



AQUARION
Water Company

Stewards of the Environment™

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June 30, 2021

City of Derby Water Pollution Control Authority
c/o Andrew Baklik, Chief of Staff
1 Elizabeth Street
Derby, CT 06418
Email: abaklik@derbyct.gov

Dear Mr. Baklik and Members of the Derby Water Pollution Control Authority:

Aquarion Water Company (Aquarion) is pleased to submit the attached response for the Purchase, Upgrade, Operation and Maintenance of the City of Derby Water Pollution Control Authority (WPCA) wastewater assets. Aquarion is the largest investor owned utility (IOU) providing water and wastewater services in the New England region. This includes service to over 200,000 customers in 53 cities and towns in CT, including portions of the City of Derby.

Enclosed in the response you will find a review of Aquarion's existing operations and our suggested approach to ownership of the Derby wastewater system. We believe the response definitively demonstrates that Aquarion is the most qualified firm to purchase and operate the Derby system.

As you review the responses and determine the most appropriate next steps for the City, please feel free to contact either myself or Adam Simonsen. Our contact information is provided below.

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We are excited about the opportunity to partner with the City to solve its wastewater challenges and also serving additional customers in Derby. We look forward to your next steps and are available to promptly answer any questions or concerns that you may have.

Very truly yours,



Donald J. Morrissey
President & COO
Aquarion Water Company

**QUALIFICATIONS SUBMITTAL
FOR THE
DERBY WASTEWATER SYSTEM PURCHASE, UPGRADE,
OPERATIONS AND MAINTENANCE**

Submitted To:

Derby Wastewater Pollution Control Authority
ATTN: Andrew Baklik, Chief of Staff
1 Elizabeth Street
Derby, Connecticut 06418

Prepared By:
Aquarion Water Company
835 Main Street
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June 30, 2021

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1. Executive Summary

Aquarion serves approximately 216,000 customers and 700,000 people in 60 cities and towns across Connecticut, Massachusetts, and New Hampshire and is the largest investor-owned water utility in New England and among the seven largest in the U.S.

Aquarion Infrastructure Snapshot

- **+300 drinking water wells**
- **9 surface water treatment plants**
- **+100 pumping stations**
- **+75 water storage tanks**
- **3,400 miles of main**

Aquarion is an industry leader and organized to manage every key aspect of a well-run utility including, but not limited to, operations, engineering, finance, accounting, regulatory practices, customer service, administrative functions, and acquisitions (M&A) in a manner consistent with accepted industry practices.

Aquarion also has a long history of regulation by the Connecticut Public Utility Regulatory Agency (PURA), including regulatory approval of over 25 separate transactions since 2011. The company finished 2020 with assets of \$1.45 billion, revenues of \$190.0 million, and is rated by Moody's Investors Service with an A3/Stable rating. Aquarion has more financial capabilities to complete a transaction of this size than any other utility in CT.

Operating the existing Derby wastewater system is a challenge, but the system does operate within its existing permit. Investing capital to upgrade facilities will be priority, but maintenance of existing operations must happen simultaneously. To accomplish this, Aquarion will retain existing staff, establish key performance indicators, address safety concerns, optimize unit processes, and continue infiltration and inflow (I/I) removal. Aquarion believes that these operational adjustments will ensure a high level of service while upgrades on the core wastewater infrastructure progress.

Aquarion has a comprehensive, well-defined program for identifying, prioritizing, budgeting and implementing capital expenditures based upon condition assessments, facility plans, master plans and studies and maintains 5-year CIPs that are reviewed and presented for business planning purposes on an annual basis. To address the operational challenges of the Derby system, Aquarion proposes a series of Initial Capital Improvements (ICIs) to upgrade the WPCF based on prioritization to maintain permit compliance in lieu of a single comprehensive contract that requires significant financing. The ICIs will be followed by a comprehensive master plan to upgrade the facility as needed, while maintaining an affordable rate trajectory.

Aquarion is among the most respected in the industry in providing top customer service with 94% of its customers indicating that they were either satisfied or very satisfied with Aquarion service, a top JD Power ranking, and the lowest number of complaints to regulators. The customer service for Derby will be managed from Aquarion's Bridgeport and Monroe, CT facilities.

Aquarion also will continue to monitor the regionalization study sponsored by Naugatuck Valley Council of Governments (NVCOG). By all accounts, the study is accomplishing the goals it outlined in its initial scope of work, but it's unclear to Aquarion whether the proposed regional solution is the best option for the City and its wastewater customers. Lastly, It will be critical for the City and Aquarion to collaboratively address the current Order with the Connecticut Department of Energy and Environmental Protection (CTDEEP) to establish the best long-term path for the environment and Derby customers.

2. Experience

2.1 Company History and Existing Operations

Aquarion serves approximately 216,000 customers and 700,000 people in 60 cities and towns across Connecticut, Massachusetts, and New Hampshire and has been in the water business since 1857. We are the largest investor-owned water utility in New England and among the seven largest in the U.S., providing Connecticut customers with tens of millions of gallons of water every day.

Aquarion is organized to manage every key aspect of a well-run water utility including, but not limited to, operations, engineering, finance, accounting, regulatory practices, customer service, administrative functions, and acquisitions in a manner consistent with accepted industry practices.

Aquarion Infrastructure Snapshot

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Aquarion traces its roots to the mid 1800's. Following the Great Fire of 1845 in Bridgeport and subsequent unsuccessful attempts by others to start a water company, the Bridgeport Hydraulic Company (BHC) was formed in 1857. By 1876, BHC had grown its infrastructure by threefold, pacing the growth of Bridgeport. 1877, following a two-year term as the Mayor of Bridgeport, P.T. Barnum became the second president of BHC. Under Barnum, a number of reservoir and system resiliency projects were completed to meet the water demands of the close to 100,000 people living in Bridgeport at that time. Over the next 100 years, through two world wars and the great depression, BHC continued to upgrade its existing infrastructure and consolidate small water systems, providing economies of scale and expanding beyond Bridgeport, into a truly regional utility. In 1991, BHC's parent company changed its name to Aquarion and following its merger with Connecticut-American Water in 2000, renamed its CT operations to Aquarion Water Company of Connecticut. In 2008, Aquarion Water Company of CT merged with United Water Connecticut adding an additional 7,000 customers to the company's base in CT.

Since 2011, Aquarion has continued to support the state policy goal of consolidation of small water utilities, completing 25 transactions, acquiring 73 separate systems and over 11,500 customers. This includes multiple transactions with CT municipalities: East Derby Waterworks from the City of Derby in 2014, Town of Marlborough municipal system—2020, Town of New Fairfield municipal system—2020, and Town of Canaan (Falls Village)—2021. With each of these acquisitions, Aquarion has proven repeatedly its capabilities to integrate the operations of separate utilities to the benefit of customers.

The sale of East Derby Water Works is of note and relevant to this proposed transaction. Following a public process, an affirmative vote by the Board of Alderman, and approval by PURA, the City sold its East Derby Water Works to Aquarion. Regarding the transaction, former Mayor Anthony Staffieri said selling the company was long overdue, and there will be major benefits. "This is a total windfall for the city," he said in a January 2013 article in the New Haven Register. Since that time, roughly 12% of residents in Derby receive water from Aquarion.

Aquarion is also in the process of acquiring the Town of New Hartford, CT water and wastewater systems. New Hartford, like many CT municipalities, owns a wastewater system with significant challenges. Despite years of diligent work by municipal leaders, and a volunteer WPCA board, the Town is faced with a wastewater system

that runs an annual deficit and requires subsidization from its general fund to meet its debt service. Aquarion was brought into manage the plant through a contract operations agreement. Through the first 16 months of that contract Aquarion was able to lower wastewater operations and maintenance budget items not associated with labor or non-routine services by 17%. Below are a few of the accomplishments:

- **Process Optimization.** Aquarion operators improved the operations of the auger screen, grit chamber, Sequencing Batch Reactor (SBR) biological process control, tertiary filters, equalization tank operation, and the UV disinfection system during the first year of our contract.
- **Sludge Disposal Savings.** Aquarion reduced the number of sludge truck loads sent off-site for disposal from 53 in FY 2016-17 to seven in FY 2019-20 (\$23,000 per year cost savings); we currently have stabilized the number of trucks at 10 to 12 per year.
- **Electrical Cost Savings.** Aquarion optimized the process control operations of the SBR process based on oxygen levels and reduced the annual WPCF electrical costs by 10 percent.
- **UV Disinfection Improvements.** Aquarion conducted an optimization study and implemented changes in flow patterns to the tertiary filters and UV disinfection process that allowed a reduction in the number of UV lamps from 48 to 16.
- **Equalization (EQ) Tank Cleaning.** Aquarion operators were trained in confined space entry and were able to perform EQ tank cleaning (that had not been completed for six years) and save the WPCA about \$6,300 per year in third party contracts.
- **Standby Power Coordination.** When the standby generator failed at the WPCF, Aquarion was able to communicate with the CTDEEP and arrange for the mobilization of an Aquarion generator from another site. The contingency plan coordinated by Aquarion resulted in about a \$15,000 savings to the WPCA.

Even after Aquarion was able to significantly lower the operating costs of the plant through careful management, the WPCA still faced an uncertain future as it looked at long term capital needs and what the required trajectory of its rates would look like. As a result, the Town decided to solicit proposals for the privatization of the wastewater system, to remove the risk of operating water and wastewater infrastructure. After considering responses from Aquarion, and two other firms – the Town selected Aquarion as the buyer of the system. The selection was further ratified by a town-wide referendum in March 2021. Aquarion is finalizing the asset purchase agreement with the Town and expects to file the application for approval of the sale with PURA subsequently.

As CT's largest provider of drinking water, protection of the environment is a top priority. Aquarion believes in taking a proactive approach toward conserving and enhancing natural resources. We recognize that environmental protection and the efficient use of resources enable it to continue providing valuable services to its customers and communities. Accordingly, Aquarion strives to act as a responsible steward of the environment and maintain its commitment to continuous improvement. We also recognize that environmental protection is the collective responsibility of government, businesses, individuals, and communities. We are

committed to implementing efficient and effective practices within our organization and to working in partnership with our stakeholders to meet this responsibility.

To implement this policy, Aquarion commits to:

- Taking responsibility for compliance with applicable environmental regulations and responding to local environmental needs.
- Making environmental protection and improvement an integral part of our planning and decision-making processes.
- Striving to prevent and reduce adverse environmental impacts of our operations, consistent with the need for maintaining the quality of drinking water and wastewater effluents.
- Promoting resource sustainability by seeking ways to reduce our energy and material needs and increasing the reuse and recycling of materials.
- Including environmental criteria in our processes for selecting vendors and purchasing goods and services.
- Communicating and supporting environmental best practices throughout the Company.
- Sustainably managing lands and natural resources to protect and enhance water quality.
- Permitting public access where practical and consistent with water supply and natural resource management goals.
- Developing our employees' awareness of environmental issues and best practices, including their responsibilities under this policy.
- Fostering productive, responsive partnerships with our environmental stakeholders.
- Playing an active role in the environmental community.

Consistent with Aquarion's long-term commitment to the environment and our desire to allow the public to use company land holdings for recreational purposes, we offer opportunities for hiking, fishing, cross-country skiing, snowshoeing, and birding on select Aquarion property.

These opportunities continued and expanded with a partnership that began in 2002 among Aquarion, the CTDEEP, and The Nature Conservancy. Together, we agreed to conserve 15,300 acres of forest near Aquarion reservoirs as a way to preserve open space, safeguard ecosystems, protect water supplies, and provide for public use consistent with those goals.

Through its "Be Our Guest" program, Aquarion welcomes the public to the many recreational opportunities it offers. Its trail-use permit allows access to 17 miles of scenic trails, while our fishing permit provides access to fishing at Saugatuck, West Pequonnock, and Far Mill reservoirs.

2.2 CT PURA Regulatory Experience

As a public service company, Aquarion has worked with PURA since its inception to deliver exceptional service at affordable rates. PURA regulates the Aquarion water and wastewater utility business in CT and is the organization tasked with adjudicating rate requests and balancing the needs of the customers with the needs to attract capital investment at a reasonable cost.

The rules and framework governing the operations of a utility are established by the state legislature and implemented by PURA. Aquarion has a history of working constructively with PURA to run a successful utility with affordable rates. Aquarion’s most recent general rate case was filed in 2013. Through careful management of the business, adjustments to the federal tax programs, low inflation, and use of the water infrastructure conservation adjustment (WICA) program Aquarion has not filed a general rate since 2013. This approach differs greatly from the typical rate increases required when a municipality incurs significant new debt, and must typically raise rates immediately to fund the debt service.

Aquarion also provides annual reports and other periodic compliance filings to PURA. These reports include not only audited financials, but a detailed accounting of all assets owned by the utility, capital invested, and customer served. The annual report provides in a single place all the information that either regulators or other stakeholders can review the performance of the utility and help assess the prudence of its operations. On the whole, Connecticut regulated utilities undergo far more scrutiny than a municipal utility.

Regulated utilities provide their “product” (i.e. wastewater collection and treatment) at cost. They are also given an opportunity to earn profit based on the amount of prudent infrastructure they construct to deliver safe and reliable service that complies with all environment standards. This arrangement provides an appropriate incentive to make continuous prudent infrastructure investments and as Aquarion’s history has shown, affordable rates.

Another important interaction with PURA, will be obtaining their regulatory approval for the sale of the Derby wastewater assets. Before any sale of a municipal utility to a private company can be closed, the approval of PURA must be obtained. Derby and Aquarion will make a joint application to the agency, outlining the benefits of the transaction and the expected outcomes for the ratepayers. Aquarion has completed 25 transactions since 2011 and is well versed on the process and procedures to complete that process.

