26%	91.4	26%	89.0	26%	88.1	25%	93.2	27%	101.9	29%
28	86.0	25%	91.9	26%	85.0	24%	86.8	25%	88.7	25%	111.0	32%
29	88.1	25%			82.1	24%	83.0	24%	96.3	28%	106.4	30%
30	92.5	27%			82.8	24%	83.8	24%	107.8	31%	98.7	28%
31	87.6	25%			82.5	24%			108.9	31%		
MAX	92.5	27%	94.8	27%	91.3	26%	91.8	26%	130.1	37%	128.4	37%

Appendix A - Operational Charts

Table 2 - 2021 Volume as a Percentage of Approved Plant Capacity

Date	July		August		September		October		November		December	
	Average Daily Flow (MLD)	Plant Capacity %	Average Daily Flow (MLD)	Plant Capacity %	Average Daily Flow (MLD)	Plant Capacity %	Average Daily Flow (MLD)	Plant Capacity %	Average Daily Flow (MLD)	Plant Capacity %	Average Daily Flow (MLD)	Plant Capacity %
1	101.4	29%	102.7	29%	117.7	34%	105.4	30%	85.4	24%	85.2	24%
2	104.6	30%	115.5	33%	115.6	33%	98.8	28%	85.8	25%	87.6	25%
3	107.8	31%	112.6	32%	115.4	33%	100.1	29%	85.6	25%	85.1	24%
4	122.0	35%	119.0	34%	115.0	33%	94.3	27%	85.0	24%	85.4	24%
5	129.2	37%	125.8	36%	102.8	29%	94.1	27%	85.1	24%	89.9	26%
6	117.2	34%	126.6	36%	119.3	34%	92.1	26%	88.4	25%	86.2	25%
7	110.5	32%	126.7	36%	107.6	31%	92.0	26%	89.3	26%	86.3	25%
8	97.8	28%	123.0	35%	104.9	30%	93.5	27%	85.9	25%	87.5	25%
9	102.9	29%	121.2	35%	106.7	31%	97.0	28%	85.3	24%	88.3	25%
10	107.2	31%	113.2	32%	110.9	32%	88.9	25%	84.2	24%	85.1	24%
11	95.8	27%	117.6	34%	110.2	32%	96.4	28%	85.4	24%	88.8	25%
12	92.3	26%	107.7	31%	115.1	33%	92.5	27%	85.0	24%	92.5	26%
13	94.4	27%	110.7	32%	109.2	31%	94.5	27%	85.9	25%	91.0	26%
14	105.1	30%	109.3	31%	107.8	31%	91.0	26%	86.6	25%	87.7	25%
15	102.3	29%	104.7	30%	100.5	29%	86.9	25%	86.1	25%	87.1	25%
16	93.1	27%	97.8	28%	106.2	30%	89.5	26%	89.5	26%	90.4	26%
17	93.5	27%	106.8	31%	107.9	31%	87.7	25%	85.8	25%	84.3	24%
18	101.9	29%	114.9	33%	112.4	32%	87.1	25%	85.7	25%	86.2	25%
19	104.2	30%	123.8	35%	117.0	34%	89.2	26%	83.8	24%	87.0	25%
20	106.5	31%	128.2	37%	104.9	30%	89.4	26%	85.2	24%	85.2	24%
21	104.8	30%	125.5	36%	94.7	27%	85.4	24%	88.3	25%	85.3	24%
22	107.4	31%	123.4	35%	92.1	26%	86.6	25%	85.0	24%	84.4	24%
23	102.3	29%	130.7	37%	95.0	27%	86.9	25%	87.3	25%	83.6	24%
24	102.4	29%	131.8	38%	92.0	26%	88.3	25%	86.0	25%	86.9	25%
25	100.7	29%	122.8	35%	91.0	26%	85.3	24%	87.4	25%	77.7	22%
26	107.1	31%	126.5	36%	97.8	28%	85.0	24%	85.9	25%	81.0	23%
27	109.5	31%	117.6	34%	104.2	30%	85.7	25%	84.2	24%	81.3	23%
28	113.3	32%	118.8	34%	100.8	29%	86.8	25%	85.0	24%	83.4	24%
29	107.7	31%	123.8	35%	99.9	29%	85.6	25%	83.3	24%	82.1	24%
30	112.5	32%	109.0	31%	99.1	28%	87.7	25%	85.2	24%	82.7	24%
31	108.9	31%	112.3	32%			87.3	25%			84.1	24%
MAX	129.2	37%	131.8	38%	119.3	34%	105.4	30%	89.5	26%	92.5	26%

