BEFORE THE
STATE OF NEW JERSEY
BOARD OF PUBLIC UTILITIES

IN THE MATTER OF THE PETITION OF
NEW JERSEY-AMERICAN WATER COMPANY, INC.
FOR APPROVAL OF INCREASED TARIFF RATES AND
CHARGES FOR WATER AND WASTEWATER SERVICE, AND
OTHER TARIFF MODIFICATIONS

BPU Docket No. WR1912____

Direct Testimony of

THOMAS SHROBA

Exhibit P-4
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NEW JERSEY-AMERICAN WATER COMPANY, INC.

1. Q. Please state your name and business address.
   A. My name is Thomas Shroba. My business address is 1 Water Street, Camden, NJ 08102.

2. Q. By whom are you employed and in what capacity?
   A. I am employed by New Jersey-American Water Company, Inc. (“New Jersey-American Water”, “NJAWC”, or the “Company”) as the Vice President of Operations.

3. Q. What are your responsibilities in this position?
   A. As Vice President of Operations, I am responsible for leading New Jersey-American Water’s operations (production, distribution, field services, construction), water quality / environmental compliance, operational risk management (safety), and business performance (collectively, “Operations”) functions. I lead the Company’s Operations team by providing goals and directions that strive to increase cost effectiveness, performance, customer service and service quality.

4. Q. Please describe your educational background and business experience.
   A. Please refer to Appendix A for a summary of my educational background and business experience.

5. Q. Have you previously testified in regulatory proceedings?
Q. What is the purpose of your testimony in this proceeding?
A. The purpose of my testimony is to provide an overview of New Jersey-American Water’s operations and discuss our commitment to water quality and environmental compliance, our commitment to safety, and our efforts to improve water efficiency. I also support the Company’s proposed staffing levels and explain our compensation philosophy.

OVERVIEW OF OPERATIONS AND FACILITIES

Q. As Vice President of Operations, are you generally familiar with New Jersey-American Water’s Operations and the facilities and property that the Company maintains to serve customers?
A. Yes.

Q. Please describe New Jersey-American Water’s operations.
A. NJAWC is the state’s largest water utility serving a population of approximately 2.7 million people. As of November 30, 2019, NJAWC provides service to approximately 652,000 water and fire service customers and 50,000 sewer service customers in 220 communities in 18 counties throughout the State of New Jersey. The blue shaded areas in the service area map attached as Schedule TS-1 represent the franchise territory served by NJAWC. NJAWC customers are served by field operations employees who report to eight operating centers located in Short Hills, Shrewsbury, Egg Harbor Township, Delran, Plainfield, Belle Mead, Farmingdale, and Washington (Warren County). The operating center locations are also shown on Schedule TS-1. The operating centers are
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organized into four geographically-based management areas (Regions). Also included on Schedule TS-1 are the regulated wastewater systems owned by NJAWC.

In addition to providing direct water and wastewater service to its customers, NJAWC also provides regional water supply and “sale for resale” water service to approximately 46 other entities throughout the state. The areas shaded in grey and related water purveyors shown on Schedule TS-1 are served by NJAWC through water sales agreements. The Company has been, and will continue to be, committed to providing regional water supply solutions that are consistent with sound business planning and the water needs identified and coordinated through state and local planning efforts.

9. Q. Please provide an overview of the water assets and facilities of the Company, including sources of water supply, treatment facilities, pumping equipment and distribution system property.

A. NJAWC currently owns, operates, and provides service through thirty-six (36) separate public community water systems in the areas previously described. Each of the water systems includes its own source of supply, production, treatment, storage and distribution facilities. NJAWC operates seven surface water treatment plants, 121 groundwater production and treatment facilities, and five raw water reservoirs with a combined capacity of 6.2 billion gallons. The average water production budget for 2018 is 282 million gallons per day (“MGD”). Within the NJAWC Operations structure, the Production Department is
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responsible for the operations and maintenance of the sources of supply, reservoirs, treatment plants and treated water storage facilities.

In addition to these Company-owned surface water and groundwater sources of supply, NJAWC also purchases both raw water and finished (treated) water from several other water suppliers including, but not limited to the following: the Passaic Valley Water Commission (“PVWC”); the Morris County Municipal Utilities Authority (“MCMUA”); the Montclair Water Bureau; the New Jersey Water Supply Authority (“NJWSA”); the City of Newark; and the Marlboro Township Municipal Utilities Authority (“MTMUA”). Over 100 emergency interconnections are maintained with neighboring water purveyors to enhance reliability of NJAWC and other water systems.

10. **Q. Please provide an overview of the Company’s wastewater assets and facilities.**

A. NJAWC currently owns and operates 27 wastewater collection systems, 21 of which also have wastewater treatment facilities. These wastewater treatment facilities incorporate membrane, sequence batch reactor or conventional activated sludge treatment technologies. Six of the collection systems -- Lakewood, Howell (Adelphia section), Ocean City, Washington Borough (Port Collden Mall), Haddonfield, and Mt. Ephraim -- convey collected wastewater to regional wastewater treatment facilities owned and operated by the Ocean County Utilities Authority, Cape May County Municipal Utilities Authority, Washington Borough Municipal Utilities Authority, and the Camden County Municipal
Utilities Authority, respectively. A statewide sewer management team is responsible for the remaining 21 wastewater collection and treatment systems. These systems are operated under contract with Natural Systems Utilities.

11. Q. How does NJAWC manage the operations and maintenance of its water and wastewater systems?

A. Field Operations is responsible for operating and maintaining transmission and distribution assets, utility service lines, metering facilities and sewer collection assets. In addition, Field Operations provides field-level service to customers including meter reading, service requests, and field related collections activities. Finally, Field Operations works with the Engineering Department and new customers to provide new and replacement services and to coordinate the construction of certain new and replacement or rehabilitated distribution and sewer collection assets.

12. Q. Please describe the work performed by the Company’s Customer and Operations Support group.

A. NJAWC Operations also includes a Customer and Operations Support group that is based out of our Howell, New Jersey office. This team has several responsibilities including the following: operational performance reporting, meter program management, meter testing and meter shop operations, management of customer inquiries and complaints, and liaison for the Board of Public Utilities (“Board” or “BPU”) contacts; special billing and collections
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coordination; customer service processes; and liaison with the American Water
national customer service center.

13. Q. Please explain Operations’ role in promoting safety and a safe working
environment at NJAWC.

A. Operations is responsible for administering the health and safety program, which
includes the delivery of all Occupational Safety and Health Administration
(“OSHA”) required training, training and qualification of employees, physical
security, cyber security, business continuity planning and event management. We
are supported by functional departments within American Water Works Service
Company, Inc. (“Service Company”), such as Health & Safety, Learning &
Development, Security and Human Resources, to deliver core operations
services. Safety and security metrics are tracked and reviewed monthly.

COMMITMENT TO WATER QUALITY AND ENVIRONMENTAL
COMPLIANCE

Overview

14. Q. Please describe New Jersey-American Water’s overall commitment to water
quality and environmental compliance.

A. We are acutely aware that water is the only utility product intended for customers
to ingest, and that our customers rely on NJAWC to provide them with safe and
reliable water services. Water quality is of paramount importance to the health
and well-being of our customers. Beyond health and safety, we know that
NJAWC’s customers are also interested in the aesthetic qualities of the water we
treat and deliver to them. We proactively look for ways to optimize treatment
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capabilities to continue to improve the overall quality of drinking water delivered
to our customers, and do so in a way that strives to create operational efficiencies
that also benefit our customers. The Company’s Water Quality and
Environmental Compliance program is designed to ensure New Jersey-American
Water complies with all drinking water quality, water pollution, residuals
management, air pollution and hazardous materials laws and regulations.

15. **Q. What specific environmental laws or regulations affect New Jersey-Ameri-

   can Water?**

A. New Jersey-American Water’s operations are subject to approximately 10 major
state and federal public health and environmental laws, the conformance with
which is handled by the Company’s Water Quality and Environmental
Compliance (“WQ/EC”) team. Those 10 major regulatory schemes are: (1) the
federal Safe Drinking Water Act and its implementing regulations; (2) the New
Jersey Safe Drinking Water Act and its implementing regulations; (3) the New
Jersey Pollutant Discharge Elimination System (“NJPDES”), Discharge
Prevention Control and Countermeasures (“DPCC”) program; (4) New Jersey’s
Toxic Catastrophe Prevention Act (“TCPA”); (5) the federal Clean Air Act and
implementing regulations; (6) the Water Quality Accountability Act (“WQAA”);
(7) the New Jersey Safe Dam Act; (8) the Delaware River Basin Commission
regulations; (9) the New Jersey Solid and Hazardous Waste rules, the federal
Resource Conservation and Recovery Act (“RCRA”) and its implementing
regulations; and (10) the federal Emergency Planning and Community Right-To-
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Know Act (“EPCRA”). NJAWC’s Operations are also subject to other environmental laws, such as land use regulations, Green Acres, and the Highlands Water Protection and Planning Act.

16. Q. Does compliance with the federal law suffice for compliance with New Jersey law?

A. No, it does not. While there is some overlap between the state programs and federal requirements, state and local statutes and regulations can be more restrictive. New Jersey has: (1) more stringent diesel vehicle regulations than the federal Clean Air Act; (2) more stringent diesel backup generator requirements than federal regulations; (3) higher regulated drinking water contaminant standards; for example, federal regulations currently set a maximum contaminant level (“MCL”) for arsenic in drinking water of 10 ug/L (micrograms per liter, or parts per billion). The New Jersey Department of Environmental Protection (“NJDEP”) adopted a new MCL of 5 micrograms per liter in January 2006, giving New Jersey the most protective arsenic drinking water standard in the nation. New Jersey also became the first state to create a binding standard for a perfluorinated compound, PFNA, setting a drinking water limit of 13 parts per trillion (“ppt”). The NJDEP also proposed drinking water limits of 14 ppt for PFOA and 13 ppt for PFOS, two types of per- and polyfluoralkyl substances known as PFAS. The EPA’s current health advisory is 70 ppt for PFOS and PFOA combined. (4) NJDEP has lower threshold quantities for hazardous materials and petroleum storage regulations; and (5) The NJPDES Program
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protects New Jersey's ground and surface water quality by assuring the proper
treatment and discharge of wastewater (and its residuals) and stormwater from
various types of facilities and activities.

A significant amount of work performed by the WQ/EC Team is ensuring that
NJAWC knows about these more stringent requirements, and then designing and
implementing compliance programs that minimize duplicative efforts while
ensuring compliance with both the federal and state requirements. While there is
little duplication in reporting requirements – typically a state agency is the
primary enforcement agency for the major federal environmental laws – our
operations are so pervasively regulated that the Company filed or prepared
approximately 3,000 reports or other regulatory filings in 2018 to comply with
the 10 different regulatory schemes outlined previously.