2.3 Financial Capabilities

Aquarion Water Company of CT finished 2020 with assets of \$1.45 billion, revenues of \$190 million, is rated by Moody’s Investors Service with an A3/Stable rating, and maintains strong financial ratios well within the industry norms. Audited 2020 financial statements are included in Attachment A. Additionally, in the February 21, 2021 final decision for Docket 20-12-29, PURA authorized Aquarion to issue \$100,000,000 in unsecured notes to refinance existing debt and provide additional funding for capital investments. Aquarion’s key financial ratios following that financing are listed in the table below.

Metric	Before Issuance	After Issuance
Pre-tax interest coverage	3.85x	3.76x
Post-tax interest coverage	3.72x	3.64x
Net cash flow/total debt	22.4%	20.9%
Cash flow interest coverage	5.31x	5.18x
Times interest earned	3.85x	3.76x
Debt/equity (inc. goodwill)	0.79	0.85
Debt/equity (exc. goodwill)	0.87	0.93
Total debt/total capital (inc. goodwill)	44%	46%
Long-term debt/total capital (exc. goodwill)	46%	48%
Total fixed charge coverage	3.85x	3.76x

Total debt service coverage	5.31x	5.18x
Cash flow/total debt	22.4%	20.9%

Financial Capability for Asset Purchase. Aquarion assumes that one of the objectives in considering an asset sale of the Derby Wastewater System is to allow an up front cash payment that could be used to retire existing Derby debt related to the sewer system and possibly provide funding for other capital projects or pay down other general obligation debt. Aquarion is committed to conducting further due diligence to assess the Derby Wastewater System and to formulate a plan to allow the upfront payment while at the same time preserving and stabilizing rates to the Derby wastewater customers. Aquarion has worked with other communities to provide similar arrangements.

Financial Ability to Maintain and Expand the System Assets. Aquarion has the financial ability to maintain and expand the System assets as demonstrated by the financials disclosures included within Attachment A. It should be noted that Aquarion expends in excess of \$140 million per year on capital improvements. Further, four example projects completed by Aquarion that we feel are comparable to the Derby wastewater upgrade are outlined below and more detailed project descriptions are included as Attachment B.

City of Holyoke WPCF Upgrade and Wet Weather Abatement Project – Aquarion was selected by the City of Holyoke to formulate an upgrade to the WPCF to treat wet weather flows associated with the combined sewers serving the City. Aquarion complete the conceptual plan, and then managed and implemented a design, build, and 20-year operation contract (D/B/O). A key component of this contract was the design and implementation of a series of Initial Capital Improvements (ICIs) to address the need for new grit removal and influent pumping equipment, aeration system improvements, sludge thickening and dewatering improvements, constructing new odor control equipment, and converting the antiquated chlorine gas system to a liquid bleach and dechlorination system. The contract also included a detailed infiltration and inflow (I/I) analysis and the design, construction and operation of the combined sewer abatement facility. The D/B/O project delivery system allowed Aquarion to serve as the program manager for all elements of the D/B/O process and to more efficiently phase the overall project that resulted in stabilized rates for the Holyoke sewer users.

Stamford WTP Upgrade – The Aquarion upgrade of the Stamford water treatment plant increased the storage volume to two 4 MG capacity tanks and simultaneously raised the hydraulic grade line of the system, and replaced the traditional filters with dissolved air flotation over filtration (DAFF). The \$47 million project improved the treatment process and increased the design capacity from 24 to 30 mgd.

Putnam WTP Upgrade – Aquarion initiated a CIP to upgrade the 20 mgd Putnam surface water WTP by implementing over 20 separate ICI projects with a value in excess of \$50 million. ICIs included new chemical storage facilities; upgrades to the mixing, sedimentation and filter operations; installing new chlorine dioxide, sodium hypochlorite, sodium hydroxide, zinc orthophosphate and fluorosilic acid feed systems; new clearwells; and a full upgrade of the mechanical, electrical and instrumentation and controls throughout the plant. A key factor to the cost effective implementation of this program was the reuse of the original mixing, sedimentation, filters and process control structures.

Southwest Fairfield County Pipeline Plan – This project was initiated following the 2016 drought, when it became clear the Greenwich/Stamford region needed additional water supplies. The implementation plan includes four major ICI phases over a 10-year period with a total capital cost of \$180 million. To date, \$31 million of improvements have been implemented.

2.4 Capital Program Management

Aquarion has a comprehensive, well-defined program for identifying, prioritizing, budgeting and implementing capital expenditures based upon condition assessments, facility plans, master plans and studies. Aquarion maintains and updates 5-year CIPs that are reviewed and presented for business planning purposes on an annual basis. Aquarion also proactively developed a 20-year Infrastructure Replacement (IFR) plan for the period 2021 through 2040. The IFR plan will serve as a road map in moving forward and updating the Aquarion CIP on an annual basis. Major treatment plant and distribution/collection system projects are identified in planning studies, and budgets and engineering justifications are prepared for each identified project, with a proposed short term, intermediate term, or long-term implementation schedule.

Aquarion has invested in technology to facilitate the CIP process including development and maintenance of a robust asset management database (SAP); water main and sewer break/failure prediction modelling to assist in identifying and prioritizing recommended main and sewer replacements; and undertaking routine facility inspections by independent consultants to identify needed improvements that can be proactively programmed into the CIP. The CIP is generally broken down into ten primary areas that include: water distribution mains and collection sewers, dams, transmission and distribution, information technology (IT), meters, source of supply, supply operations, water and wastewater treatment, pumping, and general plant.

Aquarion's approach to CIP management differs markedly from the typical municipal capital planning and construction process. The typical municipal wastewater capital planning process is accomplished by tackling large infrastructure projects and sequenced with a study, design, bond, bid, and construct process. During each step of that process the eventual project is refined and opportunities exist for cost to increase or for savings to be realized. The upgrade of Derby's wastewater system is estimated to be between \$50 and \$80 million. The entire City of Derby as of June 30, 2019 has assets of \$114M. The single project could require Derby to increase it's assets by 70%. Even if a municipality has the strongest possible organization controls in place, embarking on a project that requires 70% growth is ambitious and will be difficult to control costs.

To meet it's capital program needs, Aquarion employs various alternative delivery methods design to match the process to the project. This has included conventional design, bid and construction projects as well as design/build (D/B), design, build, operate (DBO) and design, build, operate and finance (DBOF). As owners of the system Aquarion anticipates that it will employ a DBOF model and break the capital project into a series of smaller projects and employ value engineering techniques to keep the overall cost of the upgrade of each unit operation as low as possible while still meeting operational and environmental targets. The flexibility of the DBOF approach will also allow rates to be managed and provide flexibility for unforeseen obstacles.

Specific to the Derby wastewater CIP, the three primary areas to address include the wastewater treatment plant upgrades; I&I removal/collection system upgrades; and SCADA-based automation. These are addressed further in Section 3.2.

2.5 Ratemaking

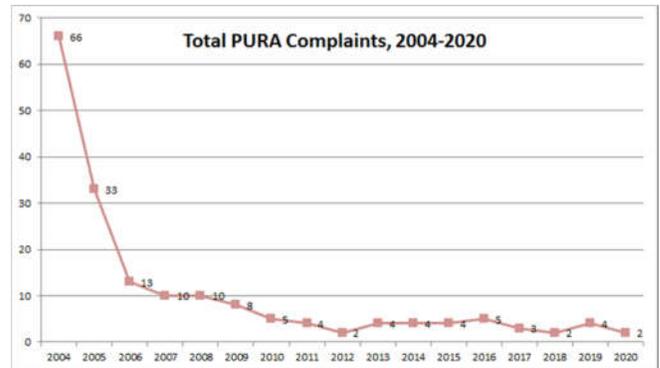
Aquarion prides itself on being able to deliver high quality service at affordable rates. Every financial decision made the by the company requires a review of how this will affect rates over both the short and long term. This means that while customers are subject to periodic rate increases, those increases are carefully planned and

typically track at rates close to inflation. As an example, Derby residents today are served by two water companies, Aquarion and the South Central CT Regional Water Authority (SCCRWA); Aquarion customers in Derby pay approximately 10% less for the consumption of the same amount of drinking water than a customer served by SCCRWA. And while SCCRWA is a well-run utility, and has valid reasons for charging higher rates, it does demonstrate Aquarion’s continued commitment to its mission of affordability.

During the last 15 years, the operational and regulatory demands on running a water utility have increased dramatically, but during this time Aquarion has been able to hold its rates close to inflation while continuing to invest in its infrastructure to provide high quality service.

2.6 Customer Support Services

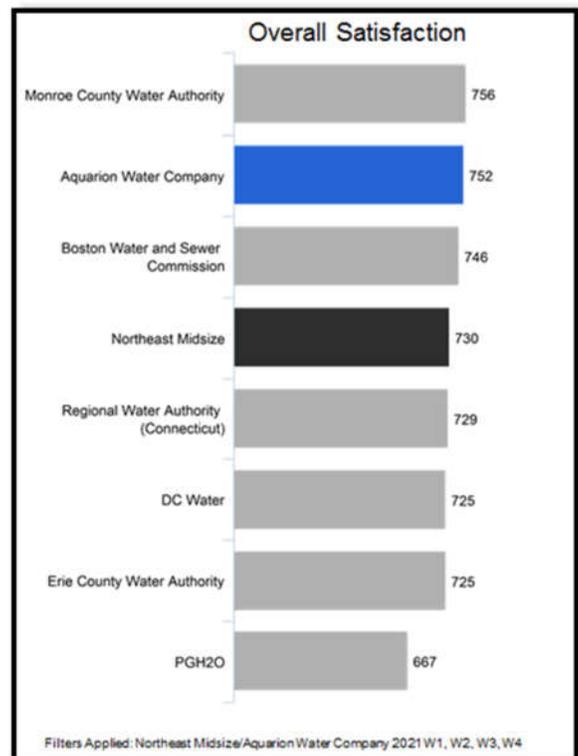
Aquarion is among the most respected in the industry in providing top customer service and enjoys a top ranking in all widely recognized customer service metrics. In Aquarion’s (?) most recent survey 94% of respondents indicated that they were either satisfied or very satisfied with Aquarion’s service. Aquarion is also reviewed and ranked every year by JD Power, a global marketing research firm that analyzes feedback from customers regarding the products and services they receive. In 2021, Aquarion maintained it’s ranking with the 2nd highest score among mid-size water utilities in the northeast, consistently ranking higher than other water utilities. Aquarion also maintains the best customer service record measured by the fewest customer complaints recorded by the Connecticut PURA across all utilities for the past 10 years running.



Aquarion maintains a dedicated customer service department that includes call center, billing, and collections functions. A brief description is presented below.

Customer Service. The Customer Service (CS) department handles all customer inquiries including customer phone calls and e-mails. This team is responsible for scheduling appointments for field work, resolving bill disputes, and explaining programs or services. Representatives coordinate payment arrangements, handle customer maintenance and prepare quotes for home sales and final bills. CS is in direct contact with our customers and coordinates with the Field Service department to schedule appointments for field visits. Any disputes and inquires relating to a state regulator may be forwarded for special handling to the Customer Advocate or a Supervisor. All CS back-office functions related to billing is handled by the CT Operations staff.

Billing. It is the responsibility of this team to ensure that all customers are billed timely and accurately. The Supervisor of Billing ensures adherence to company policies (ex: back-billing



Source: JD Power 2020 water utility residential customer satisfaction study report

and billing estimates) and state regulations. This team is also responsible for back-office review of completed field notifications in the administration of tasks such as new meter sets that result from periodic meter changes.

Collections. The Collection Department is responsible for the collection of accounts receivable. Accounts are reviewed by specific customer classification and aging in order to focus efforts on those that may lead to further collection or legal action. In addition to using system-generated letters and statements to assist in collection efforts, past due accounts may be tagged, and where regulations allow, water service terminated for non-payment. This team is also responsible for the accurate and timely application of all payments. This includes the lockbox transmission, various electronic payment transmission (Kubra & Checkfree), wire payments and field collections.

Aquarion monitors and records all customer requests and complaints within its integrated customer relationship management (CRM) system. Aquarion uses an SAP technology platform that integrates cross-functional business processes to allow for a streamlined customer interaction. These cross-functional business processes include not only customer service, but billing, inventory management, preventative and reactive maintenance work orders, and incident tracking. This gives customer service staff a 360 degree view of a customer request and lead to more thorough resolution of problems. To further this goal Key Performance Indicator metrics (KPIs) have been established for all functional areas including Service Quality, Customer Satisfaction, Appointments Missed, Call Answering Speed, Abandonment Rate, and First Call Resolution. These KPIs are continuously tracked and reviewed, at a minimum, monthly by the entire management team.

Finally, it should be noted that Aquarion has multiple programs for customers facing a hardship and needs assistance paying their bill. As a response to the COVID-19 pandemic Aquarion expanded it's payment plan program to allow any customer to request a no interest, no down payment plan to pay past due balances over a period of up to 24 months. Aquarion has also partnered with Operation Fuel to offer grants to customers with a demonstrated hardship to reduce any past due balances on their bill.

3. Ownership and Operations Approach

3.1 Existing Operations

Operating the existing Derby wastewater system is a challenge, but the system does operate within its existing permit. With the exception of new pump stations in the collection system, much of the mechanical and electrical equipment within the plant is beyond its useful life and, due to a lack of automation and SCADA system, each unit process requires significant manual attention to ensure it functions properly. Investing capital to upgrade facilities will be priority, but maintenance of existing operations must happen simultaneously. To accomplish this, Aquarion will carry out a 5-step process.

- 1) Staff Retention and Integration of Aquarion Management
- 2) Establishment of key performance indicators (KPIs)
- 3) Address Safety Concerns
- 4) Unit Process Operational Optimization
- 5) Inflow and Infiltration Removal

Staff Retention and Integration of Aquarion Management

The backbone of any strong operation is a well-qualified and motivated staff. Aquarion would look to retain all staff currently employed by the Derby WPCA, subject to Aquarion's standard pre-employment screening standards (physical, drug testing, etc.). Before any transition, Aquarion's management and human resources team would look to meet with each employee to understand their skill sets, current responsibilities, and career goals. From these series of meetings, operational responsibilities for the operation of the system might be adjusted. Section 3.4 provides additional information regarding Aquarion's overall approach to staffing and company human resources policies.