Appendix A - Operational Charts

Table 3 - 2021 Microbiological Sample Count

Table 3 - 2021 Microbiological Sample Count												
Month	January	February	March	April	May	June	July	August	September	October	November	December
DISTRIBUTION	143	154	165	155	165	163	158	156	158	146	151	154
TREATED	126	124	143	129	132	133	133	171	180	163	173	148
RAW	20	20	23	22	21	21	22	22	22	21	22	18
TOTAL	289	298	331	306	318	317	313	349	360	330	346	320

Appendix A - Operational Charts

Table 4 – 2021 Distribution Chlorine Residuals

JANUARY TO MARCH 2021

		D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D20	D21	D22
Jan	LOW	1.39	1.18	1.18	1.07	0.86	1.22	0.96	1.16	1.15	1.43	1.01	1.16	1.15	1.15	1.22	1.14	1.32	1.12	1.22	1.08	1.02
	HIGH	1.53	1.34	1.28	1.30	1.21	1.43	1.27	1.38	1.33	1.69	1.39	1.34	1.36	1.34	1.43	1.33	1.43	1.54	1.34	1.34	1.21
	AVG	1.45	1.27	1.22	1.20	1.06	1.35	1.12	1.28	1.22	1.53	1.22	1.26	1.28	1.27	1.28	1.28	1.36	1.40	1.28	1.20	1.14
Feb	LOW	1.34	1.12	1.02	0.93	0.79	1.18	0.94	1.07	1.08	1.34	1.17	1.14	1.23	1.00	1.14	1.26	1.24	1.30	1.01	0.89	1.04
	HIGH	1.59	1.46	1.39	1.52	1.34	1.57	1.31	1.59	1.43	1.72	1.46	1.47	1.52	1.53	1.43	1.54	1.52	1.51	1.47	1.43	1.34
	AVG	1.44	1.34	1.21	1.22	1.04	1.38	1.13	1.31	1.22	1.55	1.28	1.33	1.32	1.28	1.29	1.41	1.37	1.40	1.26	1.13	1.15
Mar	LOW	1.33	0.97	0.95	1.03	0.84	1.22	0.94	1.17	1.08	1.43	1.16	1.16	1.00	1.13	1.19	1.15	1.19	1.38	1.12	0.90	0.96
	HIGH	1.55	1.30	1.29	1.30	1.15	1.43	1.21	1.42	1.33	1.73	1.33	1.34	1.28	1.37	1.33	1.48	1.45	1.58	1.32	1.34	1.17
	AVG	1.44	1.21	1.16	1.15	1.03	1.31	1.07	1.29	1.18	1.56	1.26	1.24	1.19	1.25	1.25	1.35	1.29	1.43	1.24	1.17	1.10
Quarterly Avg		**1.45**	**1.27**	**1.20**	**1.19**	**1.04**	**1.35**	**1.10**	**1.29**	**1.21**	**1.55**	**1.26**	**1.28**	**1.26**	**1.27**	**1.27**	**1.34**	**1.34**	**1.41**	**1.26**	**1.17**	**1.13**