17. Q. Please describe New Jersey-American Water’s water quality testing
   program under the Safe Drinking Water Act.

A. NJAWC routinely tests water in all of its systems to determine if it is meeting the
   safety standards established by the federal and state regulatory authorities. Our
drinking water is tested both before and after treatment to ensure that it satisfies
all chemical and bacteriological criteria. To ensure that the public health is
protected, we have multiple barriers in the treatment process to prevent
contamination from reaching our customers. We test for the presence of
Synthetic Organic Chemicals, Inorganic Chemicals, Volatile Organic Chemicals,
Radionuclides, bacteria, disinfection by-products, and all other contaminants that
the regulators require us to monitor, at the frequency prescribed by the federal
and state regulations, and report the results of this testing to the NJDEP on a
monthly, quarterly, and annual basis, in accordance with the regulations. In
addition, we work with our customers to collect and analyze samples for
compliance with the Lead and Copper Rule, as well as participate in the federal
Unregulated Contaminant Monitoring Rule programs.

In 2019, New Jersey-American Water will collect more than 14,000 water
chemistry samples and more than 16,000 routine bacteriological samples. Many
additional samples are taken to assess process effectiveness, support pilot
treatment studies, and monitor emerging contaminant threats. We also collect
other bacteriological samples as-needed in response to main breaks and similar
emergencies. All four regions have a WQ/EC Supervisor who; (1) reviews
regulatory documents and sampling history to determine the need and schedule
for collecting specific samples; (2) coordinates with operators to verify wells and
treatment plants are available for sampling based on maintenance and seasonal
operating conditions, and then reconcile availability to the regulatory schedule;
(3) orders sampling kits from our laboratories and prepares those kits for
operators to use in the field; (4) tracks the collection of samples by operators, the
delivery of kits to laboratories, the analysis of the sample by the laboratory, and
the receipt of laboratory results; (5) reviews laboratory results for compliance
issues, then prepares the data for reporting to regulatory agencies; and (6) both
the WQ/EC supervisor and licensed operator complete and submit an internal
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compliance certification form monthly to audit all regulatory sample requirements.

18. Q. Is water quality sampling the only task required to comply with the New Jersey and federal Safe Drinking Water Acts?

A. No. NJDEP also issues permits for each drinking water system, some of which contain other conditions relating to the operation and recordkeeping for treatment plants and other facilities. The WQ/EC Team, in cooperation with operations, ensures we are complying with those requirements and reports on our compliance as needed. In addition, there are various physical standards our facilities must meet. The WQ/EC Team routinely inspects our facilities to ensure these physical standards are being met. The WQ/EC Team also coordinates with NJDEP to obtain regulatory approvals for the addition of new tanks, treatment plants and other facilities, or variances from approved treatment processes. The WQ/EC Team also oversees implementation of the Cross Connection Control Program to avoid substances of an unknown quality being introduced into the distribution system by conditions on our customers’ premises. Finally, the WQ/EC Team tracks the required levels of operator certifications necessary to comply with drinking water regulations and coordinate with operations management to ensure we have proper operator staffing for our facilities.

19. Q. Please describe NJAWC’s program to comply with the National Pollutant Discharge Elimination System (“NPDES”) with regard to its wastewater operations.
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A. NJAWC partners with a contractor (Natural Systems Utilities) to: complete and submit of NJPDES Permit Renewals or Modification Forms; complete and submit monthly Discharge Monitoring Reports (“DMR”), as required by each Facility NJPDES Permit, Collect; submit and oversee regulatory sample testing by an outside (third-party) laboratory, for those samples required under each facility NJPDES Permit, but for which the operator is not certified to perform; and notify the NJDEP Hotline for any event which violates, or could potentially violate, the Facility NJPDES Permit or applicable law.

20. Q. Is the effluent from New Jersey-American Water’s wastewater operations regulated?
   A. Yes, effluent from our wastewater operations is regulated under NJPDES regulations. We monitor treated wastewater (effluent) prior to its discharge. Through a combination of physical, chemical, and biological treatment processes, the regulated constituents are removed or reduced to significantly low levels, and then discharged into the ground or appropriate waterway.

21. Q. Please describe how New Jersey-American Water manages compliance with applicable environmental laws and regulations.
   A. The cornerstone of NJAWC’s Water Quality and Environmental Compliance program are Environmental Management Plans (“EMPs”). EMPs are a compliance matrix that identifies a regulatory requirement, specifies the person responsible for ensuring NJAWC complies with that requirement, and contains information on the means the Company is using to comply. EMP reviews are
conducted each quarter to ensure the information remains current. The EMPs contain the requirements for the regulatory schemes outlined previously, including specific permit conditions that regulators impose on individual equipment and facilities as well as general regulatory requirements.

22. **Q. How else does New Jersey-American Water manage compliance with applicable environmental laws and regulations?**

A. The Company uses a laboratory information management system ("LIMS") for managing some of the water quality data and sample reporting requirements. The LIMS sample scheduling feature provides a tool to streamline thousands of water sample tests annually and ensures that the results are tracked and reported as required by the environmental regulators. In addition, NJAWC is using MapCall, an internally built product, to manage bacteriological sample collection, as well as other NJDEP, EPA, and OSHA requirements, such as environmental permits, incidents, training, and lead and copper site requirements and forms. MapCall is accessible by mobile device, so samples can be collected from the field, permits can be referenced from a remote station, and any other documentation or training document can be pulled up at the time the work is being performed. NJAWC is also working with the Service Company Environmental Management team, to develop reports and dashboards that will show the near-real time status of all water quality samples. Except for the small percentage of water quality parameters that are analyzed locally, LIMS pre-populates state reports to enable all samples to be tracked from collection to upload in an Excel-based report. The
report is submitted to the Director and the Vice President as part of a Company sample certification practice. Together, these systems confirm all required samples are completed and submitted each month to help ensure environmental compliance.

23. **Q. Please explain how these software systems can be used to support the Company’s WQ/EC program.**

   **A.** The WQ/EC Team currently utilizes standard spreadsheet programs to track, analyze, and report the voluminous amount of data generated by the Company’s operations. The amount of data the Company needs to collect grows as new regulatory requirements are added, such as the Community Water System NPDES permit, the MCL for Hexavalent Chromium, and the additional rules the NJDEP has for cross-connection controls and the Lead and Copper rule (“LCR”). In addition, most of the regulatory schemes require NJAWC to maintain the data we collect and the reports we submit for between 3 and 5 years.

   The use of software systems such as LIMS and MapCall reduces the manual re-entry of data collected on paper forms or otherwise generated from diverse sources. They also consolidate the information into structured databases with querying and reporting tools, instead of managing it in multiple separate spreadsheets. This allows for better data analysis, which in turn supports better decision making in compliance and operating matters, and makes mandatory reporting more efficient.
Q. Is the Company seeking any additional resources to support its Water Quality and Environmental Compliance program?

A. NJAWC restructured the WQ/EC department in 2018 after experiencing a few DEP notices of violations against a goal of zero. The department previously had one WQ/EC manager with statewide responsibilities. Three existing positions were repurposed, and one position was added to create four regional manager positions to provide regional managerial focus on regulatory compliance and to promote daily engagement with regional operations personnel. Additionally, NJAWC is adding two Cross Connection Specialists in 2020 to support the Company’s enhancement of its cross-connection program. The enhanced cross connection program will help the Company protect its water systems and customers from the accidental introduction of contaminants by implementing a proactive program to help prevent water backflow into our networks.

COMMITMENT TO SAFETY

Q. Please describe NJAWC’s overall commitment to safety.

A. Ensuring the health and safety of our employees and customers and protecting the quality of the water we deliver is the top priority for our Company and is critical to our success. Our co-workers’, contractors’, and customers’ safety is of vital importance and we focus on it every day. Our goal is to have every NJAWC employee get home in the same health they came into work or better every single day.
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With the safety of our employees, customers, contractors, and the general public in mind, we approach safety with a focus on continuous improvement through the implementation of proactive initiatives, plans, practices and processes that compliment and sustain a robust workplace safety program.

New Jersey-American Water is also committed to securing assets across our system and recognizes the importance of protecting our water sources, treatment plants, infrastructure, and data from malevolent acts, as demonstrated by our robust security and cyber security programs. In addition, the Company’s emergency response program demonstrates the Company’s recognition that rapid response and recovery from security incidents are critical to maintaining the water and wastewater systems.

26. Q. Is safety relevant to operational performance?

A. Yes. The Company considers safety to be a core value, as well as a strategy. We ask our employees to place safety first in everything they do. We have a strong commitment to our employees (and their families) to keep them, our customers and the general public safe. A safe workplace increases employee morale, increases our commitment to one another, and in the long run, makes for a more engaged and productive workforce.

New Jersey-American Water Company’s Safety Approach, Plans and Programs

27. Q. What is the “Safety Begins with You” Program?

A. The “Safety Begins with You” Program is a prioritized list of safety initiatives implemented to improve workforce engagement and accountability. The
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Operations Leadership Team holds biweekly safety meetings to establish actions
to deliver the initiatives and track results. The initiatives are as follows:

- Peer-to-Peer Safety Observations (BAPP Teams)
- Employee Injury Review Meetings
- Job Safety Briefs
- NovaCare Employee Care Program
- OSHA Compliant Training
- Supervisor Inspection and Feedback Training
- Near miss, first aid, incident investigations
- Monthly Life Saving Rule Reinforcement
- Personal Protective Equipment ("PPE") Review and Communication
- Certified Safe Worker Program
- Stop Work Authority
- Utility Mechanic Training
- Collaborative vehicle design

28. Q. What is the Peer-to-Peer Observation Program?

A. The peer-to-peer observation program is an employee led, management supported
behavior-based safety initiative composed of the following elements:

- **Identifying Critical Behaviors** – Analyzing historical data and employee
  insight to identify the behaviors that are critical to safe performance.

- **Gathering Data** – Conducting peer-to-peer, no-name-no-blame
  observations to capture information that measures exposure levels.
- **Providing Feedback** – Engaging in informal follow-up discussions with their coworkers about the safe and at-risk behaviors they observed.

- **Using Data to Remove Barriers** – Applying findings from the observation data captured, cross-functional teams work to remove these barriers to safe behavior.

**29. Q. What is the Company’s Near Miss Program?**

A. In 2015, New Jersey-American Water, as part of an American Water initiative, began an enhanced method of online near miss reporting. A near miss is an event or condition that did not result in injury, illness or damage, but could have. Reporting and investigating near misses allows us to learn from near accidents instead of real accidents. Information is gained about what accidents can happen and how to adjust the safety program to prevent them. This program is part of the Company’s commitment to proactive processes that focus on prevention rather than reaction to injuries and accidents. Every near miss reported goes through an analysis that helps identify its cause and prevent the situation from happening again. Because this program has been implemented across American Water, the Company is able to identify and share the findings on a national level.