In addition to specific operational staffing, Aquarion management would become oriented with the facilities and the staff. The staff of the Derby facilities would be integrated into the operational team and overseen by the same management team that is responsible for Aquarion's other systems. Specific functions not related to plant and collection system operations would be handled by the existing Aquarion management team (this includes: customer service, billing, collections, accounting, information technology, and human resources). Each of these supervisors will work with the Derby operational team to ensure a continuity of operations as the system transfers from Derby to private ownership.

It's also worth noting that the replacement of the City of Derby management with an Aquarion management team will provide both the Derby operations staff and the customers with an important benefit. City of Derby management is responsible for and provides oversight of a large range of city services, including fire, police, parks and recreation, sanitation/recycling, building inspections, senior services, etc and the wastewater system is overseen by a dedicated, but volunteer, board. The Aquarion management team has collectively hundreds of years of experience and is 100% focused on running the best utility possible. The Derby operations will benefit from a 24/7/365 utility management focus and Aquarion's extensive knowledge base.

Establishment of KPIs

A key tool for managing Aquarion’s utility business is the use of KPIs to track important metrics and to drive positive outcomes. A series of KPIs will be developed specific to the Derby wastewater system. These KPIs will mirror the regulatory requirements set by CTDEEP and the US EPA but also introduce Aquarion standards. Examples may include:

- Average daily, monthly average, peak daily and peak hourly flows, with a focus on assessing the frequency and ratio of peak flows to average flows as an indicator of I/I removal.
- Dewatered sludge quantity (dry and wet tonnage) per million gallons (MG) of wastewater treated.
- Estimated quantities of grit and screenings per MG of wastewater treated.
- Chemical usage (including polymer, sodium hypochlorite, sodium bisulfite, odor control chemicals, etc.) per MG of wastewater treated.
- Monthly analysis of the pump stations, total WPCF, and major unit operations electrical usage and the associated electrical cost per MG of wastewater treated.
- Process optimization analysis for the MLE biological process including the following:
 - Adjusting dissolved oxygen concentration set points by treatment zone to improve biological nutrient removal performance while reducing blower electrical usage
 - Fine tuning the internal mixed liquor recycling (IMLR) flow rate to maximize denitrification,
 - Establishing standard operational procedures to improve BNR performance and reliability by standardizing plant operations around solids retention time through management of the solids wasting rate, alkalinity levels and, the food to micro-organism ratio (F/M).
 - Developing a high flow management plant to minimize peak wet weather flow impact to the biological process by improving step-feed mechanism, sludge volume index (SVI) and mix liquor suspended solids (MLSS) content.
- Influent and effluent wastewater quality trends (including biochemical oxygen demand, total suspended solids, the nitrogen species including ammonia, nitrite, nitrate and organic nitrogen, alkalinity, pH, etc., metals and daily microbiological examinations.
- Hours of operations and preventative/corrective maintenance records for all pumps and unit processes with a focus on equipment rotation.
- Solids inventory balance throughout the WPCF (primary sludge, waste activated sludge, thickened waste activated sludge, combined sludge feed to the dewatering operation and dewatered sludge content) to identify areas for improving dewaterability and decrease sludge disposal costs.
- Record the number of non-routine labor hours and the reason for emergency responses.

- Collection system metrics including miles of sewer cleaned, televised and repaired; number of sewer failures and repairs; number of dry or wet weather overflows; and identification of any hydraulic limitations within the collection system.

Aquarion will use these metrics to look for opportunities for continuous improvement and to maintain efficient operations.

Address Safety Concerns

On the whole the Derby wastewater system appears to operate safely, but during our site visit to the plant, Aquarion noted some conditions that did not meet our standards. These include slip/trip hazards, unmaintained fall protection at some unit processes and confined spaces that require routine access. The health and safety of employees is a priority and these items would be addressed immediately. Additionally, as part of the transition, Aquarion's manager of safety programs would do a thorough review of the plant, pump stations, and collection system operations and work with the operations team to prepare job safety plans for both routine and non-routine tasks.

Unit Process Operational Optimization

The Derby WPCF was originally constructed in 1964, upgraded to secondary treatment in 1973 and upgraded with limited process improvements in 2000. There have been few upgrades since that time. Overall, the plant is old and some unit operations need a major overhaul or replacement while other unit operations will require mechanical and electrical upgrades with minor structural repairs. All unit operations need improved instrumentation and controls (I&C) and integration to a central supervisory control and data acquisition (SCADA) system. The treatment plant site is very compact within the fence line, and the triangular site is confined on each side by a railroad to the north, Route 8 to the southeast and the Housatonic River levee to the southwest.



Primary Clarifiers

The liquid treatment portion of the plant includes manual bar screens, influent pumping, aerated grit removal, two primary clarifiers, three Modified Ludzack-Ettinger (MLE) aeration basins (of which two are active and one is inoperable), two secondary clarifiers, disinfection with sodium hypochlorite and dechlorination using sodium bisulfite. The effluent flows by gravity to the Housatonic River or if high river conditions are encountered there is an adjacent City-owned flood control pumping station that can elevate the effluent into the river. The WPCF permit includes nitrogen limits but does NOT include effluent limits for phosphorus. The Derby WPCF has never included provisions for septage receiving or treatment.



Belt Filter Press

to the BFP located in the primary control building. The dewatered sludge is hauled to the Synagro facility in Waterbury. The manual operation of the sludge handling process has an impact on the solids content of the dewatered sludge due to inconsistent mixing ratio of primary sludge and WAS.

Sludge processing originally included thickening of the waste activated sludge (WAS) with a rotary drum thickener (RDT), blending the thickened WAS (TWAS) and primary sludge, anaerobic digestion in two digesters, transferring the digested sludge to a single 1.5-meter gravity belt filter press (BFP) where the sludge was dewatered prior to trucking to the Synagro Northeast facility at the Waterbury WPCF. Over the years the anaerobic digesters and RDTs have been abandoned and replaced with a primary sludge storage tank and aerobic digester tanks that were installed in 1972. The current mode of operation is to pump the primary sludge to an 18,000-gallon capacity holding tank where it is blended with thickened and partially digested sludge from the aerobic digester. The operators currently use a manual mode of decanting the sludge from the aerobic digester tanks. The combined primary and TWAS is then pumped

Aquarion engineers and management will work through each of these unit processes and look for opportunities to optimize the operations. As an example the blowers currently used in the MLE aeration basins utilize fixed speed motors with a relative high DO setpoint in the aeration basin and are most likely consuming more energy than needed to support the process. A change to variable speed motors would produce immediate benefits. On the whole, many of the immediate changes to the operations may be small, but collectively will allow operations to continue efficiently while larger capital upgrades progress.

Inflow and Infiltration (I/I) Removal

The Derby wastewater collection system dates from the 1800's and contains about 218,172 LF of gravity sewers, 6,770 LF of force main and four inverted siphons. Roughly 70% of the gravity sewers are vitrified clay pipe (VCP) and the collection system has significant I/I issues. As part of a 2016 Consent Agreement with CTDEEP, Derby committed to spend an average of \$270,000 per year on I/I reduction over the next 15-years. Aquarion would continue this commitment and look for the opportunities beyond the required minimum to reduce the amount of rain water (inflow) and groundwater (infiltration) entering the sewer system.

Of note, various I/I related studies conducted through the years have identified multiple illegal sources of direct inflow into the wastewater system from City owned catch basins and privately owned roof leaders and sump pump connections. Responsibility for the removal of these connections falls on the respective owner, not the wastewater system. One advantage of a privatization strategy is that it would provide funds to allow the City to disconnect the connections that it owns and/or help subsidize removal program for private connections.

3.2 Utility Plant Upgrade Approach

The approach proposed by Aquarion to upgrade the WPCF and the sewer collection system in Derby differs from the conventional study, design, bid, construct, finance and operate model followed by most municipal

wastewater facilities in several ways. Additionally, the tight site conditions, difficult soils beneath the site and the need to maintain permit compliance throughout the construction phase will make the WPCF upgrade a challenging project to implement. In the conventional process, these risks are addressed in bidding by adding either very large contingency costs or structuring a contract with ample opportunity for change orders. Aquarion proposes to use a design build process that will mitigate those inflationary concerns.

First, Aquarion will propose a series of ICIs to upgrade the WPCF based on prioritization to maintain permit compliance in lieu of a single comprehensive contract that requires significant financing via bonds as proposed by the conventional design, bid, finance and construct model. The hydraulic limitation of the grit chamber and the bypass channels leading to and from this unit operation will be a priority since this has resulted in previous permit violations and significantly impacted downstream processes due to lack of screening/grit removal during long periods of downtime and/or low removal



Aerated and Anoxic Zones During Secondary Treatment

performance. Likewise, we believe that the entire headworks consisting of influent pumps, mechanical screens and

a more efficient grit removal process should be addressed as the first ICI. Our initial assessment of how to address these unit operations differs from the recent studies completed for Derby, but suffice it to say that both the previous studies and our assessment agree that new influent pumps, new mechanical screens and a modified grit removal with a grit classifier/washer is warranted. Other ICIs to be formulated and implemented include: electrical system upgrades, primary clarification improvements; upgrades to the biological MLE process (including optimization of the aeration system, improved return and waste sludge pumping, modified process piping to allow the operators greater flexibility to step-feed during high flow periods, supplemental carbon addition if warranted, etc.); secondary clarification improvements; sludge processing modifications; support facilities upgrades (such as a new plant water system, odor control systems); fully integrating the instrumentation and controls (I&C) into an overall SCADA system; and support building upgrades.

Second, Aquarion plans to formulate a systematic master plan for the removal of I/I that currently results in excessive peak influent flows at the WPCF during wet weather periods. The objective is to remove excessive I/I in order that the unit operations throughout the liquid treatment train do not have to be designed to handle the current peak flows. It should be recognized that certain pipe replacement and/or relining programs are not efficient means of removing infiltration as it will still find the path of least resistance to enter a sewer system (i.e., infiltration may not enter the sewer system where a pipe has been relined, but the infiltration will find a mechanism to enter the sewer via laterals and other unlined sewers). We believe the initial focus should be on reducing inflow via removal of catch basins and roof leaders that are connected to the sanitary sewers that will result in, lower peak flows, smaller unit operations and longer term stability in capital design requirements.

Aquarion has successfully implemented significant upgrades at both water and wastewater treatment plants through a series of ICIs managed and designed by the senior Aquarion process team. The process implemented begins with a focused value engineering (VE) review to assess potential ICIs, formulate and develop optimal process upgrades, assess constructability issues, establish a schedule for phasing the ICIs, and a detailed assessment of SCADA and automation in general. The VE team typically includes the program manager, process design lead, I&C/SCADA engineer, civil/site engineer, cost estimator and a construction manager. Aquarion maintains a list of pre-qualified suppliers and contractors that we have established over the years. These relationships are invaluable and have resulted in excellent workmanship, timely construction and cost effective solutions.

As part of the RFQ process, Aquarion engineers have already: reviewed historical reports and the recent Facilities Plan and the NVCOG Regionalization reports; conducted site reconnaissance visits; and interviewed the Derby operators. In general we have identified a preliminary approach forward that includes elements of both the Facilities Plan and NVCOG regionalization studies, while also being cognizant of implementing a simple, reliable and flexible design that is properly tailored to the needs of the Derby sewer users while ensuring regulatory compliance.

3.3 Treatment of Rates

As outlined in Section 3.2 of this report and various historical engineering reports, significant capital investment is required for the Derby wastewater system. Whether the system is privatized or remains municipal owned, rate increases will be required over the longer term. Aquarion believes, though, that its approach to upgrading the system and ensuring efficient operations will result in the best long rate trajectory for the Derby ratepayers.

The initial setting of wastewater rates will happen with the approval by PURA and come as a result of a joint application made to PURA by Aquarion and the City of Derby to approve the sale of assets. This application will assess the overall cost of providing wastewater services to Derby and a projected capital investment. During this transparent process, all relevant stakeholders, including the Office of Consumer Counsel (OCC), local politicians, environmental regulators, and the general public will be given the opportunity to both review the application and provide input for the record.

Based on an initial review of the cost of service and projected capital improvements, Aquarion believes rates can be frozen at the current levels for a period time following the transaction—meaning that no immediate rate increase would be required. Once significant capital improvements are made to the system and that infrastructure is actually in service, it is very likely that Aquarion would be required to raise rates. Preliminary financial forecasting indicates that rate increases would trend close to inflation. Any increase in rates would follow a similar process to the initial application and provide ample opportunity for public input and a thorough review of all relevant financial and operational information. Please note though, these conclusions are preliminary and would be subject to additional due diligence.

3.4 Staffing

Hiring, retaining, growing, and motivating qualified staff is a core function for Aquarion. Aquarion has been named one of the best places to work in Connecticut by Hearst Media 5 times, including in 2020.

As explained in Section 3.1 retaining the staff of the Derby wastewater system would be a top priority. Our understanding is that the Derby WPCA staff consists of nine individuals including the superintendent, an administrative assistant, one laboratory technician, two collection system operators for the pump stations and sewers and five mechanics, operators and technicians for maintaining the WPCF. Aquarion believes the current staffing level appears reasonable recognizing the limitation of having very few operations automated. Further, the Aquarion staff is impressed with the Derby operators and what they have been able to accomplish with a number of the unit operations having far exceeded their useful lives. We anticipate that all current Derby WPCA staff willing to interview and successfully pass standard background checks will be offered employment with Aquarion. Aquarion will also coordinate with CTDEEP to assess staffing ratios based on other WPCFs across the state.