NOTE: All values in mg/l unless otherwise stated

APRIL TO JULY 2021

		D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D20	D21	D22
Apr	LOW	1.31	1.08	1.14	1.09	0.94	1.23	0.96	1.20	1.08	1.37	1.11	1.12	1.12	1.13	1.11	1.04	1.16	1.20	1.06	1.02	1.06
	HIGH	1.56	1.33	1.30	1.39	1.25	1.53	1.17	1.52	1.29	1.66	1.43	1.50	1.37	1.37	1.42	1.45	1.42	1.54	1.41	1.25	1.23
	AVG	1.42	1.27	1.20	1.24	1.13	1.37	1.05	1.32	1.21	1.50	1.29	1.30	1.25	1.25	1.27	1.30	1.30	1.39	1.24	1.17	1.15
May	LOW	1.05	0.95	1.00	0.99	0.99	1.03	0.90	1.18	1.08	1.26	1.01	1.10	1.04	1.13	1.03	1.07	1.14	1.26	1.14	1.05	1.02
	HIGH	1.45	1.33	1.24	1.36	1.22	1.51	1.15	1.40	1.37	1.58	1.34	1.42	1.55	1.33	1.34	1.32	1.34	1.44	1.31	1.27	1.22
	AVG	1.28	1.16	1.08	1.16	1.08	1.31	1.05	1.29	1.16	1.43	1.22	1.23	1.20	1.24	1.22	1.21	1.22	1.36	1.21	1.17	1.12
Jun	LOW	1.29	1.01	1.09	1.11	0.97	1.22	0.89	1.19	1.14	1.38	1.09	1.00	1.10	1.06	1.06	1.14	1.21	1.11	0.96	0.90	1.05
	HIGH	1.54	1.44	1.37	1.36	1.27	1.74	1.18	1.45	1.42	1.62	1.43	1.38	1.48	1.33	1.46	1.39	1.44	1.41	1.35	1.44	1.28
	AVG	1.41	1.24	1.23	1.20	1.11	1.42	1.09	1.33	1.21	1.46	1.23	1.19	1.20	1.19	1.20	1.28	1.31	1.30	1.17	1.18	1.12
Quarterly Avg		**1.37**	**1.22**	**1.17**	**1.20**	**1.11**	**1.37**	**1.06**	**1.31**	**1.19**	**1.46**	**1.25**	**1.24**	**1.22**	**1.23**	**1.23**	**1.26**	**1.27**	**1.35**	**1.21**	**1.17**	**1.13**

NOTE: All values in mg/l unless otherwise stated

Appendix A - Operational Charts

Table 4 – 2021 Distribution Chlorine Residuals

JULY TO SEPTEMBER 2021

		D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D20	D21	D22
Jul	LOW	1.02	0.95	0.87	0.85	0.83	1.14	0.87	1.02	0.94	1.13	0.97	0.88	1.08		0.92	1.02	0.92	1.19	0.96	0.92	0.86
	HIGH	1.42	1.20	1.08	1.16	0.98	1.43	1.04	1.19	1.24	1.54	1.24	1.21	1.20		1.27	1.30	1.28	1.51	1.10	1.11	0.99
	AVG	1.28	1.12	0.98	1.04	0.92	1.25	0.94	1.12	1.04	1.34	1.17	1.11	1.14		1.13	1.17	1.16	1.34	1.05	1.00	0.91
Aug	LOW	1.21	1.02	0.81	0.94	0.87	1.12	0.73	1.01	0.92	1.20	0.97	0.98	0.78		0.93	0.89	1.05	0.98	0.79	0.84	0.75
	HIGH	1.39	1.17	1.11	1.18	1.15	1.33	1.04	1.30	1.24	1.68	1.30	1.38	1.31		1.26	1.47	1.32	1.56	1.13	1.22	1.10
	AVG	1.29	1.11	0.97	1.05	0.94	1.26	0.88	1.15	1.03	1.45	1.15	1.16	1.06		1.15	1.20	1.17	1.35	1.01	1.08	0.90
Sep	LOW	1.28	0.99	0.95	0.95	0.87	1.11	0.80	0.95	0.72	1.42	1.00	1.02	0.99		0.99	1.11	1.06	1.17	0.95	0.96	0.78
	HIGH	1.45	1.47	1.10	1.26	1.15	1.41	1.04	1.41	1.24	1.77	1.19	1.28	1.28		1.33	1.35	1.30	1.56	1.26	1.26	0.98
	AVG	1.38	1.18	1.02	1.14	0.96	1.29	0.94	1.20	1.04	1.57	1.12	1.16	1.11		1.17	1.24	1.16	1.42	1.09	1.09	0.89
Quarterly Avg		**1.32**	**1.14**	**0.99**	**1.08**	**0.94**	**1.26**	**0.92**	**1.16**	**1.04**	**1.45**	**1.15**	**1.15**	**1.10**		**1.15**	**1.20**	**1.16**	**1.37**	**1.05**	**1.06**	**0.90**