The reporting of near misses is a no-fault system. There have been and will be no disciplinary actions associated with near miss reporting. This will continue to build trust and benefit our safety culture.

The Company’s 2019 target is to complete the corrective actions for 95 percent of near misses within 30 days. NJAWC has submitted 217 near misses as of
October of 2019 and completed 98% percent of the actions within 30 days. Corrective actions typically range from completing repairs or replacement of equipment and tools, purchasing proper PPE, removal and elimination of trip hazards, addition of warning signs, removal of insects and raised awareness of insect hazards, installation of proper pipe material to eliminate chemical hazards, better lighting, and raised awareness of road and work zone hazards.

30. Q. What is the Stop Work Authority?
A. In the event of a serious safety issue, employees are empowered to “Stop Work” and make sure no one else will be exposed to hazards that could cause injury. The back of each employee’s badge reminds them of their Stop Work authority. Employees are encouraged to utilize their stop work authority without fear of repercussions.

31. Q. What is the Certified Safe Worker program?
A. Certified Safe Worker is a program where employees certify they have completed or demonstrated six safety actions in areas such as health screenings, CPR/First Aid training, other safety training, pre-job stretching, stopping an unsafe job, submitting safety improvement suggestions and/or practicing safety at home. To date, 79% of our employees have earned their designation as a Certified Safe Worker.

32. Q. Does New Jersey-American Water provide safety-related training to its employees?
A. Yes. A robust safety training program helps reduce injuries and accidents, allowing the Company to remain in compliance and enhance the safety culture. It is vital that everyone in the workplace is properly trained in identifying and managing hazards when they are exposed to them. This includes supervisors, managers, contractors, and part-time and temporary workers. Training is varied and includes weekly safety talks, tailgate talks, OSHA required biannual safety refreshers, initial training and equipment-specific or task-specific training. All training records are kept in a database to ensure that everyone who should get training does.

33. Q. Who at New Jersey-American Water undertakes safety-related training?

A. All employees participate in some form of safety training. The content of NJAWC’s Operations training program and the methods of presentation reflect the needs and characteristics of the particular workforce. Any employee that may encounter a hazard covered in the training topic will be required to attend the training. Training targets new hires, contract workers, employees who wear personal protective equipment, and workers in high risk areas.

Managers and supervisors also are included in the training plan. They receive training in company policies and procedures, as well as hazard detection and control, how to provide feedback and recognition, accident investigation, handling of emergencies, and how to conduct toolbox talks.
34. Q. Is certain safety training required?
A. Yes. Required training is determined by OSHA and specific safety training is determined by the unique needs of the field location.

35. Q. How have NJAWC’s safety initiatives improved the Company’s OSHA recordable injury rate?
A. New Jersey-American Water has experienced a gradual reduction in OSHA recordable incidents since making safety a core value and strategy in 2009. There has been dramatic improvement in both the OSHA recordable incident rate and severity of the injuries since the implementation of the “Safety Starts with You” program in 2017. See chart below:
36. Q. Has NJAWC experienced a reduction in workers compensation claims since the implementation of the “Safety Starts with You” program?

A. Yes, the number of claims has decreased. The Company experienced a 69% reduction in claim cost from 2017 to 2018 and is on track to achieve a greater reduction in 2019 YTD. See chart below:

<table>
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<tr>
<th>Year</th>
<th># of Claims</th>
<th>Cost incurred</th>
<th>Avg Cost/claim</th>
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<tr>
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<td>67</td>
<td>$703,539</td>
<td>$10,501</td>
</tr>
<tr>
<td>2018</td>
<td>40</td>
<td>$215,307</td>
<td>$5,383</td>
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<tr>
<td>2019</td>
<td>27</td>
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</tr>
</tbody>
</table>

37. Q. What other benefits has NJAWC gained from the implementation of the “Safety Starts with You” initiatives?

A. Focusing on safety increases productivity by avoiding incidents, accidents, breakdowns and process failures. This leads to better all-around performance. The increased engagement associated with the implementation of the initiatives has improved the communication, trust, and overall relationship between our management team and field personnel.

Security and Cybersecurity

38. Q. What is New Jersey-American Water doing to address physical security?

A. New Jersey-American Water has taken a comprehensive approach to addressing security. Physical security consists of cameras, badge readers and cyber keys that monitor situations and are programmed to limit access to secure areas, including offices, shops, well sites, treatment, pump and lift stations. New Jersey-American
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Water uses standards from the American Water Works Association (“AWWA”) and the American Society for Industrial Security (“ASIS”). The Company has strategically placed cameras at critical infrastructure, (e.g., tank and well sites) and secure work locations (e.g., offices and shops). Cameras are connected to a secure line that provides video output to the local operations control rooms and American Waters central security and reliability control room.

Identification badges are issued for the purpose of facility access control at New Jersey-American Water. NJAWC’s policy is that access to all Company-owned and leased property be limited to authorized persons in the conduct of official activities as approved by the local management. All employees must wear and openly display the identification badge visibly while on any NJAWC property, while on Company business or while representing the Company publicly or privately. Unauthorized entries are registered as an alarm that is received by the local operations control Room and American Water’s central security and reliability control room.

CyberLock® systems are integrated at two of the largest districts in New Jersey, with plans to expand throughout NJAWC’s operations. Keys and locks are programmable with access permissions for each key holder. In addition, a key can be assigned a start and end date, and depending on the work, it can be programmed to allow access to one set of locks from 8 a.m. to 6 p.m. on weekdays and to another set of locks only from 10 a.m. to 4 p.m. on weekends. Setting short-
term expiration dates is an excellent way to minimize risk due to lost or stolen keys and programmed access further ensures the security of our facilities.

39. **Q. How is cybersecurity being addressed?**

A. Cybersecurity technology solutions are vital to reliable and resilient water systems. For that reason, cybersecurity is core to the American Water vision of resiliency and sustainability. As we continue to implement intelligent water and wastewater systems, we ensure that industry-leading cyber controls are designed, built and integrated into all aspects of the technology. These controls protect our existing systems and enable the implementation of secure innovation. Safeguarding the integrity of Company information and systems while enhancing the customer experience is our security mission.

The Company’s cybersecurity program is consistent with industry best practices, including the National Institute of Standards and Technology (“NIST”) Cybersecurity Framework and the AWWA Process Control System Security Guidance for the Water Sector.

**Emergency Response**

40. **Q. Provide an overview of the Company’s emergency response program.**

A. Emergency response and recovery is a critical aspect in the operation of water and wastewater systems. NJAWC maintains response plans, agency and industry emergency contacts and attends public and industry specific conferences on emergency response and preparedness in order to sustain a broad coverage in an emergency. Integration of the various responders, communications and flow of
information during an emergency or natural disaster is critical. NJAWC follows
the National Incident Management System (“NIMS”) and Incident Command
System (“ICS”) protocols and procedures.

41. Q. How does New Jersey-American Water prepare for emergencies?

A. NJAWC has established a business continuity framework, bringing functional
and operational teams together for the purpose of reducing risk and enhancing
resiliency. As part of the framework, the Company adopted the nationally
recognized ICS, which enables unified emergency response and close, effective
coordination with emergency management in the communities we serve.

Each NJAWC district maintains an emergency response plan utilizing the NJDEP
format that is reviewed annually. The emergency response plan includes: mutual
aid information and procedures; system descriptions; critical system components;
event management process; security; incident command system; plan
development, maintenance and training; actions plans for all emergency
scenarios; emergency contact lists; emergency equipment lists; sampling
protocol; and other site specific data.

Emergency response drills are conducted annually and include large system
outages, contamination events, natural disasters, cybersecurity events, and
environmental spills. Drills are coordinated by operations and include on site
mock drills, tabletop exercises and after-action reporting.
Safety and Security Resources and Support

42. **Q. Please summarize how the Company supports its safety and security programs.**

**A.** NJAWC utilizes a combination of internal Health & Safety personnel and operations personnel to support the Company’s safety and security programs. It starts with everyone owning safety, including employees and contractors. It is important that we hold each other accountable to get to zero injuries and manage security incidents.

43. **Q. Please describe the Accident Prevention Council (“APC”).**

**A.** Each District maintains an APC that is jointly chaired by management and union personnel. Each APC has the responsibility to: hold monthly meetings; review committee reports and safety alerts; collaborate with other APC committees to share best practices; support peer-to-peer observation program; recommend tools and equipment; conduct inspections at a time and in a manner they consider in the best interest of the health and safety program; discuss and resolve safety issues; track health and safety issues brought to the APC and document resolution; and comply with the American Water Health and Safety Committee Policy.

44. **Q. How does the American Water Operations Security team and the Integrated Operations Center support the Company’s security programs?**

**A.** American Water Operations Security supports the business in the overall management of physical and cyber security systems at facilities across the
country. This includes developing procedures, guidelines and training related to our security systems and processes. Operations Security also conducts internal security reviews and partners with the Department of Homeland Security ("DHS") on external security assessments, using the results to develop improvement initiatives and further enhance security controls of company assets and systems. In addition, the Operations Security team provides technical support and guidance to identify potential security vulnerabilities and develop appropriate solutions.

Staffed 24 hours a day, seven days a week, the Integrated Operations Center ("IOC") monitors security cameras, alarms and incoming calls. In addition, they have access to the CyberLock system and can view lock and key activity. The IOC also monitors American Water security and technology systems; continuously tracks weather alerts, security threats and intelligence; and serves as a key collaboration point for operations, leadership and functional teams.

The IOC also reviews safety or security situation reports that are entered online through the security portal, which can also be used to report safety near-miss activities, safety or injury incidents, and security incidents. The IOC also has an event information hotline that is used to provide key information about facility closing and other information when an event has been declared (e.g., hurricane, snow emergency).
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The Company has access to Operational Security and the IOC to assist in the response and recovery from an emergency event and restore service as quickly as possible.

45. **Q. How else does American Water support the Company’s safety and security efforts?**

A. American Water has developed security awareness training for physical and cybersecurity risks, incident response and emergency preparedness. This training reinforces the shared responsibility for security with all employees, contractors and visitors, and supports a safe and secure work environment. Although the Company works hard to prevent incidents from happening, it must also prepare for them. Practice exercises are a powerful way to bring solid planning and years of experience to bear on the new and diverse challenges faced. American Water has led dozens of preparedness exercises across the business, while also participating in regional and national level exercises with state and federal partners. For example, a tabletop emergency exercise was conducted in our North Region that involved a cyanotoxin event. Essex County OEM, municipal OEM, NJDEP, and the BPU participated in the exercise, which focused on incident management and communication during and after the event. The exercise identified several actionable items and the results were documented in the after action report. Not only do these activities enhance readiness, they often identify opportunities for increased operational efficiency.
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For incident investigations, New Jersey-American Water utilizes an enterprise-wide online tool called TapRoot®. It is a systematic process, software, and training program for identifying root causes of safety incidents. It can be used to investigate and identify the root causes of major accidents, everyday incidents, minor near-misses, quality issues, human errors, maintenance problems, productivity issues, manufacturing mistakes, and environmental releases. The systematic process is based on in-depth human factors and equipment reliability research. It is designed to help investigators maintain objectivity during their investigation.