As employees of Aquarion some of the benefits that the Derby staff would enjoy are:

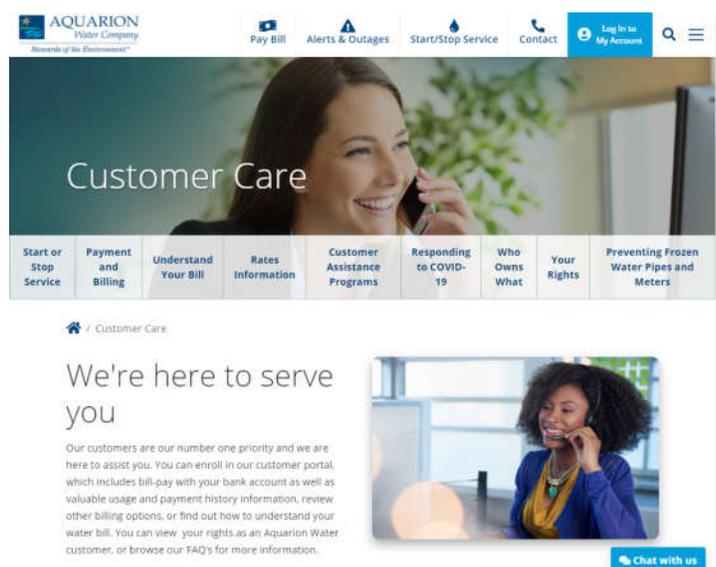
- Industry competitive pay
- Competitive medical, dental, vision, and life insurance plans
- 401k savings plan with up to 100% match on the first 6% of employee contributions
- Paid time off (vacation and sick time)
- Paid family leave
- Tuition reimbursement up to a maximum annual amount of \$5,400

Additionally, Aquarion would actively support the staff at the wastewater plant in obtaining additional wastewater and/or water licensing and other continuing education opportunities to support future promotional opportunities.

3.5 Customer Service and Billing

Customer service and billing activities will be managed from Aquarion’s Bridgeport and Monroe facilities. Any customer request that requires assistance from field personnel would be immediately routed to the appropriate supervisor through Aquarion’s enterprise resource management systems and that staff member dispatched from either the Derby facility or Bridgeport.

Customers will also have options to connect with customer service through Aquarion’s website, online chat, or supported social media channels. Additionally over 50% of Aquarion’s customers are currently enrolled in ebilling and the same service would be extended to Derby wastewater customers.



Most Aquarion customers are billed monthly for their usage. This is considered an industry best practice as it gives customers the opportunity to more quickly respond to leaks or other consumption that could affect their

bill and also promotes conservation. Derby sewer bills are currently based on consumption for the nine non-summer months and then annualized into a yearly amount and then broken up into 2 yearly payments. Aquarion would look for opportunities to move to a monthly billing plan to allow for smaller incremental payments by customers and help promote overall conservation goals.

See Section 2.6 for more information about Aquarion’s overall customer service process and organization.

3.6 Regionalization

Aquarion is a regional company, that owns and runs a large regional infrastructure network to the benefit of its customers, and supports the principal of regionalizing water and wastewater assets and operations.

The NVCOG has hired Black and Veatch (B&V) to perform a Regionalization Study. The study assessed the potential to upgrade the Derby WPCF and explored the potential for regionalization between Naugatuck, Seymour, Beacon Falls, Ansonia and Derby. The study evaluated baseline upgrades for each of the five communities (i.e., each community continues with their own dedicated collection systems and wastewater treatment plants) as well as 23 wastewater regional alternatives that consider various combinations of communities located at one of the existing WPCFs in the five communities. The recommended regional alternative is to consolidate the wastewater systems of Seymour, Ansonia and Derby at a regional facility located within Ansonia. Options have also been produced for regional governance models, but no final recommendations have been made.

In our opinion, the regionalization study has produced interesting data points, but does not definitively conclude that a regional solution centered around a single treatment facility is the most cost effective solution.

Points to consider:

- The costs estimates for the single treatment plant solution located in Ansonia included 40% contingencies. The total projected savings from the regional solution is estimated at a 10% reduction over 20 years. Given the high contingencies the projected 10% savings is far from certain. It is also notable that the regionalization approach includes significant pipeline and force main extensions. While the unit cost for these seems reasonable, significant utility coordination will be required for construction of these mains, introducing significant schedule risk to bringing a regional plant online.
- The capital costs for the base case improvements and the regional solution are almost identical. Any projected savings comes from reduced O&M costs.
- The engineering options have not included a constructability analysis at a regional plant. The constructability analysis is important to understand the feasibility of rebuilding/upgrading the Ansonia plant while it remains active.
- The costs in the study do not include any decommissioning or environmental clean-up required to return an unneeded treatment facility into a developable parcel of land.
- Governance models have not been agreed to, the value of the existing infrastructure has not been determined and an equitable contribution for each town has not been determined.

By all accounts, the study is accomplishing the goals it outlined in its initial scope of work, but it’s unclear to Aquarion whether the proposed regional solution is the best option for the City and its wastewater customers.

3.7 Administrative Orders

The City of Derby was issued Administrative Order (Order) AOWRMU15003 by the Connecticut Department of Environmental Protection (CTDEEP) on August 3, 2015. In part the Order references that: the WPCF has an unpermitted structure for bypass and flood control pumping that allows untreated sewage to discharge to the Housatonic River; the mechanical reliability of the entire WPCF is lessening due to its significant age; there have been a number of data violations and a notice of violation (NOV) was issued on May 19, 2015; and non-functioning equipment has been noted by CTDEEP. The City responded to the CTDEEP Order on September 28, 2015 and questioned a number of the elements stated within the Order. At about the same time the NVCOG initiated a study to assess the potential for regionalization of the wastewater systems within Naugatuck, Beacon Falls, Seymour, Ansonia and Derby. CTDEEP has “paused” the Derby Order until after completion of the Naugatuck Valley Wastewater Regionalization study in order to provide a window of opportunity for evaluating the feasibility of a regionalization option in lieu of upgrading the Derby WPCF as a stand-alone wastewater asset. The regionalization study is scheduled for completion by the end of 2021.

The Derby wastewater acquisition process will require regulatory approval and the status of all Orders would be addressed during that proceeding. CTDEEP will be intimately involved, along with PURA and the Connecticut OCC, throughout the regulatory review and approval process. We anticipate that CTDEEP will reassess the existing Order and compliance schedule once it is determined to proceed with an asset sale, a regionalization approach or the City continuing to own and operate the wastewater collection and treatment facilities.

As part of the regulatory approval process, Aquarion will propose and commit to implementing a series of ICIs to be implemented and financed over a defined time period in order to provide critical upgrades and rate stabilization to the Derby wastewater users. Aquarion believes the privatization model to define and implement a series of ICI projects in lieu of one-time complete overhaul will result in a more cost effective solution resulting in lower and more stabilized rates to the City of Derby. It will be critical for the City and Aquarion to collaboratively address the current Order and compliance schedule with CTDEEP to avoid the proposed near-term financing for implementing a complete system-wide upgrade.

ATTACHMENT A: FINANCIAL STATEMENTS

AUDITED FINANCIAL STATEMENTS

Aquarion Water Company of Connecticut

As of and for the years ended December 31, 2020 and 2019

INDEPENDENT AUDITORS' REPORT

To the Board of Directors of Aquarion Water Company of Connecticut

We have audited the accompanying financial statements of Aquarion Water Company of Connecticut (the "Company"), which comprise the balance sheets as of December 31, 2020 and 2019, and the related statements of operations, comprehensive income, stockholder's equity, and cash flows for the years then ended, and the related notes to the financial statements.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

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

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Company's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

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

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Aquarion Water Company of Connecticut as of December 31, 2020 and 2019, and the results of its operations and its cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Deloitte & Touche LLP

March 26, 2021

Aquarion Water Company of Connecticut
Balance Sheets
As of December 31, 2020 and 2019

(Dollars in thousands, except per share amounts)

<u>Assets and Other Debits</u>	<u>2020</u>	<u>2019</u>	<u>Liabilities and Stockholder's Equity</u>	<u>2020</u>	<u>2019</u>
<u>Property, Plant and Equipment</u>			<u>Stockholder's Equity</u>		
Utility Plant	\$ 1,679,499	\$ 1,574,839	Common stock - \$10 par value, 1,009,385 shares outstanding, 2,000,000 authorized	\$ 10,094	\$ 10,094
Less: Accumulated depreciation	(486,162)	(471,825)	Paid in capital	1,236	1,236
Net utility plant	<u>1,193,337</u>	<u>1,103,014</u>	Contributed capital	211,399	196,399
Non-utility property and equipment	2,501	2,459	Retained earnings	<u>285,189</u>	<u>257,274</u>
Less: Accumulated depreciation	(1,429)	(1,411)	Total	<u>507,918</u>	<u>465,003</u>
Net non-utility property and equipment	<u>1,072</u>	<u>1,048</u>			
			<u>Long-Term Debt</u>		
<u>Current Assets</u>			Other long-term debt	<u>311,204</u>	<u>350,753</u>
Cash and cash equivalents	102	163	Net Long-Term Debt	<u>311,204</u>	<u>350,753</u>
Restricted cash	15	153			
Accounts receivables, net of reserves of \$2,590 and \$2,099 as of December 31, 2020 and 2019, respectively	14,644	11,150	<u>Current and Accrued Liabilities</u>		
Other receivables	437	682	Accounts payable and accrued liabilities	25,839	25,049
Accrued revenues	8,232	8,228	Current maturities of long-term debt	40,000	-
Materials and supplies, at cost	1,637	1,659	Amounts due to associated companies	38,340	1,248
Prepayments	2,961	2,590	Accrued interest	3,783	3,730
Regulatory assets - current	1,107	8,758	Regulatory liabilities - current	5,348	452
Other current assets	3,358	3,113	Short term lease obligations	112	108
Total	<u>32,493</u>	<u>36,496</u>	Total	<u>113,422</u>	<u>30,587</u>
			<u>Commitments and Contingencies</u>		
<u>Other Assets</u>			<u>Other Liabilities and Deferred Credits</u>		
Goodwill	44,189	44,064	Deferred taxes and investment tax credits	129,362	118,964
Unfunded deferred taxes	96,209	80,912	Contributions in aid of and customers' advances for construction	173,553	170,004
Deferred pension and OPEB regulatory asset	51,792	45,806	Deferred pension and OPEB	70,223	70,515
Right of use assets	559	667	Regulatory liabilities - long term	137,104	126,263
Regulatory assets - long term	28,706	25,537	Other long-term liabilities	5,124	4,896
Total	<u>221,455</u>	<u>196,986</u>	Long term lease obligations	447	559
			Total	<u>515,813</u>	<u>491,201</u>
Total Assets and Other Debits	<u>\$ 1,448,357</u>	<u>\$ 1,337,544</u>	Total Liabilities and Stockholder's Equity	<u>\$ 1,448,357</u>	<u>\$ 1,337,544</u>

See accompanying notes.

Aquarion Water Company of Connecticut
Statements of Operations
For the Years Ended December 31, 2020 and 2019
(Dollars in thousands)

	For the Year Ended December 31,	
	2020	2019
Revenues	\$ 189,592	\$ 184,613
Costs and expenses:		
Operating, maintenance and general expenses	70,463	66,818
Depreciation	40,656	42,930
Taxes other than income	17,336	16,194
Total costs and expenses	128,455	125,942
Operating income	61,138	58,671
Other (income)/expense, net	(194)	886
Interest expense	15,818	15,323
Allowance for funds used during construction	(1,490)	(1,000)
Income before income taxes	47,004	43,462
Income tax expense	1,589	2,113
Net income	\$ 45,415	\$ 41,349

See accompanying notes.

Aquarion Water Company of Connecticut
Statements of Other Comprehensive Income
For the Years Ended December 31, 2020 and 2019

(Dollars in thousands)

	For the Year Ended December 31,	
	2020	2019
Net income	\$ 45,415	\$ 41,349
Unrealized gain (loss) on investments net of taxes of \$0 and \$0 in 2020 and 2019, respectively	-	-
Total comprehensive income	<u>\$ 45,415</u>	<u>\$ 41,349</u>

See accompanying notes.

Aquarion Water Company of Connecticut
Statements of Stockholder's Equity
As of December 31, 2020 and 2019
(Dollars in thousands, except per share amounts)

	Common Stock		Paid In Capital	Contributed Capital	Accumulated		Stockholder's Equity
	Shares	Par Value			Other Comprehensive Income	Retained Earnings	
Balance at December 31, 2018	1,009,385	\$ 10,094	\$ 1,236	\$ 161,399	\$ 145	\$ 238,080	\$ 410,954
Adoption of ASU 2016-01	-	-	-	-	(145)	145	-
Net income	-	-	-	-	-	41,349	41,349
Common stock dividends	-	-	-	-	-	(22,300)	(22,300)
Contribution from parent company	-	-	-	35,000	-	-	35,000
Balance at December 31, 2019	1,009,385	\$ 10,094	\$ 1,236	\$ 196,399	\$ -	\$ 257,274	\$ 465,003
Net income	-	-	-	-	-	45,415	45,415
Common stock dividends	-	-	-	-	-	(17,500)	(17,500)
Contribution from parent company	-	-	-	15,000	-	-	15,000
Balance at December 31, 2020	1,009,385	\$ 10,094	\$ 1,236	\$ 211,399	\$ -	\$ 285,189	\$ 507,918

See accompanying notes.

Aquarion Water Company of Connecticut
Statements of Cash Flows
For the Years Ended December 31, 2020 and 2019
(Dollars in thousands)

	For the Year Ended December 31,	
	2020	2019
Cash flows from operating activities:		
Net income	\$ 45,415	\$ 41,349
Adjustments reconciling net income to net cash provided by operating activities:		
Depreciation and amortization	43,093	45,249
Equity portion of AFUDC	(1,490)	(1,000)
Provision for losses on accounts receivable	605	301
Deferred income taxes	(2,316)	(2,122)
Gain on sale of property	(1,508)	-
Other	35	176
Changes in assets and liabilities (Note 10)	(10,861)	(3,122)
Net cash provided by operating activities	72,973	80,831
Cash flows from investing activities:		
Capital additions, excluding AFUDC	(108,493)	(106,662)
Proceeds from sale of land	2,000	-
Debt portion of AFUDC	(1,395)	(935)
Other	(1,033)	(676)
Net cash used in investing activities	(108,921)	(108,273)
Cash flows from financing activities:		
Proceeds from issuance of long-term debt	-	45,000
Advances and contributions in aid of construction	1,451	904
Refunds on advances for construction	(294)	(318)
Capital contribution	15,000	35,000
Intercompany notes receipts/(payments), net	37,092	(30,698)
Common dividends paid	(17,500)	(22,300)
Bond financing charges	-	(45)
Net cash provided by financing activities	35,749	27,543
Net increase (decrease) in cash, cash equivalents and restricted cash	(199)	101
Cash, cash equivalents and restricted cash at beginning of year	316	215
Cash, cash equivalents and restricted cash at end of year	\$ 117	\$ 316

See accompanying notes.