NOTE: All values in mg/l unless otherwise stated

OCTOBER TO DECEMBER 2021

		D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D20	D21	D22
Oct	LOW	1.13	1.04	0.79	0.89	0.72	1.08	0.84	0.94	0.96	1.38	0.98	1.02	0.90		0.99	1.02	0.92	1.09	0.88	0.98	0.57
	HIGH	1.41	1.22	1.00	1.01	0.90	1.40	1.24	1.41	1.09	1.60	1.27	1.21	1.37		1.19	1.38	1.24	1.40	1.16	1.19	0.98
	AVG	1.25	1.11	0.89	0.97	0.83	1.26	1.00	1.18	1.01	1.48	1.12	1.11	1.09		1.09	1.21	1.09	1.26	1.01	1.05	0.82
Nov	LOW	1.12	1.00	0.76	0.95	0.64	1.12	0.97	1.09	0.81	1.49	1.04	0.93	0.99	0.80	1.01	1.12	1.10	1.32	0.91	0.89	0.67
	HIGH	1.43	1.22	1.14	1.35	1.12	1.28	1.08	1.23	1.24	1.67	1.28	1.18	1.25	1.56	1.27	1.36	1.34	1.48	1.30	1.28	0.88
	AVG	1.31	1.10	0.97	1.08	0.91	1.22	1.03	1.16	1.07	1.58	1.19	1.05	1.11	1.09	1.12	1.26	1.20	1.40	1.09	1.05	0.80
Dec	LOW	1.27	0.91	0.85	0.81	0.87	1.00	0.86	1.01	1.00	1.43	1.21	1.17	1.12	1.19	1.17	1.00	1.20	1.14	0.96	0.89	0.92
	HIGH	1.54	1.34	1.14	1.29	1.09	1.48	1.28	1.37	1.20	1.66	1.31	1.27	1.28	1.44	1.39	1.40	1.29	1.56	1.34	1.23	1.06
	AVG	1.40	1.09	0.99	1.02	0.97	1.30	1.08	1.22	1.10	1.56	1.26	1.23	1.20	1.27	1.28	1.30	1.25	1.34	1.14	1.10	0.98
Quarterly Avg		**1.32**	**1.10**	**0.95**	**1.02**	**0.90**	**1.26**	**1.03**	**1.19**	**1.06**	**1.54**	**1.19**	**1.13**	**1.13**		**1.16**	**1.26**	**1.18**	**1.33**	**1.08**	**1.07**	**0.87**

NOTE: All values in mg/l unless otherwise stated

(0.05 mg/L - minimum standard per Ministry of Environment)
(0.20 mg/L - miminum WUC standard)

Appendix A - Operational Charts

Table 5 – Operational Parameters

		JANUARY			FEBRUARY			MARCH			PLANT PARAMETERS HIGH LOW VALUES		MINISTRY MAC	
		HIGH	LOW	AVG.	HIGH	LOW	AVG.	HIGH	LOW	AVG.			HIGH(*1)	LOW
COLOUR (*2)	TCU	(---)	(---)	(---)	(---)	(---)	(---)	(---)	(---)	(---)	5.00	0.00	N/A	
ALUMINUM (*3)	µg/l	14	8	11	14	8	10	26	8	15	100.0	0.0	N/A	
pH (*2)		7.16	7.00	7.08	7.12	6.94	7.06	7.09	6.94	7.02	7.30	6.50	N/A	
TURBIDITY (*1)	NTU	0.04	0.02	0.03	0.02	0.01	0.02	0.05	0.02	0.02	1.00	0.00	1.00	0.00
HARDNESS (*2)	mg/L	140	100	112	128	100	108	166	98	110	100	80	N/A	
TEMPERATURE	°C	3.6	1.7	2.6	3.0	1.7	2.2	9.0	2.2	5.4			N/A	
ODOUR/TASTE		(---)	(---)	(---)	(---)	(---)	(---)	(---)	(---)	(---)	in-offensive		N/A	
ALKALINITY (*2 and *3)	mg/L	100	78	85	92	78	84	118	78	85	500	30	N/A	
CHLORINE RESIDUAL (*1)	mg/L	1.63	1.39	1.50	1.75	1.42	1.58	1.81	1.45	1.62	1.50	0.80	N/A	0.05