The results of these investigations are then considered by the business to evaluate the situation and determine what safety process improvements may be appropriate going forward. American Water also maintains a security hotline that can be used to report a safety near miss or safety/security incident, request security system service, report or request an identification badge or report an operational event.

46. Q. How do you promote safety with your contractors?

A. NJAWC utilizes internal and external inspectors to ensure our contractors are complying with all regulations and maintaining safe work environments. Our inspectors have extensive safety backgrounds and have been selected based on their safety expertise as well as their engineering knowledge. Annual meetings are held with all contractors to refresh them on NJAWC safety program requirements and introduce any new requirements added since the previous year.
Avetta is a safety prequalification program for NJAWC contractors. Contractors that fall under the construction and maintenance categories must register with Avetta, and provide their safety documentation. Avetta assigns an experienced professional to perform a one-on-one audit. Avetta reviews everything from paperwork in the contractor's office to performance in the field. Their safety professionals help manage New Jersey-American Water’s risk and our contractors’ performance by: having an Avetta Representative verify the contractors’ data; centralizing contractor data into an easy-to-use, online database; providing supplier statistics on health, safety and environmental issues; giving contractors a personalized customer service representative to answer their questions and assist them through the process; and validating that regulatory forms and statistics are submitted properly and accurately.

**Safety Program Benefits**

47. **Q. How do the safety programs benefit employees?**

A. Employees receive direct benefits from strong safety, security and emergency response programs. Training provides the employee with the ability to identify hazards; and incident and reporting processes allow employees to report and assist in identifying root cause and causal factors so actions can be taken to prevent accidents from occurring. A safe workplace increases employee morale, increases our commitment to one another, and in the long run, makes for a more engaged and productive workforce.
48. Q. How do safety programs benefit customers?
A. Customers benefit because the Company, through strong health and safety programs, has enhanced productivity and decreased absenteeism. This means that crews operate with a full staff and can fix problems quicker, reducing any service down time to the customer. In addition, a strong safety culture also reduces safety-related incidents, resulting in lower insurance and workers compensation costs.

49. Q. How do safety programs provide an overall public benefit?
A. The general public benefits from NJAWC’s safety and security programs because we provide safe water and wastewater services. Our safe operations and compliance with occupational safety regulations provide the general public with the confidence that the Company operates in a safe and secure manner. In addition, NJAWC crews operate daily in public areas and must protect their worksites from hazards as well as prevent the general public from exposure to these hazards.

OPERATING AND MAINTENANCE EXPENSE

50. Q. What has been the result of New Jersey-American Water’s efforts to control O&M costs?
A. New Jersey-American Water has successfully controlled costs over the past several years. The Company’s 2018 operating and maintenance (“O&M”) expenses (excluding purchased water and sewer costs) were approximately $14
million lower than 2010 O&M expenses, and we are continuing our cost mitigation efforts.

51. Q. What level of O&M expense is the Company seeking in this case?
   A. NJAWC is seeking recovery of approximately $219 million in O&M expense for the test year ending June 30, 2020, which represents expense levels into 2021. While O&M expense has increased since the last case, it has remained relatively flat compared to 2010 levels. In fact, the Company’s proposed O&M expense (excluding purchased water and sewer costs) is over $25 less per customer than its 2010 cost per customer levels. This represents a period of 10 years where customers are charged less for O&M expenses as a result of the Company’s growth in customers over that period. The requested increases in O&M expense over these periods support the Company’s efforts to continue providing high quality water service in the most cost-effective way to our customers in the long-term. The direct testimony of NJAWC witnesses Jamie Hawn discusses NJAWC’s specific O&M pro forma adjustments in this case.

52. Q. Why is the Company seeking an increase in O&M expense in this case?
   A. In addition to annual increases in employee related expenses, our request for increased O&M expense is driven primarily by increases in our production costs. These costs include the chemicals we use to treat water, power, purchased water, and waste disposal. Some of the increases in costs for chemicals and waste disposal are driven by new water and wastewater contaminant standards.
IMPROVING WATER EFFICIENCY

53. Q. What is water efficiency?

A. In simple terms, water efficiency means using improved practices and technologies to deliver safe, reliable and adequate water service more effectively. NJAWC’s water efficiency efforts cover a wide range and include supply-side practices, such as leak detection and our geographic information system (“GIS”), as well as demand-side strategies, such as rate design and public education programs. From an operations perspective, improving water efficiency requires achieving a cost-effective mix of prudent investments and improved operations and maintenance management capabilities targeting safety, customer satisfaction, environmental compliance, sustainability, asset performance and operational efficiency. As I have noted, the Company’s focus on providing cost-effective service has resulted in an overall O&M expense remaining relatively stable over the past several years.

54. Q. Please describe some of New Jersey-American Water’s efforts to improve water efficiency.

A. The Company strives to improve water efficiency through use of technology, system maintenance, and efforts to manage costs as efficiently as possible to provide a more cost-effective level of service for our customers over the long term. In addition, NJAWC uses various operational and efficiency reviews to further focus on improving customer service and efficiency of production and field operations. The Company also leverages the size and scale of American
Water to improve transactional efficiencies through increased automation, the adoption of more effective business practices and a continuous improvement mindset.

55. Q. How does NJAWC gain efficiencies from its relationship with American Water?

A. As a subsidiary of American Water, NJAWC has available to it the resources of the Service Company, which provides access to highly trained professionals who possess expertise in various specialized areas and who work exclusively for American Water’s subsidiaries. Not only does NJAWC benefit from getting these services and expertise at cost, through the size and breadth of American Water, NJAWC has continued to increase its purchasing power to obtain discounts on the necessary equipment needed to manage and maintain our system—including pipes, fittings, and water treatment chemicals—that we otherwise would be unable to obtain were we a separately owned water system. In addition, the Company’s ongoing investment in technology enables a better end-to-end view of its water and wastewater business. For example, Service Company’s Technology and Innovation (“T&I”) team works side-by-side with end-users to develop technological solutions engineered with a focus to enhance our employees’ effectiveness and to allow our customers to do business with us more easily. These products and applications are designed with ease of use in mind. They take advantage of augmented intelligence technologies that enhance human
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decision making and continuously learn from their interactions with humans and
the environment, meaning information evolves with usage.

56. Q. How is the American Water Supply Chain team utilized by the Company?
A. All goods and services purchased that can be leveraged across the entire
American Water enterprise are done so by the Supply Chain team within Service
Company (“Supply Chain”) in order to maximize the purchasing power of the
entire American Water enterprise. Such goods and services include but are not
limited to water treatment chemicals, pipe valves and fittings, meters, engineering
services, consulting services, professional services and employee benefits. The
value realized from Supply Chain’s work are a benefit to all American Water
subsidiaries.

state-specific and regional services include but are not limited to infrastructure
maintenance and repairs and facility maintenance and repairs, are the
responsibility of the supply chain team maintained at the state level (“state Supply
Chain”). The state Supply Chain’s strategic objectives are to leverage state
specific requirements in order to obtain greatest value across the entire state or
specific region(s) within the state. The goal is to obtain the highest quality
services at greatest value to the state.

57. Q. What are some of the significant categories in which Supply Chain managed
to control costs?
A. Water Treatment Chemicals: Annually, Supply Chain solicits bids for all water
treatment chemicals. By leveraging the volume of the entire American Water
enterprise, Supply Chain has been successful in being able to negotiate price
reductions, hold pricing flat or minimize price increases.

Maintenance Repair and Operating ("MRO") Supplies: In 2019, Supply Chain
created multiple bid exercises for MRO Supplies. Supply Chain was able to
leverage the volumes across the entire enterprise in order to lower the overall
costs of these products.

Ductile Iron Pipe: In 2019, Supply Chain conducted a bid exercise for ductal iron
pipe and was able to leverage volumes to minimize price increases from the prior
agreement. On 8-inch diameter class 54 pipe, Supply Chain was able to reduce
the cost by an estimated 26% from the prior agreement. This cost reduction is a
major benefit to New Jersey-American Water and its customers since this class
and size pipe is used on most main replacement projects and network repair work.

Telecommunication Services: In 2018, Supply Chain negotiated an extension
with our existing voice and data carriers. By leveraging the agreement term and
volume commitments, Supply Chain was able to reduce the overall costs of these
services. As a result, New Jersey-American Water voice and data rates decreased
in 2018 and 2019.

Fleet: In 2018, Supply Chain negotiated incentive discounts directly with the
manufacturer for the entire American Water enterprise. This resulted in
significant incentive discounts from model year 2019 versus 2018, which New
Jersey-American Water took advantage of when purchasing vehicles.
Utility Markouts: In 2017, state Supply Chain established two agreements with two Utility Markout contractors. For contractor 1, the agreement was established through July 2020 with a negotiated 2.5% increase. For contractor 2, prices were held flat through July 2020.

Network Repair: In 2017, state Supply Chain executed agreements for Network Repair services with a 2-year term. At the end of the initial term of these agreements in 2019, these agreements were extended for an additional year and two months with no price increases.

Meter Replacement Services: In 2016 and 2017, state Supply Chain established agreements for meter replacement services. In 2018, the existing agreements were extended through 2019 with no price increases.

Patchwork Paving Services: In 2016, state Supply Chain established patchwork paving agreements with multiple contractors to service the state of New Jersey. Pricing was held flat through 2018 and in 2019, the agreements were extended one year with minimal increases.

In each instance, New Jersey-American Water and its customers have benefited from leveraging the size and scale of American Water enterprise wide through Supply Chain and leveraging the size and scale of NJAWC through the efforts of state Supply Chain.
58. **Q. How is NJAWC using GIS to improve employee effectiveness?**

A. Accurate electronic maps ensure that the Company’s institutional infrastructure knowledge is captured for use by current and future employees. To that end, NJAWC has loaded its facilities into GIS so that maps of its water and wastewater system assets are accessible on its internal network. The information available on GIS includes the location and a short description of the facilities, giving an electronic spatial view of the entire system. GIS also helps locate customers that might be affected by related service issues and allows us to more effectively communicate with our customers. We continue to enhance our GIS platform through integration with our SAP Enterprise Asset Management (“EAM”) system, our computer-aided design (“CAD”) system, and our PowerPlant fixed asset records. This integration allows communication across the various platforms that makes data retrieval more efficient.