Aquarion Water Company of Connecticut
Notes to Audited Financial Statements
(Dollars in thousands)

1. Organization and Operation

Aquarion Water Company of Connecticut, (“AWC of CT” or the “Company”), is a wholly-owned subsidiary of Aquarion Water Company, which is a wholly-owned subsidiary of Aquarion Company (Aquarion). Aquarion is a wholly-owned subsidiary of Eversource Aquarion Holdings, Inc. (“EAH”), which in turn is a wholly-owned subsidiary of Eversource Water Ventures (“EWV”), a subsidiary of Eversource Energy (“Eversource”). Subsequent to year-end, on March 4, 2021, EWV was collapsed into EAH and EAH was then collapsed into Aquarion. Aquarion is now a direct subsidiary of Eversource.

Utilities

The Company collects, treats and distributes water to residential, commercial and industrial customers, to other utilities for resale, and for private and municipal fire protection. It is regulated by several Connecticut agencies, including the Public Utilities Regulatory Authority (“PURA”). AWC of CT provides water to approximately 199,600 customers in 52 cities and towns in Connecticut, including communities served by other utilities to which water is available on a wholesale basis for back-up supply and peak demand purposes through AWC of CT’s Southwest Regional Pipeline.

COVID-19

The global pandemic of the 2019 novel coronavirus (“COVID-19”) resulted in widespread disruption to the financial markets and overall economy. The Company continues to respond to COVID-19 by taking steps to mitigate the potential risks to employees and customers. The Company anticipates incurring incremental costs associated with bad debt expense and working capital costs related to PURA’s shut off moratorium and the suspension of security deposits and late payment fees, as well as COVID-19 payment programs for customers. As of December 31, 2020 the Company has been filing monthly compliance filings with PURA. The extent of the impact to us in the future will vary and depend in large part on the duration, scope and severity of the pandemic and the timing and extent of COVID-19 relief legislation. The future impact will also depend on the outcome of our state regulatory commission. As a result we are currently unable to estimate the potential impact of COVID-19 to our financial position.

2. Summary of Significant Accounting Policies

Basis of Presentation

The Company’s accounting policies conform to accounting principles generally accepted in the United States (“GAAP”) and, as applied in the case of rate-regulated public utilities, include those policies contained in the Financial Accounting Standards Board (“FASB”) Accounting Standard Codification (“ASC”) Section 980, *Regulated Operations* (“ASC 980”) and comply with the Uniform System of Accounts and ratemaking practices

Aquarion Water Company of Connecticut
Notes to Audited Financial Statements
(Dollars in thousands)

prescribed by the Regulatory Authorities. A description of the Company's principal accounting policies follows.

Certain reclassifications of prior year data were made in the accompanying financial statements to conform to the current year presentation.

Regulation

The Company has incurred various costs and recorded certain credits, which have been reflected as regulatory assets and liabilities on the Company's Balance Sheet. Accounting for such costs and credits as regulatory assets and liabilities is in accordance with ASC 980, which sets forth the application of GAAP for those companies whose rates are established by or are subject to approval by an independent third-party regulator. Under ASC 980, regulated companies defer costs and credits on the balance sheet as regulatory assets and liabilities when it is probable that those costs and credits will be recognized in the rate setting process in a period different from the period in which they would have been reflected in income by an unregulated company. These deferred regulatory assets and liabilities are then reflected in the statement of operations in the period in which the same amounts are reflected in rates charged for service.

Regulatory assets consist of the following at December 31:

	<u>2020</u>	<u>2019</u>
Pension and OPEB costs	\$ 51,792	\$ 45,806
Unfunded deferred taxes	96,209	82,149
Due from ratepayer - Revenue Adjustment Mechanism	-	6,516
Deferred tank painting costs	10,873	9,712
Deferred drought costs	7,053	7,053
Deferred sales taxes	7,237	5,660
Unamortized debt issuance costs	807	858
Other regulatory assets	<u>3,843</u>	<u>3,259</u>
Total regulatory assets	177,814	161,013
Less: current portion	<u>1,107</u>	8,758
Total Long-Term Regulatory Assets	<u>\$ 176,707</u>	<u>\$ 152,255</u>

The Company believes, based on current regulatory circumstances, that the regulatory assets recorded are probable of recovery and that its use of regulatory accounting is appropriate. Material regulatory assets are earning a return.

Regulatory liabilities consist of the following at December 31:

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	<u>2020</u>	<u>2019</u>
Return to ratepayers - Excess Deferred Income Taxes	\$ 50,771	\$ 50,771
Unfunded deferred taxes	1,346	-
Cost of removal	67,640	60,967
Return to ratepayers - Tangible Property Regulation	8,005	8,005
Return to ratepayers - Federal Tax Revenue Adjustment	10,722	6,554
Return to ratepayers - Revenue Adjustment Mechanism	3,522	-
Return to ratepayers - Earning Sharing Mechanism	(34)	(34)
Other	480	452
Total regulatory liabilities	<u>142,452</u>	<u>126,715</u>
Less: current portion	5,348	452
Total Long-Term Regulatory Liabilities	<u>\$ 137,104</u>	<u>\$ 126,263</u>

Property, Plant and Equipment

Property, plant and equipment is stated at cost. The costs of additions to and replacements of retired units of utility plant are capitalized. Costs include charges for direct material, labor and services, and indirect charges related to construction, such as engineering, supervision, payroll taxes and employee benefits. The Company also capitalizes an allowance for funds used during construction (“AFUDC”) equivalent to the cost of funds devoted to plant under construction. Property modifications and improvements are capitalized. Expenditures for repairs and maintenance are charged to expense as incurred.

At the time depreciable utility property is retired or disposed of, the carrying amount, less salvage, is charged to accumulated depreciation in accordance with the Uniform System of Accounts prescribed by the PURA. Upon disposal or retirement of depreciable non-utility property, the appropriate plant and equipment and accumulated depreciation are reduced, with any resulting gain or loss recognized in the statements of operations.

For financial reporting purposes, depreciation is provided for using the straight-line method over the estimated service lives of the respective assets and includes amounts relating to cost of removal. The composite depreciation rate was 2.77% and 3.11% at December 31, 2020 and 2019, respectively. Service lives for utility plant are determined by independent engineers and subject to review and approval by the PURA.

The Company had no material asset retirement obligations at December 31, 2020 or 2019.

Cash, Cash Equivalents and Restricted Cash

The Company considers all highly liquid investments that have a maturity of three months or less when purchased to be cash equivalents.

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Restricted cash balances as of December 31, 2020 and 2019 relate to cash on hand to cover medical claims.

Concentration of credit risk

The Company maintains an estimated allowance for uncollectible trade receivables based on a percentage factor applied to each aging category of such receivables. The Company monitors the aging of receivables and for delinquent accounts billed on a quarterly basis a 30-day reminder notice followed by a 60-day shut-off notice will be sent. Delinquent accounts billed on a monthly basis will receive a shut-off notice at 36 days. The Company is allowed to terminate water service to non-paying single-family, commercial and industrial quarterly and monthly customers per regulation and commences shut-off at 75 days and 51 days past due, respectively. Due to the COVID-19 pandemic, the PURA required the Company to suspend shutoffs through the end of 2020. No interest or late fees were assessed, and no security deposits were required during the year. Dunning was resumed in January 2021, and the Company resumed shut offs on February 5, 2021. COVID-19 payment programs were communicated to customers in various channels per PURA order and have been extended through April 20, 2021.

The Company is allowed to pursue receivership action in the courts for multi-family accounts. The Company does require deposits from tenants, but these deposits are returned to the customer (with interest) after one year if they demonstrate that they are good payers. Final billed and non-water accounts that cannot be collected after notice are placed with a collection agency. If the agency is unsuccessful, the account is written off against the reserve.

The Company limits its risk exposure for cash equivalents by investing in investment grade debt instruments and using multiple, highly rated financial institutions as trustees.

Allowance for Funds Used During Construction

AFUDC, as defined in the Uniform System of Accounts and permitted by the Regulatory Authorities, represents the net cost of borrowed funds used for construction during the construction period and a reasonable rate of return on other funds when used. AFUDC represents a noncash addition to income and utility plant. AFUDC is recognized by applying the last approved rate of return on rate base to construction projects exceeding \$10 and requiring more than one month to complete.

Utility plant under construction is not recognized as part of the Company's rate base for ratemaking purposes until such facilities are placed in service. Accordingly, the utilities capitalize AFUDC as a portion of the construction cost of utility plant until it is completed. Capitalized AFUDC is recovered through water service rates over the service lives of the facilities.

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Revenue Recognition

The Company recognizes revenue, based on PURA approved rates, for water consumed and billed, and for the estimated amount of water consumed but not billed at the end of each period. Unbilled revenue is reflected as accrued utility revenue in the accompanying balance sheets.

In connection with the Company's 2013 Rate Case, a Revenue Adjustment Mechanism ("RAM") was established that allows the Company to recognize revenue in an amount as defined by the PURA. If the Company earns less than the allowed amount in a given year, the Company will record additional revenues (recorded as a regulatory asset) to be collected from customers over a twelve month period the following year in the form of a Water Revenue Adjustment ("WRA") surcharge. If the Company earns more than the allowed amount in a given year, the Company must reduce revenues (recorded as a regulatory liability) and return the difference to its customers over a twelve month period the following year in the form of a WRA surcredit. The estimated 2020 RAM for the year ended December 31, 2020 is a surcredit of \$4,261, all of which remains outstanding at December 31, 2020. The 2019 authorized RAM resulted in a surcharge of \$5,641, of which \$739 is outstanding at December 31, 2020. The resulting estimated cumulative surcredit of \$3,522 will be returned to customers over twelve months commencing with the 2020 RAM effective date. The outstanding RAM surcharge balance of \$6,516 as of December 31, 2019 consisted of the full amount of the 2019 surcharge of \$5,641 and the remaining balance of the 2018 surcharge of \$875.

An Earning Sharing Mechanism ("ESM") was also implemented in connection with the Company's 2013 Rate Case. The ESM provides for any earnings in excess of the allowed return on equity to be shared equally between ratepayers and shareholders in the form of an ESM surcredit. The Company recorded an ESM surcredit related to earnings in excess of the allowed return for the year ending December 31, 2014 ("2014 ESM") of \$806 and \$971 in the year ended December 31, 2015 and 2014. During 2016 an overpayment of \$34 for the 2014 ESM was made to the ratepayers. The overpayment will be included in the earlier of either the next ESM filing or rate case. Earnings for the year ended December 31, 2020 and 2019 did not exceed the allowed return on equity.

Materials and supplies

Utility materials and supplies inventories are valued at average cost.

Fair value of financial instruments

Under the Disclosures topic of ASC 715, *Compensation - Retirement Benefits* ("ASC 715"), the Company is required to apply the fair value disclosures in accordance with ASC 820, *Fair Value Measurement* to disclose: (i) how fair value is determined for certain assets, and (ii) a hierarchy (for which these assets must be grouped), based on significant levels of inputs, as follows:

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- Level 1** quoted prices in active markets for identical assets or liabilities;
- Level 2** quoted prices in active markets for similar assets and liabilities and inputs that are observable for the asset or liabilities; or
- Level 3** unobservable inputs for which little or no market data exists, therefore requiring a company to develop its own assumptions, such as discounted cash flow models or valuations.

The determination of where assets and liabilities fall within this hierarchy is based upon the lowest level of input that is significant to the fair value measurement.

Long-Lived Assets

The Company reviews long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amount may not be fully recoverable. If such an evaluation is required, the estimated future undiscounted cash flows associated with the asset would be compared to the asset's carrying amount. If the sum of expected cash flows is less than the carrying amount, an impairment charge is recorded for the amount by which the carrying amount exceeds the fair value. The Company did not record any such impairment charge in 2020 and 2019.

Goodwill

Pursuant to the provisions of ASC 350, *Intangibles – Goodwill and Other* (“ASC 350”), as amended by Accounting Standards Update (“ASU”) No. 2017-04, *Simplifying the Test for Goodwill for Impairment* (“ASU 2017-04”), goodwill is not amortized and is subject to an annual impairment test. A goodwill impairment is the amount by which a reporting unit's carrying value exceeds its fair value, not to exceed the carrying amount of goodwill. The Company elected to perform a qualitative assessment as of October 1, 2020 and determined a quantitative impairment test was not necessary. There was no impairment of goodwill recorded in 2020 or 2019. None of the Company's goodwill is deductible for tax purposes.

Customer Advances for Construction/Contributions in Aid of Construction

The Company receives cash advances from developers and customers to finance construction of new water main extensions. These advances are partially refunded over a ten-year period as water revenues are earned from those new customers. Any remaining non-refunded balances are reclassified to contributions in aid of construction and are no longer refundable.

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Transactions with Affiliated Companies

For the years ended December 31, 2020 and 2019, the Company reported \$4,214 (representing charges for electric and gas usage) and \$3,712, respectively, of expense for the value of services provided by Eversource and \$112 and \$111, respectively, of revenue for the value of services provided to Eversource. The Company borrows and lends short-term funds from/to Aquarion at negotiated rates, which are reflected as notes payable and notes receivable to/from Aquarion in the accompanying balance sheets. From these transactions there was approximately \$92 of net interest expense for year ended December 31, 2020 and \$1,098 net interest expense for the year ended December 31, 2019.