		APRIL			MAY			JUNE			PLANT PARAMETERS HIGH LOW VALUES		MINISTRY MAC	
		HIGH	LOW	AVG.	HIGH	LOW	AVG.	HIGH	LOW	AVG.			HIGH(*1)	LOW
COLOUR (*2)	TCU	(---)	(---)	(---)	(---)	(---)	(---)	(---)	(---)	(---)	5.00	0.00	N/A	
ALUMINUM (*3)	µg/l	63	15	26	52	21	33	216	41	73	100.0	0.0	N/A	
pH (*2)		7.16	6.98	7.04	7.11	6.95	7.04	7.11	6.97	7.05	7.30	6.50	N/A	
TURBIDITY (*1)	NTU	0.06	0.02	0.04	0.07	0.04	0.05	0.09	0.05	0.06	1.00	0.00	1.00	0.00
HARDNESS (*2)	mg/L	120	98	107	120	90	103	110	90	100	100	80	N/A	
TEMPERATURE	°C	12.1	7.7	10.2	12.1	7.0	14.0	22.3	90.0	100.1			N/A	
ODOUR/TASTE		(---)	(---)	(---)	(---)	(---)	(---)	(---)	(---)	(---)	in-offensive		N/A	
ALKALINITY (*2 and *3)	mg/L	100	78	86	100	78	86	96	80	82	500	30	N/A	
CHLORINE RESIDUAL (*1)	mg/L	1.77	1.51	1.62	1.77	1.51	1.62	1.78	1.31	1.51	1.50	0.80	N/A	0.05

Appendix A - Operational Charts

Table 5 – Operational Parameters

		JULY			AUGUST			SEPTEMBER			PLANT PARAMETERS HIGH LOW VALUES		MINISTRY MAC	
		HIGH	LOW	AVG.	HIGH	LOW	AVG.	HIGH	LOW	AVG.			HIGH(*1)	LOW
COLOUR (*2)	TCU	(---)	(---)	(---)	(---)	(---)	(---)	(---)	(---)	(---)	5.00	0.00	N/A	
ALUMINUM (*3)	µg/l	153	51	85	370	63	130	114	37	79	100.0	0.0	N/A	
pH (*2)		7.18	6.95	7.07	7.33	6.64	7.00	7.13	6.91	7.03	7.30	6.50	N/A	
TURBIDITY (*1)	NTU	0.09	0.04	0.07	0.17	0.05	0.07	0.09	0.05	0.06	1.00	0.00	1.00	0.00
HARDNESS (*2)	mg/L	106	86	96	108	86	96	106	80	95	100	80	N/A	
TEMPERATURE	°C	24.4	3.9	22.0	26.0	6.7	24.3	24.6	9.4	20.5			N/A	
ODOUR/TASTE		(---)	(---)	(---)	(---)	(---)	(---)	(---)	(---)	(---)	in-offensive		N/A	
ALKALINITY (*2 and *3)	mg/L	118	76	82	84	70	79	108	76	7	500	30	N/A	
CHLORINE RESIDUAL (*1)	mg/L	1.74	1.45	1.61	1.78	1.47	1.60	1.81	1.40	1.63	1.50	0.80	N/A	0.05

		OCTOBER			NOVEMBER			DECEMBER			PLANT PARAMETERS HIGH LOW VALUES		MINISTRY MAC	
		HIGH	LOW	AVG.	HIGH	LOW	AVG.	HIGH	LOW	AVG.			HIGH(*1)	LOW
COLOUR (*2)	TCU	(---)	(---)	(---)	(---)	(---)	(---)	(---)	(---)	(---)	5.00	0.00	N/A	
ALUMINUM (*3)	µg/l	63	28	44	35	13	23	55	10	17	100.0	0.0	N/A	
pH (*2)		7.16	6.95	7.04	7.21	6.91	7.05	7.12	6.90	7.03	7.30	6.50	N/A	
TURBIDITY (*1)	NTU	0.07	0.05	0.06	0.23	0.03	0.05	0.19	0.03	0.05	1.00	0.00	1.00	0.00
HARDNESS (*2)	mg/L	132	90	106	162	96	115	140	100	116	100	80	N/A	
TEMPERATURE	°C	20.3	5.1	16.3	24.6	6.2	10.8	25.3	3.8	5.6			N/A	
ODOUR/TASTE		(---)	(---)	(---)	(---)	(---)	(---)	(---)	(---)	(---)	in-offensive		N/A	
ALKALINITY (*2 and *3)	mg/L	108	80	89	140	76	99	120	80	96	500	30	N/A	
CHLORINE RESIDUAL (*1)	mg/L	1.73	1.43	1.59	1.83	1.46	1.58	1.76	1.43	7.03	1.50	0.80	N/A	0.05