59. **Q. How has NJAWC benefitted from its GIS platform?**

A. The WQAA, enacted on July 21, 2017, requires water purveyors to identify the geographic location of each valve and fire hydrant in its public water system using a global positioning system (“GPS”) based on satellite or other location technology. NJAWC was required to identify the GPS location of 45,534 fire hydrants and 180,967 valves by October 19, 2017 to comply with the WQAA. The Company started a GPS program to enhance its GIS many years prior to the adoption of the WQAA. The foresight of the Company enabled the utilization of cost-efficient internal resources to gather the required GPS points rather than
contracting out the large volume of work under the compressed time frame required by the WQAA.

The internal GPS resources also gathered adjacent curb box locations while completing the valve and fire hydrant work. The curb box locations assist the field technicians to quickly locate curb boxes during emergency and scheduled work. The GPS locations save time, minimize damage to customer property, and increase customer satisfaction.

60. Q. What work management system is NJAWC using to improve employee effectiveness?

A. The Company uses MapCall, an application that provides a more intuitive interface among SAP, GIS and its employees in the field. MapCall provides the flexibility to create work orders, configure workflows and report progress while in the field. For example, a supervisor can create a work order to flush a dozen hydrants in a particular area. Using MapCall, the field worker can report progress as flushing is performed, and both the supervisor and others in the field can visually see the progress made toward completing the identified work in real time through the MapCall interface. The same can be done to schedule and monitor other routine work, as well as emergency work, such as main break repairs.

MapCall also allows those in the field to more efficiently communicate water quality and other events through preloaded notifications via email to both internal and external stakeholders, including regulators, allowing workers to quickly shift back to focusing on the task at hand and providing quality service to customers.
Water main break locations are continually added to the GIS and InfoAsset, a pipe replacement prioritization database, to help identify sections of pipe that have outlived their useful life. This information is used to prioritize water main replacements by strategically focusing on the pipe with the highest risk of failure.

61. **Q. Are there other technology solutions NJAWC is implementing to improve employee effectiveness?**

A. Yes. In addition to GIS platform enhancements and MapCall, American Water is developing a number of applications that will further enhance employee effectiveness. These include Customer1View ("C1V"), Meter Ops and Work1View ("W1V"), each of which provides more comprehensive and easily accessible information to employees.

C1V has been implemented by the Company to better serve our customers in a way that also improves our efficiency. C1V provides improved access to customer information (e.g., premise and service order history, meter details, billing and payment information) to field service representatives ("FSRs") who regularly interact with our customers. This means that FSRs can view the same information as customer services representatives ("CSRs") located at the customer service center ("CSC"). This allows our FSRs to review customer information that can help them address the customer’s issue and provide customers information while speaking with them, rather than having to contact the CSC for information or requiring customers themselves to follow up with the CSC. FSRs can also update customer information and record notes on customer
interactions on the spot, providing other employees that serve our customers timely access to the most up to date information.

Meter Ops is another application that supports our continued efficiency. Meter Ops monitors key attributes for each meter, including manufacturer, size, installation date, location (both on a map and whether it’s located inside or outside), customer information, and historical data, such as past alarms, work orders, customer contacts and visits, and reading and billing information. This provides local operations supervisors and managers a real-time view of meter performance and the ability to more easily monitor and manage length of service meter replacements and identify and address potentially problem meters more timely. In addition, all this information is available to, and can updated by, our employees while they’re in the field so, here again, they have a full, real-time, view of information they can use to better serve our customers.

The Company is also rolling out W1V. This is a tool built by the field, for the field. It will provide a single view for managing work in the field, customer information and meter information. W1V includes a real-time operations map to see work orders with optimized routing, as well as other types of work and alerts happening nearby. In addition, using W1V, FSRs can manage their own work based on the day’s demands by adding or deferring undated work, and putting orders on hold to do emergency work needed at another location. Supervisors can also reroute work as appropriate. W1V will be integrated with C1V for easy access to customer information during field visits. It will also be integrated with
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Meter Ops and MapCall to provide FSRs one point of access for all information needs. Taken together, these types of improvements will continue to drive a better customer experience and level of satisfaction.

62. Q. How else is NJAWC using technology to improve customer service?

A. We are improving our web-based customer portal to allow self-service for billing, consumption information and conservation advice. We are making the portal more user friendly, accessible, and compliant with the Americans with Disabilities Act by, for example, using more graphical information.

We are upgrading our customer service infrastructure to improve interactions with customers and make customer information more easily accessible in the field. In addition to the tools described above, upgrades include replacing our CSC call management software and meter data management solution. Our new CSC telephone software system improves call routing, automates many call handling tasks and uses voice prompts to gather information, all of which serve to minimize the time customers have to spend on the telephone.

CSR One View provides CSRs access to relevant customer information more efficiently by bringing together information from multiple sources into a single, easy to use view. This will lead to more effective customer communications, service and outreach, as well as more effective utilization of CSC resources. CSR One View is being integrated with the customer portal to enable communications with customers via online chat. This integration should be completed by 2021.
63. Q. Are there technology solutions NJAWC is implementing to operate systems with improved efficiency, resiliency, and security?

A. Yes. NJAWC continues to focus on Automation and Controls (also referred to SCADA) capital projects throughout our operational areas and has multiple projects underway as discussed by Mr. Shields. The objectives of these improvements target areas that include data standardization and data consolidation, field instrumentation and control enhancements, remote terminal unit (“RTU”) standardization, as well as human machine interface (“HMI”) software and communication conformance. With these upgrades, sites are equipped with components that provide increased security, in addition to a higher level of resilience and reliability with updated infrastructure and an architecture that facilitates improved connections to our internal operations.

Upgrades have yielded cost savings of approximately $1.6 million from 2017-2019YTD with the transition from legacy communications lines to cellular based solutions. Aside from cost savings, these efforts have yielded additional data to be aggregated for analysis and increased visibility to operations. Furthermore, replacement of legacy equipment has allowed NJAWC to engage and solicit contracts from a longer list of vendors who were not options to support the hardware/software that reached its life expectancy.

With SCADA system standardization comes opportunities to replicate efforts that include:

- Solar panel backup systems at tanks
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- Tank turnover programming
- Anti-cavitation to protect pump assets
- Mobile alerting of equipment/process statuses

64. Q. Are there other technology solutions NJAWC is implementing to improve water efficiency?

A. Yes. The Company is implementing an enterprise-wide safety, incident and near miss management solution that integrates incident/near miss capture, reporting, claims, and analysis. The Company has also replaced its legacy, unsupported employee time management system with MyTime. MyTime enhances employee time collection and reporting and contributes to improved pay accuracy. It also provides employees with a better way to record time worked and time off, including the ability to record and view time on a mobile device.

65. Q. What energy savings initiatives has the Company implemented to control costs?

A. NJAWC’s planned capital investment for the Raritan Millstone Water Treatment Plant (“RMWTP”) includes a $15 million program to provide improvements to the low lift pump station. As described by Mr. Shields, these improvements included replacement of inefficient pumps and motors, along with suction and discharge piping and appurtenances, SCADA and instrumentation upgrades, control room expansion to enhance safety, and electrical upgrades associated with new pumps including the addition of variable frequency drives for two pumps.
The New Jersey Large Energy User Program (LEUP) is designed to promote self-investment in energy efficient projects for New Jersey’s largest commercial and industrial facilities. Reviewing the scope of the work at the Raritan Millstone Low Lift Station, NJAWC applied for an energy efficiency rebate for the improved efficiency of the pumps being replaced at the station. NJAWC had previously performed wire to water efficiency testing on the original RMWTP low lift pumps and once installed validated the manufacturers efficiency of the new pumps. The existing pumps had an average efficiency of 37% and by replacing these pumps with new efficient pumps it was determined that NJAWC would see an annual electric savings of 945,829 kWh as shown below.

<table>
<thead>
<tr>
<th>Pump ID</th>
<th>Tested Efficiency</th>
<th>Replaced Efficiency</th>
<th>kWh Saved</th>
<th>LEUP Rebate ($ 0.33 / kWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LL1</td>
<td>48%</td>
<td>83%</td>
<td>46,017</td>
<td>$ 15,186</td>
</tr>
<tr>
<td>LL2</td>
<td>27%</td>
<td>83%</td>
<td>37,000</td>
<td>$ 12,210</td>
</tr>
<tr>
<td>LL3</td>
<td>33%</td>
<td>83%</td>
<td>44,600</td>
<td>$ 14,718</td>
</tr>
<tr>
<td>LL4</td>
<td>30%</td>
<td>89%</td>
<td>53,247</td>
<td>$ 17,572</td>
</tr>
<tr>
<td>LL5</td>
<td>31%</td>
<td>89%</td>
<td>111,378</td>
<td>$ 36,755</td>
</tr>
<tr>
<td>LD1</td>
<td>45%</td>
<td>87%</td>
<td>303,500</td>
<td>$ 100,155</td>
</tr>
<tr>
<td>LD2</td>
<td>42%</td>
<td>87%</td>
<td>350,087</td>
<td>$ 115,529</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>37%</strong></td>
<td><strong>945,829</strong></td>
<td><strong>$ 312,124</strong></td>
<td></td>
</tr>
</tbody>
</table>

Applying the LEUP rebate of $0.33 per kWh, NJAWC received an efficiency rebate of $312,124 for this project, which has mitigated the requested increase in this case.

**System Maintenance**

66. Q. Please describe the key components of NJAWC system maintenance activities.
A. Keeping abreast of system maintenance is the hallmark of a healthy water distribution system. Among its core activities, NJAWC staff diligently completes annual maintenance programs, including length of service meter replacements, fire hydrant maintenance and valve exercising programs. These programs help us ensure that our assets are performing as expected, so that we can continue to provide the high quality, reliable service our customers have come to expect. In 2018, the Company replaced 100,839 meters, inspected all 45,534 fire hydrants and exercised 43,454 isolation valves.

67. Q. What is the guiding document used to establish maintenance program targets?
   A. NJAWC’s state-wide Asset Management Plan (“AMP”) is the guiding document for maintenance plan targets. The AMP was implemented by April 19, 2019 as required by the WQAA.

68. Q. Is New Jersey-American Water meeting its operational obligations under the Safe Drinking Water Act?
   A. Yes. The Company certified compliance with the Safe Drinking Water Act when submitting the certification for the WQAA on October 18, 2019.

69. Q. What other maintenance programs support the Company’s efficient operation of its system?
   A. NJAWC completes a number of programs designed to keep its water system operating efficiently. Pipeline replacement programs, described throughout the
testimony of Company witness Donald Shields, water flushing programs and Condition-Based Maintenance Program are among them.