Included in operating expenses is an allocation of corporate charges of \$1,065 and \$1,162 from Aquarion in 2020 and 2019, respectively.

The Company provides certain management services (administration, accounting, data processing, engineering, etc.) to other Aquarion water companies, at cost, in accordance with a management and service agreement. Reimbursements for these expenses amounted to \$855 and \$1,295 for such services during 2020 and 2019, respectively, and are included in the statements of operations as reductions to operating expenses.

Income taxes

The Company, its parent and affiliates (“Consolidated Group”) are included in Eversource’s consolidated Federal income tax return. Federal income tax expense for financial reporting purposes is provided on a separate return basis, except that the Federal income tax rate applicable to the Consolidated Group is applied to separate company taxable income and is recognized currently. The Company provides deferred taxes for all temporary book-tax differences using the liability method as modified by ASC 980. The liability method requires that deferred tax balances be adjusted to reflect enacted future tax rates that are anticipated to be in effect when the temporary differences reverse. In accordance with GAAP for regulated industries, the Company reflects as income tax expense the amount of tax currently payable, except for accelerated depreciation since 1981 and the tax effect of post-1986 contributions in aid of construction, for which deferred income taxes have been provided on an annual basis. This method, known as the flow-through method of accounting, is consistent with ratemaking policies of the PURA. The Company has established assets and liabilities that reflect anticipated future ratemaking effects of deferred tax provisions arising from the implementation of the liability method, which are reflected as unfunded deferred taxes in the accompanying balance sheets. Deferred investment tax credits are amortized ratably over the book life of property. The annual amortization of the investment tax credit is \$152. It is available through 2024.

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Estimates

The accompanying financial statements reflect judgments and estimates made in preparation of these statements and in the application of its accounting policies. Actual results may differ from these estimates.

Employee benefits

The Company participates in Aquarion's consolidated noncontributory defined benefit pension plans and other post-employment medical plans. These plans are accounted for in accordance with ASC 715.

Accounting Standards

The effective dates of the following accounting standards reflect the requirements for private companies. However, the Company may implement the guidance at an earlier date to conform to the accounting policies of its parent company.

New Standards to be Implemented

In December 2019, the FASB issued Accounting Standards Update (ASU) 2019-12, *Income Taxes - Simplifying the Accounting for Income Taxes*, which eliminates certain exceptions to the general principles of current income tax guidance in ASC 740 and simplifies and improves consistency in application of that income tax guidance through clarifications of and amendments to ASC 740. The guidance is effective in the first quarter of 2021. The standard is not expected to have a material impact on the financial statements.

Standards Implemented

In June 2016, the FASB issued ASU 2016-13, *Financial Instruments – Credit Losses*, which provides a new model for recognizing credit losses on financial instruments based on an estimate of current expected credit losses. Under the new guidance, immediate recognition of credit losses expected over the life of a financial instrument is required. The Company assessed the impacts of this standard on the accounting for credit losses on its financial instruments, including accounts receivable, and there was no material impact on its financial statements.

In January 2017, the FASB issued ASU 2017-04, *Intangibles – Goodwill and Other, Simplifying the Test for Goodwill Impairment* as of January 1, 2020. The standard simplified the accounting for goodwill impairment by removing a complex step in the goodwill impairment test. Under the guidance, goodwill impairment is measured as the amount by which its carrying value exceeds its fair value. The guidance did not have an impact on the financial statements.

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In August 2018, the FASB issued ASU 2018-14, *Compensation – Retirement Benefits – Defined Benefit Plans – General, Disclosure Framework – Changes to the Disclosure for Defined Benefit Plans*. The guidance eliminated certain disclosures about defined benefit plans, added new disclosures, and clarified other requirements. The guidance is effective for fiscal years ending after December 15, 2020. Adoption of this guidance does not have a material effect on our financial statement disclosures. The modified disclosures are included in Note 8 “Employee Benefit Plans.”

3. Regulatory Matters

As necessary, the Company applies to PURA for changes in the rates charged for water service. Such rate requests are based on an historic test year, selected by the Company as the base period, adjusted for known changes, such as changes in customer base and/or consumption patterns; planned changes in operating and maintenance expenses; and planned changes in tax rates.

The following table provides rate authorizations with effective dates after January 1, 2019:

Filing Type	Approved	Effective	Authorized:	
			Annual Revenue Impact	Rate Impact
RAM Surcharge	March 2019	April 2019	4,355	2.59%
WICA Surcharge	March 2019	April 2019	2,611	1.52%
WICA Surcharge	September 2019	October 2019	1,240	0.72%
RAM Surcharge	March 2020	April 2020	5,715	3.37%
WICA Surcharge	March 2020	April 2020	3,367	1.96%
WICA Surcharge	September 2020	October 2020	1,197	0.70%

The Connecticut Water Infrastructure and Conservation Adjustment (“CT WICA”) program allows for the implementation of a rate adjustment between rate cases, not to exceed 5% annually or 10% in total, to recover eligible costs associated with the replacement and/or rehabilitation of existing water infrastructure. The cumulative WICA surcharge at December 31, 2020 and 2019 is 9.64% and 6.99%, respectively. In January 2021, AWC-CT filed an application for an additional WICA surcharge of 0.14%, or \$249 of revenue, if approved will be effective April 1, 2021 and result in a cumulative surcharge of 9.78%.

4. Income Taxes

Income tax expense for the years ended December 31 consists of the following:

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	<u>2020</u>	<u>2019</u>
Current		
Federal	\$ 3,434	\$ 3,719
State	471	514
Total current	<u>3,906</u>	<u>4,233</u>
Deferred		
Federal	(733)	(1,476)
State	(1,584)	(644)
Total deferred	<u>(2,317)</u>	<u>(2,120)</u>
Total income tax expense	<u>\$ 1,589</u>	<u>\$ 2,113</u>

A reconciliation of the statutory federal income tax rate to the effective income tax rate for the years ended December 31, is as follows:

	<u>2020</u>		<u>2019</u>	
Tax at statutory rate	21.00	%	21.00	%
Increase (reductions) in taxes resulting from:				
State taxes, net of federal income taxes	1.00		1.40	
Tax credits	(2.90)		(1.70)	
Land sale gains	(0.60)		-	
Repairs and maintenance	(16.00)		(13.50)	
Excess depreciation and cost of removal	2.30		3.50	
Deferred tank painting and drought costs	(1.30)		(0.80)	
Capitalized interest	(0.80)		(0.60)	
RAM and ESM	4.50		(0.30)	
Pension and retiree medical	(2.80)		(3.50)	
Insurance	(0.30)		(0.30)	
Other items, net	(0.60)		(0.30)	
Effective tax rate	<u>3.50</u>	<u>%</u>	<u>4.90</u>	<u>%</u>

The state tax credit line item is presented net of a valuation allowance of 2.90% and 4.60%, for the years 2020 and 2019, respectively.

Deferred tax liabilities (assets) at December 31, were comprised of the following:

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	<u>2020</u>	<u>2019</u>
Utility temporary difference	\$ 35,697	\$ 33,986
Depreciation	125,039	115,521
Regulatory asset - post retiree benefits	15,081	13,469
Total deferred tax liabilities	<u>175,817</u>	<u>162,976</u>
State Open Space credit	29,820	29,820
State Fixed Capital credit	10,767	8,216
Utility temporary difference	2,093	2,711
Pension and post retiree medical	20,769	20,837
Excess deferred income taxes	13,670	13,670
Other	6,144	4,162
Total deferred tax assets	<u>83,263</u>	<u>79,416</u>
Valuation allowance for deferred tax assets	<u>(36,247)</u>	<u>(34,691)</u>
Net deferred tax assets	<u>47,016</u>	<u>44,725</u>
Investment tax credits	561	713
Net deferred tax liabilities	<u>\$ 129,362</u>	<u>\$ 118,964</u>

Investment tax credits represent a deferred credit and the Company has classified them within the "Deferred investment tax credits" line on its balance sheet.

The Company has \$37,747 (\$29,820 net of federal taxes) of state open space tax credits available which are expected to expire unused by the end of tax year 2026. A valuation allowance totaling \$29,820 has been recorded for the state open space credits of \$29,820 based on the Company's estimates regarding future utilization of these carry forwards. These estimates consider, among other factors, projected state taxable income, tangible property regulation deductions and utilization of Connecticut Fixed Capital Investment Credits. The Company continues to evaluate these factors and whether their trends constitute sufficient positive evidence to support the reversal of the valuation allowance (in full or in part). The Company has \$13,629 and \$10,400 of Connecticut Fixed Capital Investment Credits (\$10,767 and \$8,216, net of federal taxes) as of December 31, 2020 and 2019, respectively, which will expire between 2021 and 2025. Valuation allowances have been established totaling \$8,136 and \$6,165 (\$6,427 and \$4,871, net of federal taxes) as of December 31, 2020 and 2019, respectively. Management believes the remaining tax benefit arising from these credits will be realized in the carry forward periods against future taxes.

The Company does not have any uncertain tax positions as of December 31, 2020 and 2019.

The Company has fully funded its parent for its separate return tax liability, which is in accordance with the tax sharing agreement among the members of the Consolidated Group. The adoption of the tangible property regulations in 2013 resulted in a net federal

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taxable loss. On separate return basis, the Company elected to carry back the 2013 federal taxable loss to offset taxable income in the previous two years. As a result, the Company recorded a receivable for the carry back claim within the "Amounts due to associated companies" line on its balance sheet.

A portion of the receivable has been recovered as the benefit of the tangible property regulations deduction was returned to the ratepayers starting in 2015. As such, the Company has established a regulatory liability in the "Other Liabilities and Deferred Credits" section of its balance sheet. The Company has reduced the regulatory liability account by collecting less cash from its customers in 2015 and 2016. The Company's parent correspondingly funded the surcredits through reducing the Company's receivable from associates. The recovery of the receivable from the parent is in accordance with the tax sharing agreement among the members of the consolidated group. In 2016, the Company recorded a \$7,050 regulatory asset for drought costs that are expected to be recovered from the ratepayers as a surcharge. As such, the Company suspended the surcredits in 2017 and will net the remaining surcredits with the deferred drought costs as part of its next rate case.

As a result of Eversource's purchase of the Company's parent in 2017, the Company's parent filed its final federal and state tax returns in 2018. Tax year 2017 remains subject to examination for Federal and Connecticut.

On December 22, 2017, the Tax Cuts and Jobs Act ("TCJA") was signed into law. At the date of enactment, the Company's deferred taxes were re-measured based upon the new tax rate. As a regulated utility, the Company's change in deferred taxes is recorded as either an offset to a regulatory asset or liability and may be subject to refund to customers.

Reductions in accumulated deferred income tax balances due to the reduction in the corporate income tax rates to 21% under the provisions of the TCJA will result in amounts previously collected from utility customers for these deferred taxes to be refundable to such customers, generally through reductions in future rates. The TCJA includes provisions that stipulate how these excess deferred taxes are to be passed back to customers for certain accelerated tax depreciation benefits. The balance sheets at December 31, 2020 and 2019 reflect the impact of the TCJA on the Company's regulatory assets and liabilities which increased its regulatory liability by \$50,771. Of this amount, \$49,750 consists of excess deferred taxes for certain accelerated tax depreciation benefits, which the Company intends to provide to utility customers through reductions in future rates over the remaining book lives of its assets. These adjustments had no impact on the Company's 2020 and 2019 cash flows.

5. Long-Term Debt

Long-term debt at December 31 consisted of the following:

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	<u>2020</u>	<u>2019</u>
<u>Notes payable – unsecured</u>		
4.29% senior notes due August 15, 2032 (a)	\$ 60,000	\$ 60,000
3.75% senior notes due May 04, 2035 (a)	46,000	46,000
3.54% senior notes due December 15, 2049 (a)	45,000	45,000
5.50% note due April 1, 2021	40,000	40,000
4.00% senior notes due April 30, 2033 (a)	35,000	35,000
4.40% senior notes due February 21, 2032(a)	30,000	30,000
3.57% senior notes due September 1, 2037 (a)	30,000	30,000
3.67% senior notes due July 1, 2036 (a)	25,000	25,000
4.07% senior notes due April 30, 2033 (a)	15,000	15,000
6.43% senior notes due June 29, 2034 (a)	8,500	8,500
<u>Notes payable – secured</u>		
7.33% series due December 1, 2027 (a)	14,000	14,000
9.29% series due April 1, 2031 (a)	4,500	4,500
8.04% series due February 1, 2030 (b)	3,500	3,500
Series R, 6.875%, due November 1, 2028	5	5
	<u>356,505</u>	<u>356,505</u>
Less: current maturities of long-term debt	<u>40,000</u>	<u>-</u>
Long-term debt	<u>316,505</u>	<u>356,505</u>
Less: unamortized debt issuance costs	<u>5,301</u>	<u>5,752</u>
Net Long-Term Debt	<u>\$ 311,204</u>	<u>\$ 350,753</u>

(a) Callable subject to make-whole premium.

(b) Callable at 100%, if through condemnation or purchase of Company assets by a municipal or other governmental entity.

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Aggregate maturities on long-term debt for each of the five years succeeding December 31, 2020 is as follows:

<u>The year ended December 31</u>	
2021	\$ 40,000
2022	-
2023	-
2024	-
2025	-
Thereafter	<u>316,505</u>
Total	<u>\$ 356,505</u>

On December 12, 2019, the Company issued \$45,000 of 3.54% Senior Notes due December 15, 2049. The proceeds from this issuance were used to pay off the Company's short term debt.

The Company's unsecured debt agreements contain certain covenants typical of such agreements, the most restrictive of which requires the maintenance of total funded debt to total capital, as defined, of no more than 66.67%. The Company was in compliance with these covenants at December 31, 2020 and 2019.