(*1) MAC - Maximum Allowable Concentration
(*2) Health Canada Operational Guidline (O.G.)
(*3) Recommended in coagulant treated drinking water

Appendix A - Operational Charts

Schedule 23
Inorganic Parameters

Item	Parameter
1	Antimony
2	Arsenic
3	Barium
4	Boron
5	Cadmium
6	Chromium
7	Mercury
8	Selenium
9	Uranium

Appendix A - Operational Charts

Schedule 24
Organic Parameters

Item	Parameter
1	Alachlor
2	Atrazine + N-dealkylated metabolites
3	Azinphos-methyl
4	Benzene
5	Benzo(a)pyrene
6	Bromoxynil
7	Carbaryl
8	Carbofuran
9	Carbon Tetrachloride
10	Chlorpyrifos
11	Diazinon
12	Dicamba
13	1,2-Dichlorobenzene
14	1,4-Dichlorobenzene
15	1,2-dichloroethane
16	1,1-Dichloroethylene (vinylidene chloride)
17	Dichloromethane
18	2,4-Dichlorophenol
19	2,4-Dichlorophenoxy acetic acid (2,4-D)
20	Diclofop-methyl
21	Dimethoate
22	Diquat

Item	Parameter
23	Diuron
24	Glyphosate
25	Malathion
26	2-Methyl-4-chlorophenoxyacetic acid
27	Metolachlor
28	Metribuzin
29	Monochlorobenzene
30	Paraquat
31	Pentachlorophenol
32	Phorate
33	Picloram
34	Polychlorinated Biphenyls (PCB)
35	Prometryne
36	Simazine
37	Terbufos
38	Tetrachloroethylene (perchloroethylene)
39	2,3,4,6-Tetrachlorophenol
40	Triallate
41	Trichloroethylene
42	2,4,6-Trichlorophenol
43	Trifluralin
44	Vinyl Chloride

Success = Results

Left to right: Dr. Saad Jasim, President of the International Ozone Association, with Garry Rossi, VP Water Operations, celebrate 20 years of ozone disinfection in Windsor at the A.H. Weeks Water Treatment Plant.

Windsor Utilities Commissioners

Drew Dilkens, Chair
LL.B, MBA, DBA, CHRL
Mayor, City of Windsor

Egidio Sovran, Vice-Chair
MBA, CPA, CA
Owner, E L Sovran Professional Corp. Associate, Grant Thornton

Jeewen Gill
Councillor, City of Windsor, Ward 7

Julian (Jules) Hawkins, CPA, CA
Partner, Hawkins & Co. Accounting Professional Corp.

J. Douglas Lawson, O.Ont. QC, LL.D
Counsel, Willis Business Law

Kieran McKenzie, BA
Councillor, City of Windsor, Ward 9

Jim Morrison, PFP
Councillor, City of Windsor, Ward 10

Mario Sonego, P.Eng.
Retired City Engineer, City of Windsor President, Sonego Management Inc.

ENWIN Utilities Ltd. Executive Management

Helga Reidel
President & CEO

Matt Carlini
Vice President Corporate Services & CFO

Paul Gleason
Vice President Customer Care and Corporate Operations

Jim Brown
Vice President Hydro Operations

Garry Rossi
Vice President Water Operations

Kris Taylor
Vice President Business Development

Windsor Utilities Commission maintains a contract of service with ENWIN Utilities Ltd. to operate and maintain the WUC owned water system that serves customers in Windsor, Tecumseh, and Lasalle.