70. Q. Please explain the Condition-Based Maintenance Program.

A. NJAWC employs a Condition-Based Maintenance Program on a rotating basis at facilities where electrical equipment is used. This equipment includes pumps, motors and electrical panels. In addition to visual, mechanical and audible inspections, a host of other in-depth inspections are performed. For example, thermal imaging tests are performed to determine excessive heat on electrical equipment like motors, electrical panels, transformers and safety switches. Vibration inspections are performed to determine deflection in a pump shaft, which is an indicator of potentially damaged pump or motor bearings. The Condition-Based Maintenance Program also includes electrical tests to determine proper operation of disconnects, breakers, fuses, contactors, voltage/protective equipment devices, etc. After the inspections are performed, a report is generated that categorizes severe or critical issues for immediate attention, as well as less severe issues for lower prioritization.

71. Q. How do NJAWC’s system maintenance efforts encourage operational efficiency?

A. System maintenance helps reduce failures and unexpected repairs, which are disruptive and expensive to correct. One of the byproducts of an adequately maintained system is fewer unexpected failures, which rarely occur at convenient times and, again, are costly to repair.
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Non-Revenue Water

72. **Q. What is non-revenue water ("NRW")?**

   A. Non-revenue water is the difference between system delivery and water sales. Typically, NRW is measured as a volume or a percentage of system delivery based on a 12-month rolling average. NRW is not just leakage, it also includes water for firefighting, annual flushing, theft, and meter inaccuracies.

73. **Q. Please describe the Company’s efforts to reduce its level of NRW.**

   A. In addition to utilizing its DSIC mechanism to accelerate the replacement of aging infrastructure in the Company’s service territory, NJAWC addresses apparent and real NRW losses using various industry-endorsed processes and practices, including an annual water loss management plan and water audits, as well as leak detection methods that are described below.

74. **Q. What is the Annual Water Loss Management Plan?**

   A. The plan objective is aligned with water accountability and loss control processes and practices promulgated by the AWWA. The processes and practices are found in the 4th Edition of the AWWA Manual 36 publication *Water Audits and Loss Control Programs*. Incorporated by reference is AWWA Water Audit software, currently version 5.0, which includes an additional auditing capability which “grades” the validity of the water audit input data. The grading measure also provides guidance on the means to improve data collection and therefore the functionality of the water audit.
Q. Has NJAWC performed water audits throughout its system?

A. Yes. NJAWC has performed extensive water audits throughout its service territory. Beginning in 2013, water audits have been completed annually for systems in the jurisdiction of the Delaware River Basin Commission ("DRBC").

Beginning in 2016, the Company submitted water audits to NJDEP for systems that were impacted by the NJDEP 2016 drought warning.

In addition, in the latest closed calendar year (2018), the Company performed water audits for another half dozen systems.

Therefore, the Company has completed water audits of all its systems that have the proper parameters for a standard water audit – that is 24 of 36 systems. While the Company tracks NRW performance and other indicators for every operating system, water audits have limited applicability for very small systems. Where customer density is less than 32 connections per mile and system overall size is less than 5,000 customers, the water audit benefits are limited. For these small systems, NJAWC performs a basic water balance. A basic water balance compiles system delivery and sales data for a discrete area. Both of these data elements are tracked over many years. Trends in the data are then used to determine if the system is operating efficiently or if there is excessive water loss which requires remedial actions.
76. Q. What indicators are reported within the water audit?

A. The water audit provides five key indicators as reported by the Reporting Worksheet of the AWWA Water Audit Software. These indicators are:

1) Apparent Losses: The sum of unauthorized consumption, customer metering inaccuracies, and systematic data handling errors;

2) Real Losses: Total water losses less Apparent Losses;

3) NRW: Total water losses including unbilled metered, unbilled unmetered, and authorized Company use;

4) Financial Indicators: NRW as a percentage by volume supplied and NRW as a percentage by cost of operating system; and

5) Operational Efficiency: Unavoidable Annual Real Losses (“UARL”), Current Annual Real Losses (“CARL”), and Infrastructure Leakage Index (“ILI”) or CARL/UARL. The dimensionless indicator of system performance is the ILI. The ILI is a highly effective performance indicator for comparing (benchmarking) the performance of utilities in operational management of real losses.

77. Q. How does NJAWC use the information it gathers through its water audits to manage NRW?
A. The information gathered is analyzed and action plans are developed for NRW management and reduction as part of NJAWC’s overall water loss management strategy.

Q. What are the main characteristics of the Company’s NRW strategy?

A. The Company’s NRW strategy follows the latest industry-accepted standards including the water audit methodology set out above, while also working to maximize customer satisfaction and operational efficiency at an acceptable level of risk. The key elements include the following:

1) providing accurate, regular metering of production flows and customer consumption volumes;

2) maintaining a system of real time hydraulic data collection and monitoring via SCADA, Advanced Metering Infrastructure (“AMI”), or similar system of instruments and data collection technology;

3) compiling an annual water audit as a standard business practice for qualifying systems; and

4) employing sufficient loss control methods to contain water and revenue losses at economic levels and to minimize system upsets.
Q. What efforts has the Company employed to align functional areas of the

Company to support the NRW efforts?

A. In 2013, NJAWC established a business unit to manage the Company’s water loss. This team of water loss professionals measures and analyzes the losses and advises the Company on the type of water loss management that is appropriate in each district. Programs are statewide and include leak detection, pressure management, water audits, reduction of theft of services, monitoring zero consumption, and leaks on customers’ lines. In 2016, the team was realigned with the SCADA team, the work management team (MapCall) and the T&I service technicians. This realignment allows for a more rapid engagement in data management and quality and engineering opportunities and issues. An example of these opportunities include reviewing areas of apparent high pressure to determine if additional pressure management or modulation is feasible, creation of additional district metered areas, use of innovative technologies to perform condition assessment and leak detection on transmission mains, and supplementing existing leak detection tools with additional equipment. The team has direct input into Company practices on system delivery, sales and NRW. Moreover, the team can directly engage the asset planning group and GIS group, and is now fully aligned with the various comprehensive planning studies and capital improvement projects associated with the engineering group. In 2018, the organizational structure was again modified to embed project managers into local
operations that are responsible for the daily implementation of water loss strategies and to ensure projects related to water loss management are delivered.

80. Q. What are real losses?
A. Real losses are physical losses of water from the distribution system, including leakage from pipes and any associated appurtenance and tank overflows.

81. Q. What does the Company do to reduce real losses?
A. In addition to using DSIC to support the continued accelerated replacement of aging infrastructure, the Company is also addressing real losses through its leak detection efforts. The Company is actively working to identify leaks and to repair them. The Company’s ability to quickly address these leaks saves customers from potential disruptions of service, and saves the Company the increased costs associated with losing millions of gallons of treated and pumped water. Employees have been afforded technical training from both internal and external resources and have been provided with new tools to perform proactive leak work. Likewise, surfacing leaks are often pinpointed by these employees and are quickly repaired, resulting in improvement in reducing real losses. The Company has an established internal goal of repairing 90 percent of all leaks within 96 hours of finding them. (This 96-hour time period provides the time for mobilization and for One Call mark outs.) As a result, 1,432 and 1,140 miles of mains were proactively or reactively surveyed in 2017 and 2018, respectively. These surveys resulted in the location of 448 leaks in 2017 and 438 leaks in 2018. Many of these leaks had no surface indications.
Q. Please describe the specific methods that the Company uses to actively control leaks.

A. Leak surveying is typically done on a proactive basis when leaks are suspected to be a significant contributing factor to NRW. Focused, proactive surveys are mainly conducted in the Raritan and Essex/Passaic Districts, where the distribution network is generally older and more prone to failure due the geographic variations and consolidated geology. The Company also has completed numerous leak surveys of its Warren systems. Currently, these systems are either proactively surveyed or continuously monitored acoustically. We have seen an immediate improvement in the systems’ water losses, where leaks on our mains, hydrants, valves and both Company-side and customer-side service lines have been located. During 2017 and 2018, these efforts resulted in the identification and repair of 886 leaks.

Additionally, targeted Company employees now receive more leak detection training across the state, and the Company purchased additional equipment (discussed below) for continuous, proactive leak detection work in the Delaware, Coastal North and Coastal South Districts as deemed necessary. For the Essex/Passaic and Raritan Districts, the Company has increased the number of man hours spent on proactive leak surveying. The additional manpower has enabled the leak detection teams to provide multiple benefits: proactively locating leaks prior to surfacing; pinpointing leaks; and supporting permanent acoustic monitoring efforts. Additionally, leak detection on large-diameter transmission
mains, those water mains 16 inches in diameter and greater, and other high-risk buried linear assets, is outsourced to third party service providers. The result of these activities contribute to the Company’s prioritization of pipe rehabilitation.

83. Q. Please describe the way in which NJAWC uses technology to identify leaks.

A. The Company utilizes state of the art active listening technology for leak detection. The EchoShoreDX platform incorporates the latest generation of acoustic sensors that are the result of Echologics’s pioneering success with correlating leaks on a variety of pipe materials and large diameter mains. The sensors are built into a standard fire hydrant cap and are capable of identifying extremely faint acoustical noises emitted by leaks before they become detectable by conventional methods. This early detection capability enables the Company to prioritize repairs based on actual need and the most effective allocation of repair crews. The EchoShoreDX is stationary and designed to be deployed as continuous monitoring in an area-wide grid system. Data from the listening nodes is either sent directly to a cell based collector or repeated to a collector. The data is then uploaded nightly to an internet cloud based system, processed and graphically displayed on New Jersey-American Water’s GIS mapping system. The Company first installed this technology in late 2015 and continues its deployment consistent with district comprehensive planning studies, installing over 7,000 devices (nodes) throughout the state to date.
84. **Q. What are apparent losses?**

A. Apparent losses are non-physical losses that occur in utility operations due to customer meter inaccuracies, systematic data handling errors in customer billing systems, and unauthorized consumption. This is water that is consumed, but not properly measured, accounted or paid for.

85. **Q. What does the Company do to manage apparent losses?**

A. The Company monitors its customer database system and billing system losses. These are monitored and improved through a team of internal resources. These team members look for inactive accounts/premises with consumption (or vice versa), premise mismatches and consecutive zero consumptions. These exceptions are processed into work orders that determine and eliminate the issue that caused the exception. Currently in development is the utilization of GIS analytics to allow greater flexibility in reviewing data tables of consumption, rate class, public water system identification number (“PWSID”) and pressure gradient. This is in its early stages, and these tools are being customized based upon user experience and results.