6. Short-Term Borrowings

On August 20, 2019, the Company was added to Eversource's credit facility with a borrower sublimit of \$100,000. This facility will mature on December 8, 2023. There was nothing drawn under this facility as of December 31, 2020 and 2019.

7. Accumulated Other Comprehensive Income/(Loss)

The following table presents changes in accumulated other comprehensive income/(loss) by component, net of tax:

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	Unrealized gain/(loss) on investments
Balance at December 31, 2018	\$ 145
Other comprehensive income before reclassifications	-
Less: Amounts reclassified from AOCI	-
Other comprehensive income/(loss)	-
Adoption of ASU 2016-01	(145)
Balance at December 31, 2019	\$ -
Other comprehensive income before reclassifications	-
Less: Amounts reclassified from AOCI	-
Other comprehensive income/(loss)	-
Balance at December 31, 2020	\$ -

8. Employee Benefit Plans

Since several subsidiaries of Aquarion participate in Aquarion’s employee benefit plans, it is impractical to segregate the assets of the individual plans. Therefore, the following information presents the reconciliation of the Aquarion benefit plans as of December 31, 2020 and 2019. Certain disclosures of amounts which relate specifically to the Company are shown in the section entitled Segregated Disclosures.

Retirement Plans. Aquarion and certain of its subsidiaries have a noncontributory defined retirement pension plan (“Pension Plan”) covering qualified employees. The Pension Plan was closed for new participants since October 1, 2009 for non-union employees and January 1, 2011 for union employees. In general, Aquarion’s policy is to fund accrued pension costs. The Pension Plan’s assets are primarily invested in U.S. and foreign equities and debt securities issued by the U.S. government and corporations.

Postretirement Health Care Benefits. Aquarion and certain of its subsidiaries provide health benefits for substantially all retired employees (“Postretirement Plans”) and life insurance for a small group of retired individuals. Postretirement health benefits are not provided to employees hired after July 1, 1996. Aquarion amended the Postretirement Plan eligibility effective January 1, 2017 to include certain employees with at least twenty years of service. Both active and retired employees contribute a portion of the cost of medical benefits. Aquarion is funding its postretirement health care benefits through contributions to a Voluntary Employee Beneficiary Association Trust (“VEBA”). Aquarion’s tax-deductible contribution to the VEBA for calendar years ended December 31, 2020 and 2019 was \$1,924 and \$1,355, respectively. The Postretirement Plans assets are primarily invested in short-term investments.

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Aquarion follows the provisions of ASC 715, which requires Aquarion to recognize in its Consolidated Balance Sheet the funded status of a benefit plan. For the Pension Plan, this is measured as the difference between plan assets at fair value and the projected benefit obligation. For the Postretirement Plans, this is measured as the difference between the plan assets at fair value and the accumulated benefit obligation. In addition, ASC 715 requires Aquarion to recognize the gains or losses and prior service costs or credits that arise during the period but are not recognized as components of net periodic benefit cost. Under ASC 980, the net periodic benefit costs associated with the Company are recorded as a regulatory asset of \$51,792 and \$45,806 at December 31, 2020 and 2019, respectively, as the Regulatory Authorities have provided for full recovery of these costs in rates.

Pension and Postretirement Benefits

Based on an actuarial valuation as of December 31, the following table sets forth the funded status of Aquarion's qualified Pension Plan and Postretirement Plans as of December 31:

	<u>Pension Plan</u>		<u>Postretirement Plans</u>	
	<u>2020</u>	<u>2019</u>	<u>2020</u>	<u>2019</u>
<u>Change In Benefit Obligation</u>				
Benefit Obligation at Beginning of Year	\$ 172,565	\$ 146,072	\$ 50,222	\$ 46,264
Service Cost	2,848	2,544	78	91
Interest Cost	4,977	5,889	1,373	1,780
Actuarial (Gain)/Loss	15,358	23,813	2,408	4,118
Benefits Paid	(6,469)	(5,753)	(1,850)	(2,031)
Benefit Obligation at End of Year	\$ 189,279	\$ 172,565	\$ 52,231	\$ 50,222
<u>Change In Plan Assets</u>				
Fair Value Of Plan Assets At Beginning Of Year	\$ 125,728	\$ 99,370	\$ 24,423	\$ 20,982
Actual return on assets	15,919	19,611	3,249	4,117
Employer Contributions	9,600	12,500	1,924	1,355
Benefits Paid	(6,469)	(5,753)	(1,850)	(2,031)
Fair Value of Plan Assets at End of Year	\$ 144,778	\$ 125,728	\$ 27,746	\$ 24,423
<u>Net Amount Recognized</u>	\$ (44,501)	\$ (46,837)	\$ (24,485)	\$ (25,799)
<u>Amounts recognized in Balance Sheet consist of:</u>				
Noncurrent Liabilities	\$ 44,501	\$ 46,837	\$ 24,485	\$ 25,799

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The Pension Plan actuarial loss of \$15,358 and \$23,813 in 2020 and 2019, respectively, was due primarily to a change in the discount rate, mortality table and projection scale.

The Postretirement Plans actuarial loss of \$2,408 reported in 2020 was due primarily to a change in the discount rate, a change to the mortality projection scale, and per capital claims costs for the pre-65 plan were updated to reflect the new fully-insured plan structure.

The Postretirement Plans actuarial loss of \$4,118 reported in 2019 was due primarily to a change in the discount rate, a change to the mortality projection scale, asset returns higher than expected, and actual 2019 benefit payments were lower than expected.

The accumulated benefit obligation for the Pension Plan was \$170,121 and \$155,191 at December 31, 2020 and 2019, respectively.

The following table sets forth the components of amounts recognized in Regulatory Assets and Other Comprehensive Income at December 31 and changes recognized in Regulatory Assets and Other Comprehensive Income for the years ended December 31:

	<u>Pension Plan</u>		<u>Postretirement Plans</u>	
	<u>2020</u>	<u>2019</u>	<u>2020</u>	<u>2019</u>
<u>Amounts recognized in Regulatory Assets consist of:</u>				
Net Loss	\$ 48,365	\$ 43,816	\$ 5,057	\$ 4,077
Prior Service Cost (Credit)	491	637	539	1,012
<u>Amounts recognized in Accumulated Other Comprehensive Income consist of:</u>				
Net Loss	\$ 678	\$ 929	\$ 34	\$ 186
Prior Service Cost (Credit)	8	13	-	(1)
<u>Other Changes in Plan Assets and Benefit Obligations Recognized in Other Comprehensive Income:</u>				
Net (Gain)/Loss	\$ (251)	\$ (802)	\$ (152)	\$ (34)
Amortization of Prior Service Cost	(5)	(5)	1	29
Total recognized in other comprehensive	<u>\$ (256)</u>	<u>\$ (807)</u>	<u>\$ (151)</u>	<u>\$ (5)</u>
<u>Other Changes in Plan Assets and Benefit Obligations Recognized in Regulatory Assets:</u>				
Net (Gain)/Loss	\$ 4,549	\$ 9,052	\$ 980	\$ 1,340
Amortization of Prior Service Cost	(146)	(167)	(473)	1,718
Total recognized in regulatory asset	<u>\$ 4,403</u>	<u>\$ 8,885</u>	<u>\$ 507</u>	<u>\$ 3,058</u>

The components of the net periodic benefit cost and the weighted average assumptions for the Pension Plan for the years ended December 31 were as follows:

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	<u>Pension Plan</u>		<u>Postretirement Plans</u>	
	<u>2020</u>	<u>2019</u>	<u>2020</u>	<u>2019</u>
<u>Components Of Net Periodic Benefit Cost</u>				
Service Cost	\$ 2,848	\$ 2,544	\$ 78	\$ 91
Interest Cost	4,977	5,889	1,373	1,780
Expected Return on Plan Assets	(8,648)	(7,067)	(1,524)	(1,304)
Amortizations:				
Prior Service Cost (Credit)	151	172	473	(1,748)
Net Loss	3,790	3,019	-	-
Net Periodic Benefit Cost	<u>\$ 3,118</u>	<u>\$ 4,557</u>	<u>\$ 400</u>	<u>\$ (1,181)</u>

The weighted-average assumptions used in the actuarial calculations for the Pension Plan and Postretirement Plans were as follows:

	<u>Pension Plan</u>		<u>Postretirement Plans</u>	
	<u>2020</u>	<u>2019</u>	<u>2020</u>	<u>2019</u>
Weighted Average Assumptions:				
Discount Rate for projected benefit obligation	2.70%	3.35%	2.60%	3.28%
Discount Rate for net periodic benefit cost	2.99%/2.02%	3.55%/2.94%	3.28%	4.41%
Expected Return on Plan Assets	7.00%	7.00%	7.00%/5.40%	7.00%/5.40%
Rate of Compensation Increase	4.00%	4.00%	N/A	N/A

The fair values of Pension Plan assets at December 31 by asset category are as follows:

	<u>As of December 31, 2020</u>			<u>As of December 31, 2019</u>		
	<u>Level 1</u>	<u>Uncategorized</u>	<u>Total</u>	<u>Level 1</u>	<u>Uncategorized</u>	<u>Total</u>
Asset Category						
U.S. Equity Funds	\$ 45,626	\$ -	\$ 45,626	\$ 39,448	\$ -	\$ 39,448
Fixed Income Mutual Funds	50,625	-	50,625	43,577	-	43,577
International Equity Funds	34,068	-	34,068	29,325	-	29,325
Other	7,312	7,147	14,459	6,341	7,037	13,378
Total	<u>\$ 137,631</u>	<u>\$ 7,147</u>	<u>\$ 144,778</u>	<u>\$ 118,691</u>	<u>\$ 7,037</u>	<u>\$ 125,728</u>

The fair values of Postretirement Plan assets, all of which are Level I investments, at December 31 by asset category are as follows:

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Asset Category	2020	2019
Money Market Funds	\$ 1,924	\$ -
U.S. Equity Funds	8,027	7,568
Fixed Income Mutual Funds	10,560	10,028
International Equity Funds	5,939	5,607
Other	1,296	1,220
Total	\$ 27,746	\$ 24,423

The equity funds include investments in large-cap, mid-cap, and small-cap companies located inside and outside the United States. The components of fixed income mutual funds consist of long-term fixed income investments in high yield instruments.

The Pension other investments consist entirely of investments in a trust which invests substantially all of its assets in real estate inside the United States through private investment funds. This investment is valued using the Net Asset Value (“NAV”) as a practical expedient and is structured as an investment company offering shares or units to multiple investors for the purpose of providing a return. This investment is valued at NAV provided by the partnership, which is based on discounted cash flows of the underlying investments, real estate appraisals or public market comparables of the underlying investments.

The long-term objectives of the plans are to invest in vehicles that provide a return that both limits the risk of plan assets failing to meet associated liabilities and minimizes long-term expense.

The expected long-term rate of return is based on target allocations of investments. The long-term rate of return is developed based on a capital markets model that was developed by investment consultants. This model considers expectations of future returns for investments and historical returns on comparable equity, debt and other investments. The target and actual allocations were as follows:

Asset category:	Pension Plan				Postretirement Plans			
	Target		Actual		Target		Actual	
	2020	2019	2020	2019	2020	2019	2020	2019
Equity securities	54.0 %	54.0 %	54.9 %	54.7 %	54.0 %	54.0 %	54.1 %	53.9 %
Debt securities	36.0	36.0	35.1	34.8	41.0	41.0	40.8	41.1
Other	10.0	10.0	10.0	10.5	5.0	5.0	5.1	5.0
Total	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %

Aquarion expects to contribute \$7,506 and \$2,821 to the Pension Plan (excluding

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nonqualified pension plans) and the Postretirement Plans, respectively, for 2021.

Future benefit payments and subsidy receipts are expected to be (including the nonqualified plans):

	<u>Pension Plans</u>	<u>Postretirement Plans</u>
2021	\$ 8,078	\$ 2,821
2022	\$ 8,330	\$ 2,855
2023	\$ 8,748	\$ 2,767
2024	\$ 9,097	\$ 2,823
2025	\$ 9,311	\$ 2,877
2026-2030	\$ 49,935	\$ 13,721

For measurement purposes, the weighted average annual assumed rate of increase in the per capita cost of covered benefits (health care trend rate) related to the Postretirement Plans for December 31 is as follows:

	<u>2020</u>	<u>2019</u>
Health care cost trend rate assumed next year	6.25%/3.50%	6.50%/3.50%
Rate at which the trend rate is assumed to decline (the ultimate rate)	5.0%/3.50%	5.0%/3.50%
Year at which the trend rate reaches the ultimate rate	2023/2019	2023/2019

In addition to the above qualified Pension Plan, Aquarion has unqualified plans for certain executives and former members of the Board of Directors. Total expense under these plans was approximately \$518 and \$587 in 2020 and 2019, respectively. The plans were unfunded with \$7,460 and \$7,259 reflected in long term liabilities as of December 31, 2020 and 2019, respectively.

Savings Plan for Employees

Aquarion sponsors a 401(k) Savings Plan for employees of the Company (the "Savings Plan"). All employees can make contributions that are invested at their direction in one or more funds. For non-union employees hired prior to October 1, 2009 and union employees hired prior to January 1, 2011, the Company matches 75% of the first 6% of each employee's eligible wages contributed to the Savings Plan for both union and non-union employees. For non-union employees hired on or after October 1, 2009 and union employees hired on or after January 1, 2011, the Company matches 100% of the first 6% of each employee's eligible wages contributed to the Savings Plan. The Company expensed matching contributions to the Savings Plan totaling \$1,384 and \$1,280 for 2020 and 2019, respectively. These amounts were recognized in the consolidated statements of operations as operating expenses.

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Segregated Disclosures

The Company's portion of the net pension cost was \$2,631 and \$2,316 in 2020 and 2019, respectively. The Company's portion of postretirement benefit costs was \$45 and \$52 in 2020 and 2019, respectively.