86. **Q. How does NJAWC’s meter program help manage apparent losses?**

A. The meter program is managed by our field services teams. We monitor our successful reads on a monthly basis, with a goal of minimizing estimated bills. Additionally, we ensure that our periodic testing of meters meets BPU requirements and engage in meter testing and studies to help manage apparent losses.
Q. Please describe how meter testing and meter studies are utilized in reducing apparent losses.

A. The Company employs large meter testing and profiling, pressure zone management, and zonal metering studies, which are described below.

Large Meter Testing and Profiling

This is conducted by both our production (bulk sales and inter-district transfers) and distribution (large customer meters) teams. All production meters were tested in 2018 for flow and scaling accuracy. The Company has also analyzed consumption patterns to determine if the customers’ meters are still appropriate for their current consumption rates, and if not, the installation of new meters is recommended. Moreover, where feasible, turbine meters are being replaced with more accurate compound meters.

Pressure Zone Management and Zonal Metering Studies

These studies are conducted in conjunction with each district’s comprehensive planning study (“CPS”). Pressure management ensures that we are providing our customers with appropriate pressures in the distribution system. When distribution system pressures are too high, background leakage occurs at a greater rate. Zonal metering is now universally supported and can help the Company determine whether smaller and very well-defined zones within the distribution system should be created. Additional metering sites connected to the SCADA system have been identified to provide additional data for compilation and
NEW JERSEY-AMERICAN WATER COMPANY, INC.

analysis of NRW. This data will be utilized in determining zonal consumption patterns. The Company is exploring additional options relative to pressure management and district metering, including an innovative modulation device for pressure reducing valves (“PRV”) in Belvidere where preliminary results are encouraging. The Belvidere system experienced an improvement of 5% in the NRW volume as a result of the PRV modulation project. Additional pressure reduction opportunities are being investigated by NJAWC’s Asset Planning group in concert with the Service Company engineering team. Those studies are focused on the Central (Raritan) district and are scheduled in 2020.

88. Q. How does the Company work to reduce unauthorized consumption?
A. Unauthorized consumption may be determined in a variety of ways. In addition to the approaches discussed above, the Company has continued its Theft of Service (“TOS”) program whereby our employees are educated and encouraged to spot and report any potential water consumption that is not authorized. The TOS program often finds unmetered irrigation systems, bypasses, upstream (of the metering point) connections and unauthorized hydrant use, all of which contribute to the NRW. Since inception in July of 2008, there have been 1,980 reports of TOS that have been successfully investigated and resolved.

89. Q. Has the Company employed other efforts in managing NRW?
A. Yes. In 2016, the Company realigned internal resources to align the water loss team, SCADA, and work management team into an instrumentation and controls group. A team of information technologists was also assigned to work with this
team. Using a third party integrator, a web-based tool was developed to pull data from multiple sources to provide one view of NRW and automatically calculate, on a monthly basis, the NRW metrics stated previously. By automating the process, the teams are now focusing on improved analytics to provide targeted guidance on asset management and NRW management. The tool has integrated system delivery, both raw and refined, consumption data, both raw (meter reads) and refined (billed consumption), pressure data, work management data (leaks) and internal and external GIS information.

The development of this tool leads to the preparation of an auditing process for system delivery, which follows the water from source, through the metering and data delivery stream, to the data storage database. This has standardized the data process for system delivery, thus improving the quality of the system delivery database. The data now meets the highest level of criteria required in the water audit grading process.

90. **Q. What has been the result of the Company’s efforts?**

A. The Company has reduced levels of NRW through its targeted and enhanced efforts at managing real and apparent losses. For example, focused efforts in Essex/Passaic District have yielded positive results, reducing NRW from 27.7% to 19.9% between November 2015 and November 2019.
91. **Q. What is NJAWC’s proposed staffing level in this case?**

A. The Company has identified 885.5 full time equivalent (“FTE”) employees as the appropriate staffing level for the Company’s water and wastewater operations, which includes part-time employees. The number of employees is based upon each department’s and functional area’s plans to continue providing safe, adequate, reliable and affordable service to our customers. On a regular basis, monthly, quarterly and annual performance metrics ranging from safety, customer service, financial, asset creation, asset maintenance and regulatory compliance is reviewed to ensure desired service levels and performance is achieved within each region/department. If an area is underperforming, an assessment is conducted to determine if there is a performance or resource issue.

Service needs and related resource requirements are consistent with meeting regulatory requirements, tariff requirements, industry standards, service requests, customer needs, and providing support to the business operations in the most cost-effective way to best serve the long-term interests of our customers. The direct testimony of Jamie Hawn explains how the Company’s labor and labor-related costs were quantified, including the vacancy ratio applied to the 885.5 FTEs.

92. **Q. Is the Company undertaking any initiatives aimed at ensuring that it is attracting and retaining highly qualified and motivated employees?**

A. Yes. In 2010, American Water initiated a succession / replenishment initiative across the enterprise, including NJAWC. This initiative is a multi-year effort that
NEW JERSEY-AMERICAN WATER COMPANY, INC.

focuses on where critical business knowledge resides, and the risks regarding
retirement and retention of employees who possess that critical knowledge. The
program has evolved to include an annual assessment of all management to
identify the development requirements for future leaders. Development
opportunities include position reassignments, pre-retirement position overlap,
continuing education, leadership and skill training. For critical positions, we are
cross training our staff to facilitate knowledge transfer and mentoring. Within
the bargaining unit we have specifically developed and deliver training for new
Utility Mechanics, Backhoe Operators, Field Service Representatives,
Maintenance Mechanics positions. The aim is to document and effectively
transfer knowledge to other and new employees over time in order to avoid a
“knowledge vacuum” at the Company when long-termed employees leave the
business.

Compensation

93. Q. Please identify the various employee classifications at NJAWC and briefly
describe how each group is compensated.

A. There are three classifications of employees at NJAWC: union hourly employees,
non-union hourly employees, and exempt employees. As Ms. Hawn discusses in
her Direct Testimony, union and non-union hourly employees receive base pay
and variable pay in the form of overtime pay, (in some cases shift premiums and
meals), and are eligible for performance pay. Exempt employees receive base
pay and are eligible for performance pay. Each classification of employees’ total
compensation, therefore, includes fixed pay (base pay) and some form(s) of variable pay (e.g., overtime, shift pay, or performance pay).

94. Q. What level of compensation does NJAWC aim to provide?
A. New Jersey-American Water aims to offer compensation that is on par with that offered by the companies that NJAWC competes with for employees so we can attract and maintain committed, dedicated and highly qualified employees. Therefore, the Company targets its total direct compensation (base and variable compensation) for each role near the market median (50th percentile). The Company’s compensation program is designed to provide employees with a total compensation package on par with those offered by companies with which it competes for employees. By using a combination of fixed and variable compensation that includes performance compensation, NJAWC satisfies a dual objective of reasonably compensating our employees while motivating them to achieve goals that improve performance and efficiency to benefit our customers.

95. Q. How is performance compensation provided to NJAWC employees?
A. Performance pay may be awarded under two plans – the Annual Performance Plan (“APP”) and the Long Term Performance Plan (“LTPP”). All full-time employees participate in the APP. Eligibility for the LTPP is limited to certain exempt employees.
Q. You say all full-time employees participate in the APP; does that include union employees?

A. Yes, it does. Our bargaining unit employees became eligible for APP in 2018, with their first payments in 2019.

Q. How should NJAWC’s employee compensation expense be assessed?

A. Employee compensation is a necessary cost of providing utility service. Therefore, it should be assessed through the same lens as other necessary operating costs: if it is prudently incurred and reasonable in amount, relative to what the industry pays for the same services, it should be recoverable through rates. The focus should be on the reasonableness of the Company’s overall level of compensation, giving management the discretion to design the compensation package that is best structured to compensate employees properly and to motivate efficiency, safety, courtesy and other valuable employee traits. If the Company’s overall compensation level is reasonable and in line with or below the market, regardless of the combination of fixed and variable payments that the employees earn, then the Company’s overall compensation expense is reasonable and prudently incurred and should be recoverable.

Q. Is the Company’s performance compensation program reasonable?

A. Yes. The Company retained the services of Willis Towers Watson (“WTW”) to perform a total compensation study and review of the competitiveness and reasonableness of NJAWC’s compensation program. The findings of WTW’s compensation study are described in Sections IV-VIII of the Direct Testimony of
Robert V. Mustich. Mr. Mustich and WTW’s study reached the following conclusions:

- NJAWC’s overall total direct compensation – which includes base compensation and all performance compensation – is within the competitive market range.
- American Water’s short-term performance pay program (APP) is comparable to and competitive with plan designs of other similarly sized utilities.
- American Water’s long-term performance pay (LTPP) is comparable to and competitive with plan designs of other similarly sized utilities.
- The various comparative studies performed by WTW show that NJAWC’s total direct compensation programs are comparable to and competitive with market practices of other similarly-sized utilities and are therefore reasonable.
- Therefore, on a total direct compensation basis, NJAWC’s compensation expense is reasonable.

Q. Is the Company’s base and performance compensation a prudently incurred expense?

A. Yes. If we compensated our employees based entirely on base wages and salaries, and those expenses were within the reasonable range of salaries and wages for similarly situated companies, those expenses should be considered prudently incurred. The fact that part of that compensation is in fact based upon
performance does not increase the level of overall compensation expense. As Mr. Mustich has demonstrated in Sections IV-VIII of his Direct Testimony, NJAWC’s overall total direct compensation – which includes base compensation and all performance compensation – is within the competitive market range. Therefore, NJAWC’s total compensation expense is reasonable and prudently incurred.

100. Q. Is providing appropriate levels of compensation to employees critical to ensure the Company can continue to provide safe and adequate service?