9. Property, Plant and Equipment

Net property, plant and equipment at December 31 consisted of the following components:

	<u>2020</u>	<u>2019</u>
Transmission and distribution	\$ 974,916	\$ 915,514
Water treatment	290,249	280,081
Source of supply	134,708	128,338
General structures and improvements	129,542	125,611
Pumping	114,581	98,520
Construction work in progress	33,800	24,182
Non-utility plant	2,501	2,459
Other	1,703	2,593
	<u>1,682,000</u>	<u>1,577,298</u>
Less: accumulated depreciation	487,591	473,236
Property, plant and equipment, net	<u>\$ 1,194,409</u>	<u>\$ 1,104,062</u>

10. Statements of Cash Flows

Changes in assets and liabilities and supplemental cash flow information for the years ended December 31 are set forth below:

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Supplementary Information

	<u>2020</u>	<u>2019</u>
Decrease/(Increase) in accounts receivable and accrued revenues	\$ (3,857)	\$ 1,266
Decrease/(Increase) in materials and supplies	22	(113)
Increase in prepayments and other current assets	(371)	(816)
(Decrease)/Increase in AP and accrued liabilities	(8,667)	5,692
Increase in accrued interest	53	-
Change in other current accounts	40,074	1,367
Net changes in other noncurrent balance sheet items	<u>(38,115)</u>	<u>(10,517)</u>
Changes in assets and liabilities	<u>\$ (10,861)</u>	<u>\$ (3,122)</u>
Cash paid during the year for:		
Interest	<u>\$ 15,697</u>	<u>\$ 14,091</u>
Income taxes	<u>\$ 3,906</u>	<u>\$ 4,233</u>
Supplemental non-cash contributed property	<u>\$ 1,601</u>	<u>\$ 2,390</u>
Change in accounts payable for purchase of fixed assets	<u>\$ 9,389</u>	<u>\$ 7,610</u>

11. Operating Leases

The Company has entered into lease agreements as a lessee for the use of land, facilities and equipment. These lease agreements are classified as operating leases and the liability and right-of-use asset are recognized on the balance sheet at lease commencement. Leases with an initial term of 12 months or less are not recorded on the balance sheet and are recognized as lease expense on a straight-line basis.

The Company determines whether or not a contract contains a lease based on whether or not it provides the Company with the use of a specifically identified asset for a period of time, as well as both the right to direct the use of the asset and receive the significant economic benefits of the asset. The Company has elected the practical expedient to not separate non-lease components from lease components and instead to account for both as a single lease component.

Operating lease cost was approximately \$220 and \$239 for each of the years ended December 31, 2020 and 2019, respectively. Operating lease cost is included in operating, maintenance and general expenses on the statement of income.

Supplemental balance sheet information related to leases is as follows:

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	2020	2019
Operating Leases:		
Operating Lease Right-of-use-Assets	<u>\$ 559</u>	<u>\$ 667</u>
Operating Lease Liabilities		
Operating Lease Liabilities - Current Portion	\$ 112	\$ 108
Operating Lease Liabilities - Long Term	<u>447</u>	<u>559</u>
Total Operating Lease Liabilities	<u>\$ 559</u>	<u>\$ 667</u>

Other information related to leases is as follows:

	2020	2019
Weighted-Average Remaining Lease Term (Years)	5	6
Weighted-Average Discount Rate (Percentage)	1.1%	1.2%

Future minimum lease payments under operating leases that have initial or remaining non-cancelable lease terms in excess of one year are as follows:

<u>The year ended December 31,</u>	
2021	132
2022	134
2023	137
2024	93
2025	95
Thereafter	24
Total	<u>\$ 615</u>

12. Contingencies

The Company is subject to various litigation in the normal course of business, none of which, in management's opinion, would be material to the Company's operations or financial position.

Since approximately 1950, in accordance with past-accepted practices, the Company's Southern Division (formerly known as Connecticut American Water Company ("CAWC")) discharged sedimentation basin residuals and spent filter backwash water from the Putnam Treatment Plant to the Putnam Reservoir. Prior to its acquisition by the Company, CAWC entered into a Consent Order with the Connecticut Department of Energy and Environmental Protection ("DEEP") (formerly known as Department of Environmental Protection) that required that these discharges cease and that CAWC investigate the fate of the residuals that have accumulated in Putnam Reservoir and

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evaluate the need, if any, for remediation or removal of the residuals. CAWC stopped discharging sedimentation basin residuals in 1993 and untreated backwash water in December 1999. Extensive work has also been done to investigate the impact of the residuals deposit in the reservoir and possible remediation alternatives. The Company currently disagrees with the DEEP regarding the most appropriate remediation alternative for the reservoir and is awaiting a final decision from DEEP.

The balance related to the Putnam reservoir environmental liability was \$121 at December 31, 2020 and 2019.

13. Subsequent events

Management has evaluated subsequent events through March 26, 2021, the date which the financial statements were available for issue.

ATTACHMENT B: SELECT PROJECT DESCRIPTIONS

Table B-1. Easton Water Treatment Plant

Name of Water Supply System	Greater Bridgeport
Year commissioned	1993
Design Capacity	20 MGD
Plant Type	Conventional dual media filtration with lamella plate settlers, treating high quality water from the Easton Reservoir
General Plant Condition	Excellent
General Operations	Remotely monitored, one shift operator controlled on regular work days. Plant consistently produces high-quality treated water

The Easton Water Treatment Plant (WTP) is a 20 MGD conventional surface water treatment plant commissioned in 1993. A raw water pump station, located along the main access road to the WTP, delivers water to the first of two mixing chambers operating in series where sodium hydroxide, alum and polymer are added. The chemically treated and mixed raw water passes through three parallel flocculation basins and then to three plate settler basins. Sodium hypochlorite and polymer are added to the clarified water before entering eight dual media filters (DMF) in the filter building. Each DMF has approximately 400 sq.ft. of surface area with a 24-inch depth of anthracite and a 12-inch layer of sand filter media. The filters are operated as declining rate filters. The main treatment building also houses chemical feed and storage systems, electrical and process control equipment, laboratory, control room and offices. Filtered water flows to two 3 million gallon (MG) welded steel clearwells with concentric baffle curtains. Filtered water is treated with sodium hydroxide (pH adjustment), sodium hypochlorite (disinfection), zinc orthophosphate (corrosion inhibitor), and fluorosilicic acid (fluoride addition) before entering the clearwells. Finished water from the clearwells flows by gravity to the distribution system.

The instrumentation and control system in the plant is based on General Electric, GE-Fanuc programmable logic controllers with two workstations running Wonderware HMI software. The PLC-SCADA system is distributed with multiple I/O cabinets having serial communication via proprietary GE, Genius communication protocol. The WTP has capabilities for communication to remote locations via telephone or radio communication links. Hach in-line analyzers are provided for monitoring vital water quality parameters (turbidity, pH, chlorine residual) in the plant.

Implementation of a sophisticated PLC-SCADA has significantly automated the Easton operation. The WTP is operated by two operators and one maintenance technician 8 hours/day, 5 days a week. Other times, the plant runs unattended with remote monitoring from Aquarion’s central control facility at Stamford. The power demand in the plant is tightly controlled and most of the energy intensive activities are done outside the peak power demand period in the main power supply grid.

The Easton WTP has been in the Partnership for Safe Water (PSW) program for over 15 years and it received the PSW Director’s award for outstanding performance in 2015.

Table B-2. Hemlocks Water Treatment Plant

Name of Water Supply System	Greater Bridgeport System
Year commissioned	1997
Design Capacity	50 MGD
Plant Type	Stacked DAF/Dual Media Filter system treating high quality water from the Hemlocks Reservoir
General Plant Condition	Very Good
General Operations	Remotely monitored, one shift operator controlled on regular work days. Plant consistently produces high-quality treated water

The Hemlocks WTP is a 50 MGD, stacked Dissolved Air Flotation (DAF) and Dual Media Filter (DMF) surface water treatment plant commissioned in 1997. The plant is housed in a five-story structure. The plant control room, DAF basins, chemical storage and feed systems, standby generator and boiler are located on the first floor of the plant building. The basement of the building houses most of the process pumps and monitoring equipment and the mezzanine houses the air scour system, piping and large valves with actuators. The second floor houses the dewatered sludge conveyor and the top most floor houses centrifuges.

A raw water pump station, situated adjacent to the Hemlocks Reservoir, delivers raw water to a contact tank, and then to two mixing basins operated in series (where sodium aluminate and a cationic polymer are added). Water then flows through nine parallel flocculation basins and feeds nine DAF/DMF tanks that have 24-inch thick layer of anthracite and 12-inch layer of sand. Sodium hypochlorite is added to the DAF/DMF tanks for pre-disinfection and oxide coating of the filter media. Floated solids from the DAF units flow into a residual storage tank and settled solids are pumped up to two centrifuges located on the third floor. Dewatered solids discharges onto a screw conveyor on the second floor, which transfers the solids to a roll-off container storage on the floor below for off-site disposal. Filter backwash waste is pumped into the raw water main to the plant. Filtered water is dosed with sodium hydroxide (pH adjustment), sodium hypochlorite (disinfectant), zinc orthophosphate (corrosion inhibitor), and fluorosilicic acid (tooth decay prevention) at the inlet of a 4 MG clear well. Finished water is stored in an 8 MG circular welded steel treated water storage tank, located adjacent to the Hemlock Reservoir, and then flows by gravity to the distribution system.

The WTP is operated by three operators and one maintenance technician 8 hours/day, 5 days a week. Other times, the plant runs unattended with remote monitoring from Aquarion's central control facility at Stamford. The power demand in the plant is tightly controlled and most of the energy intensive activities are done outside the peak power demand period in the main power supply grid. Aquarion received a significant refund check from the power provider for reducing energy use in the WTP during peak demand hours. I&C systems and in-line analyzers are similar to the arrangements at the Easton WTP.

The plant uses proven and innovative DAF/DMF water treatment technologies with a compact stacked design. Overall, the Hemlock WTP treats high quality surface water from the Hemlock Reservoir and produces good quality treated water.

Table B-3. Putnam Water Treatment Plant

Name of Water Supply System	Greenwich and New York Supply Zones
Year commissioned	1926
Design Capacity	20 MGD
Plant Type	Conventional Dual Media Filter (DMF) plant treating good quality water from the Putnam Reservoir
General Plant Condition	Good
General Operations	24/7 operator controlled plant. A Partnership for Safe Water plant producing treated water conforming to regulatory requirements.

The Putnam WTP treats surface water from the Putnam Reservoir. A significant capital improvement program (around \$25 million) consisting of a series of Initial Capital Improvements (ICIs) was completed in 2012 to replace the original clearwell with a new, larger (3.2-million-gallon capacity) dual-cell clear well. The program also included construction of a new chemical feed and storage building. The plant still has the original mixing basins, sedimentation basins, and filter basins. The filters were upgraded in 2006-2007 to include new underdrains and air scour systems. The Putnam WTP includes two mixing basins, two sedimentation basins (one open and another covered), 16 dual media filters (8 single cell filters and 8 double cell filters), a clearwell, a chemical feed and storage building, residual processing units, and pump stations. The plant also has a chlorine dioxide feed and storage system (installed in 2014), that is in the filter building, to combat occasional filter clogging algae. Alum, sodium hydroxide, polymer and purate (chlorine dioxide) are added to the mixing basin. From the mixing basin, water flows through the sedimentation basin(s) to dual media filters. Filtered water is treated with sodium hydroxide (pH adjustment), sodium hypochlorite (disinfectant), zinc orthophosphate (corrosion inhibitor), and fluorosilicic acid (fluoride) before entering the 3.2 MG clearwell. A high-service pump station transfers finished water to an elevated storage tank on the plant site. Finished water from the clear well also flows via three gravity mains to the New York and Greenwich distribution systems.

The residuals treatment facility (installed in 1999) includes settling, thickening, and centrifuge dewatering units. From the thickener, the residuals are fed directly into a single Humboldt centrifuge and dewatered residuals from the centrifuge are dropped into a roll-off storage container via belt conveyor and sent off-site for disposal.

The WTP has 12 operators who work in shifts around the clock, 7 days a week. The plant has been a member of the AWWA's Partnership for Safe Water (PSW) Program for over 14 years and received the PSW Director's Award for Outstanding Performance in 2015.

I&C system is based on General Electric, GE-Fanuc programmable logic controllers with two workstations running Wonderware HMI software. The SCADA control system and HMI software are similar to that at the Easton and Hemlocks WTPs. The control system, analytical equipment and sensing devices are recent installations and utilize up-to-date technology.

Table B-4. Holyoke Wastewater Treatment Plant and CSO Facility

Wastewater System Name	Holyoke, MA
Year commissioned	2007
Design Capacity	37 MGD Secondary Treatment; 103 MGD CSO Treatment
Plant Type	Full secondary treatment including new influent screw pumps and grit removal, mechanical screens, primary clarifiers, activated sludge biological treatment, secondary clarifiers, disinfection, sludge thickening and dewatering, and a state-of-the-art CSO treatment facility
General Plant Condition	Very Good
General Operations and Permit Compliance	Plant consistently produces high-quality treated effluent in compliance with NPDES permit

The Holyoke WPCF is a secondary biological facility originally constructed in the 1970s. The City contracted Aquarion to implement a number of Initial Capital Improvements (ICIs) at the WPCF in tandem with the construction of the new Combined Sewer Overflow (CSO) Abatement Facility. ICI projects completed by the Aquarion team increased the design capacity from 26 mgd to 37 mgd and included:

- The headworks facilities were retrofitted to include new grit removal equipment, modified influent pumping and odor control improvements.
- Aeration system improvements included new aeration mixers, oxygen supply piping, system controls, and liquid oxygen storage tanks.
- Sludge thickening equipment for waste activated sludge (WAS) was installed.
- Extensive odor control facilities were installed throughout the WWTP.
- The original chlorine gas system was abandoned and replaced with a new liquid sodium hypochlorite disinfection system.
- Construction of a new CSO treatment facility capable of treating up to 103 mgd (the largest CSO treatment facility located on the Connecticut River).

The net result of the above improvements is that the operations staff can better manage and operate the treatment facility at a lower cost and higher design flow.