A. Yes, it is. Recruitment of skilled workers, as well as the retention of existing trained workers, is critical to continuing to provide safe drinking water and perform satisfactory customer service. Competition among companies to attract and retain the best and highest performing employees is keen. In recruiting new employees or retaining existing employees, both the Company and American Water compete with general industry in surrounding regions and nationally. Without the ability to provide competitive and customary compensation and benefits, the Company could be hampered in its efforts to attract new employees and retain existing employees, especially when competing with other utilities and other industries for this talent. Especially with respect to employee retention, the loss of skilled employees imposes a real cost on a company which then needs to attract and train replacements. The Company’s compensation program seeks to provide employees with a total compensation package on par with those offered by companies with which it competes for employees.
Performance Compensation Plans

101. Q. Please describe the key performance objectives underlying the APP.

A. Management and hourly non-union employees’ APP pay is based on a combination of individual performance and achievement of plan goals. Union employees’ performance pay was established through collective bargaining and is based on the achievement of plan goals. For 2019, the APP goals are as follows:

<table>
<thead>
<tr>
<th>STRATEGY</th>
<th>GOAL</th>
<th>TARGET</th>
<th>WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAFETY &amp; PEOPLE</td>
<td>OSHA Recordable Incident Rate</td>
<td>1.3</td>
<td>7.5%</td>
</tr>
<tr>
<td></td>
<td>DART Rate (Days Away Restricted or Transferred)</td>
<td>0.9</td>
<td>7.5%</td>
</tr>
<tr>
<td>CUSTOMER</td>
<td>Customer Satisfaction Survey</td>
<td>First Quartile in Industry Benchmarking</td>
<td>15%</td>
</tr>
<tr>
<td>ENVIRONMENTAL LEADERSHIP</td>
<td>Drinking Water Quality</td>
<td>20x over Industry Average</td>
<td>10%</td>
</tr>
<tr>
<td>OPERATIONAL EXCELLENCE</td>
<td>Operational Efficiency Improvement</td>
<td>34.5%</td>
<td>10%</td>
</tr>
<tr>
<td>GROWTH</td>
<td>Financial/Earnings Per Share</td>
<td>$3.54 - $3.64</td>
<td>50%</td>
</tr>
</tbody>
</table>

102. Q. Please describe the LTPP.

A. American Water provides restricted stock units ("RSUs") and performance stock units ("PSUs") as long-term variable compensation under the LTPP. American Water’s RSUs and PSUs are based on three-year vesting periods. RSUs are based on time-based vesting and PSUs are based on performance vesting conditions.¹

¹ American Water uses a combination of compounded EPS growth and relative total shareholder return ("TSR") ranking over a three-year performance period as the basis for measuring performance for PSU awards. For the portion of American Water’s PSUs that are contingent on relative TSR percentile performance, American Water compares performance to its peer group.
103. Q. Do New Jersey-American Water’s performance compensation plans benefit customers?

A. Yes. The Company’s performance compensation plans align the interests of our customers, employees and investors. The plans emphasize customer service, environmental compliance, a safe work environment, and other operational goals, as well as certain financial goals. All of the APP and LTPP Plans’ performance objectives – both operational and financial – focus employees’ efforts in ways that benefit customers.

104. Q. How do the operational goals of the APP benefit customers?

A. The operational goals of the APP are designed to focus plan participants on the performance results that can most directly influence customer satisfaction, health and safety, and environmental performance. Customers benefit from the plan goals because operational performance is improved by controlling costs, capturing efficiencies, promoting effective safety and risk management practices, and enhancing customer service. Performance is determined by goals that directly benefit customers by creating a more productive workforce that is focused on customer satisfaction and achieving efficiency, environmental and safety goals.

105. Q. How do the financial goals of the APP and the LTPP benefit customers?

A. The financial goals of the APP and LTPP benefit customers in many ways. Importantly, to achieve performance pay financial goals, such as targeted earnings per share (“EPS”) performance, demands attention to operating
efficiency. That is, unless the utility controls its operating costs, it cannot achieve
a targeted EPS. Financial-goal based performance pay ensures that employees at
all levels of the organization, and not just the upper ranks, remain focused on
increasing efficiency, decreasing waste, and boosting overall productivity. As a
result, incentivizing employees to control operating costs unquestionably benefits
customers, because it mitigates the need for rate increases and thus potentially the
frequency of rate cases. Consequently, when financial performance is achieved
through efficiency, as is the case for New Jersey-American Water, the interests
of customers, employees and investors are aligned.

106. Q. Does incentivizing employees to control and reduce operating costs provide
other customer benefits?

A. Yes. Where NJAWC can reduce operating expenses, it can increase investment
in infrastructure without increasing rates, because every dollar of operating
expenses saved can fund over $8 of investment. Therefore, customers also benefit
from NJAWC’s enhanced ability to invest in the infrastructure that it needs to
meet its service obligations to customers. Thus, it is simply wrong and short-
sighted to assume that customers receive no appreciable benefit from financial-

107. Q. How else does financial-goal based performance pay benefit customers?

A. Financial-goal based performance pay mitigates the cost of service to customers
another way. Water and wastewater operations are capital intensive. Using low-
cost debt and internal funds to finance water and wastewater infrastructure
investment mitigates the financing costs that customers ultimately pay through rates. The availability of those sources of capital at reasonable costs, however, depends on the utility’s financial performance, including credit and bond ratings. So it is important to focus utility employees on the financial health of the organization. Simply put, a financially healthy utility benefits customers because it enables the utility to meet its service obligations at reasonable financing costs.

108. Q. Are there other ways that financial-goal based performance pay benefits customers?
A. Yes. Long-term financial-goal performance pay programs, such as the LTPP, are particularly intended to reduce attrition at the higher ranks of the organization. Excessive instability at that level may have significant negative financial effects on the organization, such as on EPS, which ultimately impact customer rates. Additionally, senior management turnover and the loss of expertise can degrade the continuity of strategy and execution. So, as Mr. Mustich explains, these types of performance pay programs are well accepted in the industry. Importantly, the LTPP achieves its goals of reducing leadership attrition at a lower cost to customers than simply increasing leadership’s base pay, because performance pay under the LTPP is stock-based. Employees must remain with the organization to realize the vesting of their awards.

109. Q. How have NJAWC’s customers benefited from NJAWC’s achievement of the safety, customer satisfaction, environmental leadership, and operational
efficiency goals under its performance pay program from the years of 2016 to date?

A. NJAWC’s performance in these areas over the last several years, incentivized by its short-term variable pay plans, makes clear the operational improvements that benefit customers. For example, 2019 year to date results compared to 2016 numbers demonstrate improvement in each of the following operational metrics:

<table>
<thead>
<tr>
<th>Operational Metric</th>
<th>2016</th>
<th>2019 YTD</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSHA Recordable Incident Rate</td>
<td>3.39</td>
<td>1.17</td>
</tr>
<tr>
<td>OSHA Days Away/Restricted or Job Transfer Rate</td>
<td>N/A</td>
<td>0.52</td>
</tr>
<tr>
<td>Customer Satisfaction</td>
<td>84%</td>
<td>83%</td>
</tr>
<tr>
<td>BPU Inquiries</td>
<td>618</td>
<td>519</td>
</tr>
<tr>
<td>Water Quality Inquiries</td>
<td>7,579</td>
<td>5,243</td>
</tr>
<tr>
<td>O&amp;M Efficiency Ratio</td>
<td>30.1%</td>
<td>29.3%</td>
</tr>
</tbody>
</table>

Reducing OSHA incidents increases safety—customer safety and employee safety. No one can credibly dispute the benefits of improved safety. Further, reduced accidents reduce the attendant costs—workers’ compensation, damage repair, etc.—which mitigates the operating costs that customers pay through rates.

NJAWC continues to improve its performance in reporting near misses, another illustration of the Company’s high-performing safety culture. Exceptional safety performance reflects an engaged workforce that is focused on providing safe, reliable and affordable service to NJAWC’s customers.

Maintaining and improving high quality customer satisfaction and service quality also provide customer benefits. NJAWC’s customer satisfaction performance goals measure customer contacts at NJAWC’s call centers and in the field. They are benchmarked against other utilities’ performance, as reported by third-party

Customer satisfaction often goes hand-in-hand with reduced customer complaints to the Board. NJAWC’s BPU inquiries for 2019\(^2\) are down by 9% as compared to 2016 levels.

Finally, increases in operational efficiency equate to controlled or reduced operating costs. Reduced or controlled operating expenses benefit customers by reducing or controlling the costs ultimately recovered through rates and increasing the time between rate cases. Financial performance goes hand-in-hand with the operational efficiencies that mitigate costs and, therefore, rate increases.

As discussed above, NJAWC’s proposed O&M expenses have dropped from $335 per customer in 2010 to $309 per customer. This over $25 per customer reduction in operating expenses since 2010 is the result of improvements in operating efficiency driven by employees that are incentivized, through compensation, to find ways to be more productive and efficient. Please keep in mind that operating expenses include the assimilation of all acquisitions the

\(^2\) The Company estimated the number of 2019 BPU inquiries at 576 using 11 months of actual 2019 data and historical data from December 2018.
Company has made since 2010, the effects of inflation over the 9 year period and the fact that performance pay is included in operating expenses. This also includes performance pay increases due to the inclusion of union employees in the Company’s at-risk employee compensation program. The Company saw the exceptional benefits of this compensation program with management and the effects it had on controlling and reducing operating expenses and thought to include all employees in an effort to further improve efficiencies.

110. Q. Is there other evidence of the tangible benefit to customers from NJAWC’s performance pay programs?

A. Yes. Again, it’s important to consider the impact of a utility’s financial health on its access to reasonable cost capital. NJAWC’s customers have benefitted from the Company’s access to capital at favorable rates. Because utilities are capital intensive and must constantly and consistently access the capital markets at reasonable costs, plainly, customers benefit when their utility has the financial health to do so. In fact, as Mr. Tomac explains, NJAWC has been able to achieve approximately $14 million in annual interest expense savings associated with favorable refinancing terms.

Also, customers receive a benefit when a utility retains a talented workforce, because a stable workforce avoids the costs of hiring and training new employees. Because NJAWC’s performance pay program makes NJAWC employees’ total compensation reasonable, as Mr. Mustich explains, the Company’s performance pay helps ensure a stable workforce.
111. Q. Please summarize why it is appropriate to include in rates the costs of the 

    Company’s performance-based compensation.

A. The Company’s performance compensation plans align the interests of our 
customers, employees and investors. They contain tangible goals that are 
designed to do several things. They measure and compensate employees for 
performance based on delivering clean, safe, reliable and affordable water service 
and providing good customer service when doing so. The operational components 
measure performance that can most directly influence customer satisfaction, 
health and safety, environmental performance, and operational efficiency. 
Customers derive a direct benefit from our focus on these key measures in the 
plan. Further, the plans’ well-grounded financial measures keep the organization 
focused on improved performance at all levels of the organization, particularly in 
increasing efficiency, decreasing waste, and boosting overall productivity. As 
discussed earlier, the Company has demonstrated that its overall compensation 
levels are in line with the market, and thus, are a reasonable and prudently 
incurred cost of service that is appropriate for inclusion in rates.

112. Q. Does this conclude your direct testimony?

A. Yes, it does.
Q. Please describe your educational background and professional associations.

A. I hold a bachelor of science from the New Jersey Institute of Technology, W-2, T-2, and professional engineering licenses. I am a member of the American Water Works Association (“AWWA”).

Q. What has been your business experience?

A. I have 31 years of experience in the water industry. I joined American Water as an Engineering Technician in 1988 inspecting the construction of tanks, booster stations and transmission mains. I also worked with developers and engineers to extend the water system in our system development department. In 1997, I joined the Operations department as a Distribution Supervisor. I have held progressively responsible positions in the operations group including superintendent, manager, director and Sr. Director until being promoted to my current position as VP of operations in November of 2018.